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A to E

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ENCYCLOPEDIA TECHNICA

A to E

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CHAPTERS

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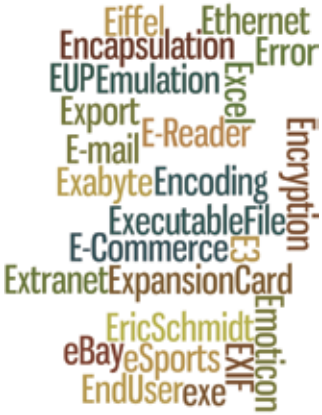

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Introduction

Encyclopedias are informative, and take great pains to try and cover as much of everything that they can, and give you a whole load of facts, which is great for trivia junkies. Wikipedia is perhaps the largest Encyclopedia there is, and is a fantastic repository of knowledge, but so verbose that you could spend the rest of your life reading every entry and not get even quarter of the way there before the Grim Reaper comes a-knocking. It's a repository of everything, when sometimes all we just want a repository of everything important instead.

Digit has always tried to help you navigate the confusing world of technology, and that's where our Jargon Busters for confusing terms, and little trivia books (remember Digit mini?) come in. However, there wasn't one single collection for everything that's important. Until now, that is.

With this Encyclopedia Technica, we're trying to sift through the millions (billions?) of tech terms and notable people out there to come up with a must know list – discarding what we think you already know, or don't need to know. We've also thrown in some interesting trivia, for example:

Did you know that software errors and bugs cost the US economy $59 billion annually? That's over Rs 32 lakh crores! Did you know that right until 2009, Google co-founder Eric Schmidt was on the board of Apple (their rival), or that 295 exabytes is equivalent to roughly 404 billion CD-ROMs and stacking them up can create a pile from here to the moon?

Without further ado, we give you the first part of the Encyclopedia Technica... remember to write in to *editor@thinkdigit.com* and let us know your thoughts about this book, and what you would like more of in the next edition.

Aakash

Aakash is a series of Android-based tablets produced by British company Datawind in association with the Indian Government, IIT Bombay and an India-based manufacturer QUAD.

Aakash is presently the most economical tablet in the world. Commercially named Ubislate 7+ it's available for $60 in the market with a 50% discount for students.

Aakash is a 7-inch touch screen with ARM 11 processor and 256MB RAM, running Android 2.2 OS. Aakash 1 was developed with an aim to reach 25,000 colleges and 400 universities across India and provide all students at least one computing device, as part of the "One Laptop per Child (OLPC)" scheme.

Aakash 2 (UbiSlate 7 Ci) was released on November 11th, 2012 with a supposedly better processor. It was developed in association with IIT Rajasthan.

Accelerated Graphics Port (AGP)

The AGP port was designed by Intel in August 1997 for video cards and 3D card accelerators. AGP is the brainchild of Ajay Bhatt, Intel's Chief I/O architect, who was also behind the invention of USB ports (Remember that Intel advert with an Indian walking around like a rockstar?!). AGP was a milestone in the area of video cards and GPUs. AGP introduced a dedicated point-to-point channel due to which the graphic controller can directly access the system memory. AGP allows 3D textures to be stored in the main memory rather than the video memory – a significant development over the PCI bus. This increases bandwidth and supports more powerful graphics.

A much advanced AGP Pro was developed later; it provided more power to video cards.

Earlier, not all operating systems and motherboards supported AGP due to limited or no driver support. By 2010, however, many motherboards were produced with the AGP slots.

ActionScript

ActionScript is an object-oriented scripting language based on the ECMAScript (European Computer Manufacturers Association) and is used majorly in applications such as Flash. The language is strikingly similar to JavaScript. With the help of ActionScript, you can control the actions of Flash objects. It's also used for game programming, basic Flash animations and in the construction of multimedia websites, e-commerce websites and community portals.

With online gaming gaining popularity since the early 90s, ActionScript has become one of the most widely used programming languages. The numbers of APIs developed for ActionScript were sky-high. Many physics engines such as Box 2D were developed to merge with ActionScript and Flash, helping speed up the game development process. But since Apple stopped supporting Flash on iOS devices, ActionScript and Flash witnessed a major downfall.

Adobe came up with an extension of Adobe AIR that could port the Flash game onto iOS. Let's see how this changes the use of ActionScript.

Active Shutter 3D Technology

Active Shutter Technology is one of the technologies used to display stereoscopic 3D images. This technology was expected to be part of every household in 3D TVs by 2012. But, that couldn't be achieved due to drawbacks to this technology.

This technology needs alternate-frame sequencing power shutter glasses, which alternately block the output for each eye. Hence, the image for the left eye is displayed and right eye is blocked and image for the right eye is displayed while the left one is blocked. This happens at a high speed (120Hz) and gives a perception of 3D. An infrared signal sent from the device helps blank out images in the glasses. So the glasses and the device have to be from the same manufacturer, and the glasses are pretty expensive.

The other technologies used to display 3D images are -

Passive Shutter 3D technology, which is used in cinema theatres and is comparatively cheaper than Active Shutter and

Auto Stereoscopy, which doesn't need glasses to display 3D images. This technology is used in Nintendo 3DS, a gaming device.

ActiveX

ActiveX is a framework developed by Microsoft for defining reusable software components, like an API. This is a programming-language independent framework and hence can be used in a wide range of applications. It was developed to simplify the complex processes of Object Linking and Embedding (technology that allows linking to documents and objects) and Component Object Modeling (used for inter-process communication). Many of Microsoft's applications such as Internet Explorer, Office, Visual Studio and Media Player use ActiveX controls.

ActiveX helps make web browsers more interactive. Functionalities like opening PDF files within the browser can be included with the help of ActiveX controls. ActiveX controls dynamically vary depending upon the website that's accessing them. These controls are basically like browser add-ons and hence each has different functions such as enhancing security or enhancing video content.

Since ActiveX automatically downloads itself and installs during browsing, Microsoft had to work on plenty of security issues to secure the browsing session. It recently made ActiveX an Open Source technology to encourage developers to join in.

Ad-hoc network

Ad-hoc is a Local Area Network that is built spontaneously and doesn't rely on pre-existing infrastructure such as routers, etc. Hence, all devices in an ad-hoc network have equal status on a network and participate in routing and data-forwarding. Data packets are dynamically forwarded to and from each other. It's useful in areas where central nodes don't exist or can't be relied upon. This is widely used in emergency situations and military conflicts. Ad-hoc networks can be easily and quickly deployed which increases its application domain.

Two types of ad-hoc networks are possible depending upon the devices that are connected:

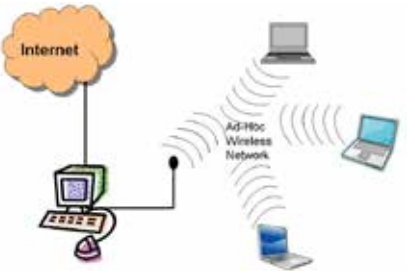
Heterogeneous, where each machine has different capabilities and hence performs different actions and Homogeneous, where all machines/nodes have the same capabilities and hence the same responsibility.

Three types of ad-hoc networks exist on the basis of its application:

1. Mobile Ad-Hoc networks: A network of mobile devices.

2. Wireless Mesh networks: A network of radio nodes in a mesh topology.

3. Wireless Sensor networks: A network of distributed autonomous sensors to monitor physical or environmental conditions.



Address Resolution Protocol (ARP):

ARP is an internet protocol used to map the IP networking address to the physical MAC address of a machine. This is a protocol used to resolve the address of the client machine that makes a request to know his machine address/MAC (Medium Access Control). The server machine which is on a remote computer gets a piece of information from the ARP which helps it uniquely identify the client machine. The whole process completes when the client receives a response from the server containing the required address. There are two types of ARP: Gratuitous and Proxy. Proxy ARP is more vulnerable to security threats and hence Gratuitous is used more often.

The reverse process i.e. finding the IP address can be done with the help of Reverse ARP. In this case, the client sends it physical/MAC address and then the server replies with the IP address.

Adobe

Adobe Systems Inc., headquartered at San Jose California, is an American multinational company which focused on multimedia and creativity software products until recently extending into Internet Application Software Development. Adobe was founded by two ex-Xerox employees in 1982, and ironically its first project was a licensing of "PostScript" that Apple gave them to use in their LaserWriter printers.

Over the years, Adobe has developed some remarkable products such as Photoshop, Flash, AIR, After Effects, Premier and PDF Reader, which they provide individually and also as a package (Creative Suite). Flash was one of the major development platforms for online games and websites until Apple decided not to support Flash on its iOS devices, which raised quite a few eyebrows. Adobe locked horns with Apple by filing a lawsuit for anti-competitive actions. Recently though, Adobe developed a plug-in with the help of Adobe AIR, by which developers can port their flash games into iOS devices also.

Adobe also recently developed "Creative Cloud" aimed at students and faculty, giving them 24/7 access to all the Adobe tools.

ADSL

DSL or Digital Subscriber line is the technology that allows us to use the internet by transmitting digital data over a local telephone network. ADSL or Asymmetric DSL is an advanced technology which enables even faster communication over copper telephone lines. This is done using frequencies that are not used by a telephone call. It's been observed that ADSL can be used only over short distances from a telephone exchange (up to 4 kms).

To allow both, ADSL and regular voice services to be transmitted simultaneously, a special filter named "Splitter" is used.

On being installed on old telephone services, ADSL creates a lot of interference and hence can be installed on only specific lines. In 1998, ADSL technology was very primitive and supported an upload rate of up to only 1.0 Mbit/s and a download rate of 8.0 Mbit/s. In 2012, these values have more than tripled!

Adware

Adware is a software application running inside another software and has advertisements embedded in it. Adware generally runs in the background of a freeware program and intermittently shows the user advertisements. An additional code is included to display pop-up ads. The main aim of adware is to recover development cost which is forfeited to reduce cost for the user. For example, Amazon uses this technique to display ads in Kindle and sell them at a lower-cost than the ad-free versions of Kindle. Many iOS/Android apps also employ this application.

The main criticism of adware is that some of them track the user's actions and create a user profile and generate ads accordingly or sell this information to third parties. Hence, where this information is going is unknown and raises potential threats. Add to the fact that some adware affect the way computers perform. There's a whole slew of malicious adware even on Facebook; some of them cover your timeline with their ads!

AES

Advanced Encryption Standard is a type of encryption that is widely used in U.S. government agencies and many other private commercial transactions. It was established by the National Institute of Standards and Technology (NIST) in the year 2001 and was originally called Rijndael. AES is more advanced than DES, which was a widely used encryption standard till the 90s. It was less secure and reliable, which is where AES shone.

In 1997, a process was initiated by NIST to find a replacement for DES which is based on a symmetric-key algorithm (same key used for encryption and decryption) and could support 128, 192 and 256 bits at a minimum. Another criteria mentioned in the proposal was that the implementation of that algorithm should be easy and shouldn't have software and hardware compatibility issues. Of all the entries that NIST got – even from big players such as IBM – Rijndael suited the requirements best; it was an entry from two Belgian cryptographers named Joan Daemen and Vincent Rijmen.

In 2001, the Secretary of Commerce agreed to it and announced that Rijndael would be called AES and would be used for all sensitive, unclassified documents.

Ajax

Ajax is a collection of inter-related web development techniques which can be used to create a web application that communicates with the server in the background independent of the present stage of the page. It is a client-side used application and directly communicates with the server.

It is an acronym for Asynchronous JavaScript and XML and as the name suggests, it uses JavaScript functions to call methods from a web service. Using Ajax reduces the traffic levels between client and the server and the response time is also pretty fast. It is compatible with JSON also and hence can be used with CouchDB. As Java Script is open-source, a lot of libraries are available which makes it user friendly. In 2004, Google made a wide deployment of Ajax with Gmail and Google Maps.

But, it has a few drawbacks too: Pages which used Ajax didn't register themselves in the browser history and search engines like Google couldn't index Ajax pages. There are even some notable security issues.

Alan Turing

Alan Turing, born in 1954, is considered to be the father of computer science and artificial intelligence. He was a British mathematician, logician, cryptanalyst and computer scientist with an Indian connection. His father, Julius Mathison Turing worked for the Indian Civil Service (the ICS).

At the age of 16, he encountered the work of Albert Einstein and found it quite interesting. He extended Einstein's work over Newton's laws of motion and even crisply explained it. He created the Turing machine which could simulate almost any algorithm – a major breakthrough in the field of computing and AI. He also helped the British Army in breaking the German ciphers during World War II.

Inspite of all his contributions, he was ill-treated by the British Government due to his homosexuality. As it was illegal at that time in the UK, he was imprisoned in 1952. Recently, in 2009, British PM Gordon Brown issued a public apology on behalf of the British Government for his "appalling" treatment.

Alexander Graham Bell

Alexander Graham Bell was the genius who invented the Telephone which laid the foundation for all the advanced modern communication systems of the 21st century. Born in Scotland in 1847, he moved to Boston in 1872 to open a school for teaching speech to the deaf. He started experimenting on the ways to improve and use telegraphy. His constant involvement with the school helped his research on hearing and speech which further led him to experiment with hearing devices which eventually culminated in Bell being awarded the first US patent for the telephone in 1876. Bell was also credited for his invention of metal detectors in 1881. Bell was granted 18 patents on his name alone and 12 with his collaborators, and his inventions were spread across the fields of Photophone, Phonograph, HydroPlanes, Audio meter, Alternative Fuels.

His deep interest in medical research, especially in techniques for teaching speech to the deaf led to the invention of the Tape Recorder, Hard Disk and Floppy Disk. Due to a complication arising from his diabetes, he died in 1922.

ALGOL

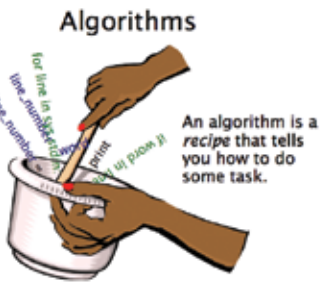
ALGOL, short form for Algorithmic Language is an imperative programming language developed in the 50s. It led to the invention of many languages such as C, Pascal and BCPL. ALGOL is the standard method for description of algorithms in textbooks and academic work, by ACM till date.

ALGOL was designed by a committee of European and American computer scientists taking into consideration the problems that would arise through FORTRAN (A programming language developed by IBM and extensively used till then as standard).

It was the first programming language to include code blocks which had "begin" and "end" pairs and had nested function implementations along with a lexical scope.

It received some negative feedback at the outset. People thought it was too "wordy" and it faced technical issues which were corrected in the later versions - ALGOL 58, 60 and 68. ALGOL 68 implemented expression-based syntax, user-declared types and structures/tagged-unions.

Algorithm



Algorithm is one of the most commonly used words in Computer Science. An algorithm is a step-by-step procedure of solving a problem. The problem can be anything, such as "Find the shortest path between 2 points" or "Find what path birds follow in the sky" or "Search for a letter in a sentence". The word is derived from the name of the mathematician, Mohammed ibn-Musa al-Khwarizmi, who was part of the royal court in Baghdad. The title of an important mathematical treatise by the 19th century Arabic is the source of the term "algebra". An algorithm can be represented in any way – in either a specific programming language or a pseudo code or a flow chart or even control tables. Each algorithm has a time-complexity, which depicts the amount of time it would take to complete when compared to the input size. The lesser the time-complexity of the algorithm, the more efficient it is. There may be more than one algorithm for a single problem; for example "sorting". There are numerous sorting algorithms such as "merge sort", "bucket sort" and "bubble sort".

ALSA

Advanced Linux Sound Architecture (ALSA) is a free and open-source Linux kernel component that provides device drivers for sound cards. It replaced its predecessor Open Sound System (OSS). ALSA was started with a goal to automatically configure sound card hardware and handle multiple sound devices in a system. During the development process, more features such as hardware-based MIDI synthesis (resource of music) were implemented, which were not previously present when the project started.

Apart from functionalities like hardware mixing of multiple channels and full duplex operation, ALSA bundles user space library for application developers. This would help developers use the driver features with a higher level API than direct kernel interaction.

Its main drawback is its complexity in comparison to OSS, so the development of an application using ALSA is difficult. ALSA supports up to eight cards, where each card is a physical or logical kernel device capable of input, output or control of the sound card.

Alternating current

Alternating Current (AC) is current that occurs when chargers in a carrier or semi-conductor periodically reverse their direction of movement. The best example is the common household current; this is AC with an approximate frequency of 60 Hz. The other form of current is the Direct Current (DC), where electric charge has a unidirectional flow.

Guillaume Duchenne, in 1855, saw the practical application of AC and proved that it was better than the Direct Current for electro-therapeutic triggering of muscle contractions.

The AC waveform could be sinusoidal, square or saw tooth-shaped, which depends upon the agent producing it. For example, some types of electronic oscillators have a saw tooth-shaped AC.

Electric power is delivered to businesses and residences in the form of alternating current. AC power transmission is done in the form of sine waves. The production of alternating current was first done by a dynamo electric generator based on Michael Faraday's principles. Efficient transmission of power transmission is done at high voltage. AC voltage may be altered using a transformer. It can either be a Step-Up transformer (to increase voltage) or a Step-Down one (to decrease voltage).

Amazon

Amazon.com is the world's largest e-commerce company and is based in Seattle, United States. Initially, it only sold books through its online web portal but later diversified to include software, games, electronic goods, MP3 downloads, apparel, furniture and jewelry. It introduced a range of e-book readers called Kindle, which even runs games. Recently Amazon ventured into games and also launched its cloud-based storage services in the Asia region.

Amazon attracts approximately 65 million customers to its U.S. website per month, so the company has also invested heavily on a massive amount of server capacity for its website mainly to handle the excessive traffic during the Christmas holiday season.

Amazon is famous for its Black Friday deals, on the next day of Thanksgiving.

The company has had its fair share of controversies. Wal-Mart filed a suit against it on October 16, 1998, alleging that Amazon had stolen trade secrets by hiring former Wal-Mart executives. This was settled out of court which caused Amazon to implement internal restrictions and reassignment of former Wal-Mart executives.

AMD

AMD (Advanced Micro Devices) is an American computer processor manufacturer and is a famous rival to the world's leading microprocessor manufacturer, Intel. AMD processors are used in HP and Toshiba laptops and desktops. It is presently the second largest manufacturer of computer processors in the world and Intel's only significant rival in the CPU market for x86-based PCs.

AMD's product line includes microprocessors, motherboards, chipsets, embedded processors, graphics processors for servers, personal computers and embedded systems applications. Post acquisition of ATI, AMD took a leap into graphical processing units (GPUs) by starting an initiative named "Fusion" which implies the merging of CPU and GPU on its mainstream

chips. AMD and NVidia together have the whole 100% market share of GPU market space. Some notable AMD GPUs include Radeon, Eye Speed, and FirePro. AMD achieved a Guinness World Record for the "Highest frequency of a computer processor" at 8.429 GHz.

AMD's latest technology, BullDozer had a lot of hopes riding on it due to its 8 cores, but it wasn't all that great.

American MegaTrends (AMI)

AMI is the biggest manufacturer of BIOS firmware for major motherboard manufacturers.

Founded by two Indians who were serial entrepreneurs, AMI started off to be a manufacturer of complete motherboards, but couldn't survive the competition from the original Taiwan-based manufacturers; and so, made BIOS firmware their niche market. AMIBIOS, one of the company's products is the most used BIOS firmware in motherboards. Initially, the firmware had a weird problem; it would play the Happy Birthday tune each time a PC booted up. This was solved with a Trojan-free firmware upgrade. In 1994, AMI released an update for AMIBIOS called AMI WinBIOS. It had a graphical user interface setup screen that resembled Windows 3.1; it received mixed response from its users due to the novelty of the concept.

AMI developed AMIDiag, a PC diagnostic utility sold only to original equipment manufacturers (OEMs) to help them spot problems while booting.

AMI later diversified into the domains of mobile applications, online data storage (through "StorTrends") and remote management ("MegaRac"), but BIOS firmware remains its primary product range.

Analog computer

Analog Computers were pretty famous in the 40s. In fact, they were even used in major wars such as World War II, the Vietnam war and the Korean war, but are now technically extinct. An analog computer accepts inputs/physical quantities that vary according to time such as electrical potential, fluid pressure or mechanical motion and applies these to compute the operations of addition and subtraction. Setting up an analog computer requires plenty of effort; it's usually set with initial conditions/values which can later be changed.

The earliest analog computer was built in 1893 by Lord Kelvin. Some major milestones in its development process were:

Inclusion of the Harmonic Analyzer in 1898; it had 80 components and was capable of generating sinusoidal motion.

Invention of the Differential Analyzer in 1930; it used mechanical integrators to solve differential equations and was a major breakthrough for the technology.

Analog systems were mainly used in simulating dynamic environments such as aircrafts and nuclear processes. But, the Analog Computer lacked the ability to store large quantities of data unlike their modern day digital counterparts. Also, performing accurate arithmetic and integral operations in analog computers required costly hardware, which was infeasible.

Android

Linux-based Android is the most widely used touchscreen-based operating system designed especially for mobiles and tablets. Android Inc. was acquired by Google Inc. in 2005 and since then has been developing and promoting the OS along with Open Handset Alliance. It released Android as open-source under the Apache license. Android is based on Java language and apps can be developed using the Android Development Tools (ADT) plug-in. Android can also be used on other devices such as laptops, netbooks, smartbooks and smart TVs (Google TV).

Android has a huge-community of developers who develop apps that get published on Google Play and the Amazon App Store. Boom of Android development made Java the most used programming language in the world. In 2011, there are more than 500 million active devices that have Android OS, which constitutes to 75% of the mobile and tablet market share. As of Sep 2012, there are more than 675,000 apps available for Android and more than 25 billion downloads have been made from Play Store of Google Play.

Android has been criticized for aping the design of iOS exactly. But, who doesn't Apple blame for copying its designs?

Angry Birds

Angry Birds is one of the most popular video game franchises, whose popularity can be compared to evergreen games like Mario and Pong. It was designed and developed by a Finland based Game Studio called Rovio, and the first version was published by Chillingo, a subsidiary of Electronics Art.

Initially, the game wasn't an instant success since Rovio couldn't advertise much. So it approached Chillingo, and with the backing of EA boosted promotional efforts. It gained popularity within 3 months of its release in 2009. Since then, Angry Birds has been downloaded more than 1 billion times across all platforms.

Rovio followed up with more versions of the game namely Angry Birds Seasons, Angry Birds Rio, Angry Birds Space and recently Angry Birds Star-Wars and all of them were top-grossing apps not only on the App Store but also on Google Play, Amazon Kindle and on Facebook.

Rovio began selling all possible merchandise related to the characters in the game – plush-toys, key chains, cup cakes, soft toys, soft drink cans, etc.

Animation

Animation is the process of playing a series of pictures/frames in sequence to create a simulation of movement. This is generally presented as a motion picture or a video program. Animation is used in movies, cartoons, games and even in software and advertisements. India has one of the biggest animation industries in terms of revenue in the world. Much of the animation for movies such as Thor is outsourced to India.

Animation was traditionally done using a projector and a camera. The images were individually captured by the camera and then scanned to make them digital. This was very tiring and costly. Software like Flash came along and made it easier. Seamless animations could be made in frames in Flash and the animation could be played at the desired frame-rate.

With advancement of technology, the concept of 3D animation was inevitable. Here redrawing was not needed, but proper bone-rigging of bodies had to be done to animate 3D objects with the help of software such as Maya and 3DS Max.

Other innovative forms of animation are Rotoscoping, Claymation, Puppet Animation and Cut-Out Animation.

Anonymous

Anonymous is the name of a "hacktivist" group which is famous for hacking into major organisations such as Sony's PlayStation Network. The members of this group are unknown, and they don't have a leader, hierarchy system or even location. It's known to be a group "which is impossible to join".

This group took roots on imageboards such as 4chan and was started with the intention of collaborating as a unit with a hidden identity and a self-agreed upon goal – initially only targeting entertainment but eventually taking on governments worldwide. In a series of statements, the hactivists made it clear that their goal is to do what the common man in society can't.

Anonymous is active on occasions of unethical behavior or attempts to curb free speech. When the Stop Online Piracy Act (SOPA) was planned to be implemented, Anonymous hacked and attacked the websites of the Department of Justice and FBI, and they remained down for many days. Supporters of the Anonymous protested in front of the Capitol Building wearing the Guy Fawkes mask. In 2012, a bunch of UK-based government websites were attacked in protest against government surveillance policies. Anonymous also attacked and hacked the Sony PSN to protest against a lawsuit by Sony on a public poster of ways to hack PS3. This rung up losses amounting to $171 million for Sony and affected almost 77 million registered accounts.

A self-proclaimed leader of Anonymous was arrested in Texas, but his identity is in doubt.

Anti-virus

Anti-virus is a software application that helps protect computers from viruses, adware, backdoors, hijackers and trojans. Computer virus attacks began occurring in the early 80s, but were pretty basic and could never crash computers and hack private information. But by the 90s, more programmers were interested in exploring their skills to make a profit out of stolen data such as account details.

The first anti-virus was created in 1987 for Atari St Platform. Once PCs hit the market, viruses were spread through floppy disks and through applications like Microsoft Word. As the Internet gained popularity so did the number of viral attacks. Even e-mail services like Outlook were vulnerable.

There was no single algorithm to discover the virus, which was the main challenge. Signature-based algorithm for detection was applied in the late 70s. By this method, the anti-virus software compares the file to a repository of virus programs it already has. But this method has the threat of attack by new viruses. More sophisticated anti-virus software use heuristic-based detection techniques in such cases.

The most famous anti-virus software are Norton, McAfee, Avast and Kaspersky.

Apache CouchDB

CouchDB is a widely used open-source database created by Apache. It is commonly termed as the "database that completely embraces the web" or the "NoSQL Database". CouchDB is not based on traditional SQL-based queries and database tables. Hence no data is stored in relationships and there are no complex SQL queries generally needed for maintaining databases. Here, each database is stored in documents called JSON, which has its own schema. JSON documents can change dynamically to accommodate evolving needs. It is often complimented for its peer-based distributed database systems. All the CouchDB hosts (online and offline) have independent copies of the same online database. Once back online, database

changes happen bi-directionally. To avoid conflicts, it used Multi-Version Concurrency Control (MVCC). This avoided the need to lock the database files when written.

CouchDB was a project started by an ex-IBM employee in April 2005, and later in 2008 was incubated by Apache. Presently, a large number of enterprises such as Ubuntu and BBC use CouchDb to manage their databases.

Application Programming Interface (API)

Application Programming Interface is a set of programming instructions and protocols which help in building software applications. It provides an interface for software components to communicate with each other. Every development platform develops its own API which helps third-party developers create software or apps on that platform.

Examples of APIs include Windows API, Google Maps API and Facebook API. Even the standard programming languages like C++ and Java have their own APIs and Standard Template Library such as <math.h> in C which helps in arithmetic operations.

These APIs are not only good for programmers but also for users. Due to the fact that all developers would be using common APIs there would be consistency in the interfaces on that particular platform.

API takes on a new meaning depending on the platform on which it's being used. APIs in object-oriented languages are a set of class definitions with set behaviors and they can be accessed by calling functions that are present in that particular class. In web development, API refers to a set of HTTP request and response messages.

Apple

Apple Inc, which was previously Apple Computers Inc., is an American multinational which designs, develops and produces consumer electronics, software and personal computers. Notable products include all of

its products – be it the iPhone, iPad, iPod, iMac, Mac Book, MacBook Air, OSX or iOS and its corresponding applications Safari Web Browser, FaceTime and the App Store.

Apple was founded in 1976 by three ex-Atari employees with Steve Jobs as its CEO. Its first product was the Apple I computer which lacked any basic features that today's computers have. Apple II was its first major hit; it was in fact the bread-winner for the company. Following the success, Steve Jobs pulled together a team of his own to develop Macintosh, which he envisioned to be revolutionary. It was during this time that Apple faced a lot of conflicts (better known as "projectitis") between its Apple II and Macintosh employees,

From 1985 to 1997, the Apple business witnessed a downturn due a to a continuous line of failed products including digicams and portable CDs. In 1985, Steve Jobs, the founder of Apple resigned as its president and went on to establish NeXt. In 1997, he returned and Apple launched the first iPhone which became a huge success. Presently, Apple is considered to be the most valuable company in the USA.

It is, however, criticized for its "designed for the dump" style by releasing a new product every 12-15 months, making the old products obsolete quickly. This leads to a lot of wastage and harm to the environment. Also, Apple is not well known for any philanthropic contributions.

Application service provider (ASP)

An ASP is an organization that provides computer-based services to consumers over the network and can be accessed through a web-browser. This model is also termed as Software as a Service (SaaS). The software or application given to the consumers is owned specifically by the ASP and it gives access to the consumers under a contract.

We use ASPs all the time but remain unaware about them. Some of the most famous free ASPs are Gmail, Yahoo Mail, Google Docs and Google Play. Some famous paid ASP tools are eproject.com and cVent.com.

Services provided by an ASP need not be installed on each machine and hence can be accessed anywhere and anytime with the help of a common client, in many cases the browser.

Application-specific integrated circuit

ASICs are integrated circuits that are designed for a specific purpose unlike the normal ICs designed for general purposes such as a "logic gate". For example, IC designed for a specific line of cellular phones of a company is an ASIC. Generally, it is the case that ASIC has only one customer and hence the availability, intellectual property, design and deployment is controlled by a single entity or company who is the customer.

There are three types of ASICs: Full-Custom, Semi-Custom and Structured ASIC.

Arcade games

Arcade games or Arcades are coin-operated entertainment machines that are generally placed in public places like malls, food courts and amusement parks. Generally, each machine has a single game. Some examples of arcade games include Pinball, Pac-Man and Pong. The Golden Era of arcade games was considered to be 1970-1990, and Atari was the undisputed king of it; until the whole gaming experience was replaced by consoles and PCs.

The first arcade machines were established way back in the 30s, which majorly had only Pinball. In the 70s, SEGA and Atari established a bunch of arcade machines which housed famous games such as Space Invaders, Pong, Pac-Man, and Donkey-Kong.

After the decline of the Arcade Era, the meaning of the term arcade has changed. Any game that brings back memories of arcade machines are termed as "arcade games".

Arduino

Arduino is a tool for making computers that can sense and control more of the physical world than a regular desktop computer. It is an open-source electronic prototyping platform, a descendant of open-source wiring platform. The flexible, easy-to-use hardware and software is popular with artists, designers and hobbyists.

Arduino consists of a simple open hardware design with an ATMEL AVR processor and an I/O system that can sense the environment and control the lights, motors and other actuators of the devices connected to Arduino. Arduino projects can also communicate with other software such as Flash and MaxMSP.

The microcontroller is programmed using Arduino programming language (based on wiring) and the software uses standard programming language compilers.

As it's an open-source platform, developers have been known to create the likes of a Miniature Pocket Piano with its help. One can assemble the board by himself or place an order with specifications. Because of its cross-platform nature and being light on the pocket, it's one of the most preferred platforms for teachers, students and other hobbyists.

Arithmetic Logical Unit

Arithmetic Logical Unit is a digital circuit that performs Arithmetic Operations (like addition and subtraction) and logical operations (like "and", "or" and "not"). It is one of the most basic building blocks of a processor; others being Control Unit (CU) and Registers.

A typical ALU takes input variables, which are called "operands" and a code of instruction or the "op-code" from the Control Unit and then generates a "result", which is stored in an "accumulator". The operation is performed with the help of gated circuits that are controlled by a sequence logic which uses an algorithm for each op-code. ALU also gives an output status which indicates cases like carry-in, carry-out, etc. An ALU performs multiplication and division by a series of additions and subtractions and one of the 16 logical operations like comparison of two operands can be done in an ALU.

But an ALU performs only integer operations; hence typically it doesn't perform divisions as the result might be a "float". The division operations are generally carried out by the Floating Point Unit in a processor.

ARM Architecture

ARM refers to the set of 32-bit computer micro-processors designed in accordance with RISC (Reduced Instruction Set Computer). It was originally developed by Acorn Computers Ltd. in the 80s and presently is the most widely used microprocessor in phones, tablets and pocket calcula-

tors. But, ARM architecture was never used in desktop and laptops. Both Apple and Microsoft use x86 architecture, developed by Intel. The main difference is the lower power levels that ARM chips run at compared to Intel chips. Also they're much cheaper.

Microsoft recently announced that it will be using the ARM processor for Windows RT. For this, Microsoft had to rewrite almost all the code of Windows to make it run on ARM. This also means that all the software that used to run on x86 processors of Windows won't work on Windows RT. Even though, it's considered to be a disadvantage by many, to the 20% faster speed at which applications run on Windows RT should make it worth it.

Artificial Intelligence

Artificial Intelligence, as the name suggests is the branch of Computer Science which aims to improve the intelligence of machines. AI is what people call "a wish to forge the gods". The concept of creating an artificial being, which is intelligent enough to think on its own and act accordingly could be a reality. Prominent traction in artificial intelligence was gained in the 40s, when people realized that it can be achieved with the help of computers and algebra.

Today AI is used in almost every discipline of computing varying from robotics and videogames to search engine optimization. Off late, a lot of work is being carried out on "emotional modeling", in which human emotions such as happiness, sadness, envy and hope are being embedded into artificial beings. It won't be long before a humanoid robot like Vicky from Small Wonder (or the real life ASIMO) will be in our homes.

Assassin's Creed

Assassin's Creed is a historic action-adventure stealth game by Ubisoft Montreal. The first tittle in the Assassin's Creed series was developed in 2007. As of 2012, there are 5 games in the series excluding games and materials on different platforms.

It is commended for its

unique game mechanics such as its health system. The assassin's health is synchronized with his descendant's.

Commercially, Assassin's Creed has been very successful. Many novels have been based on the game series, and Sony is in talks with Ubisoft for a film. It has won many awards including Best Game of the Year by IGN and Game Critics Award.

ASUS

Founded in 1989, ASUSTeK Computer Inc., a Taiwan-based multinational computer hardware and electronics company, is presently the fifth largest PC vendor. Its main product line consists of motherboards, desktops, laptops and monitors. Apart from producing and selling its own products, it also produces components for other major manufacturers such as Apple, Dell and HP.

ASUS has been producing motherboards since 2005. It also ventured into manufacturing graphic cards for videogame consoles and PCs the same year. In 2007, it introduced the ASUS Eee PC family and recently in 2011, it launched the Eee Pad Transformer – an Android-based tablet computer with a touchscreen as well as a keyboard. It has also been developing high-end graphic processing PCs aimed at gamers. In 2011, it expanded into cloud technologies with its cloud service, ASUS Web storage. This year, it also expanded into the smartphone market with ASUS Padfone. Google's Nexus7 tab was designed and developed in conjunction with ASUS.

Atari

Atari is an American multinational company, and at one time was the biggest videogame company in the world. It was famous for its arcade games, home consoles and its all-time hit games Pong, Pac-Man, E.T., Space Race and BreakOut. Interestingly, all the founders of Apple once worked at Atari before moving on to Apple Inc.

Founded in 1972, and after being the market leader for several years, it faced problems and losses during the videogame collapse of 1983. Prior to this, Atari was a subsidiary of Warner Communications and contributed to almost one-third of Warner's annual income.

In 1997, only 500,000 out of 800,000 Atari 2600 consoles were sold which brought Atari into ruin.

By 1996, Atari had a substantial line of failed products since 1991 and ran into financial problems. Hence, Atari's name and assets were sold to

Hasbro Interactive. Atari Games was renamed Midway Games West by its new parent company but was disbanded in 2003 after a slump in game sales.

Augmented Reality (AR)

Augmented Reality (AR) generates a composite view for the user that is a combination of the real-world environment and the computer-generated virtual environment. With this tech, users can interact with the surrounding world and even manipulate it digitally.

Recently AR has been the talk of town with the "Google Glass Project". Google is developing a wearable computer (spectacles) which helps users in their day-to-day activities such as shopping, travelling, entertainment, etc. which is expected to take augmented reality to a whole new level.

Augmented Reality has huge application in Education and Health also. For instance, MITAR Games – an MIT product simulates locations and scenarios that help children learn faster.

Autodesk

Autodesk is an American multinational corporation that makes high-end 3D software applications for use in architecture, engineering, construction and entertainment systems like games.

Autodesk was started in 1982, the year it developed its flagship (and its first) product AutoCAD.

Autodesk is a believer in green technology and has taken appropriate steps to help the environment through its products. Its programs such as the CleanTech program and the C-FACT carbon reduction goal setting tool help companies understand how to reduce greenhouse gas emissions.

Automagically

Automagically is an interesting word used in the Technology space to explain the output of a technical process without going into its details. If the user wants to circumvent having to provide details of the process or is simply unaware of its workings, this is the word to use. It's a play on the words 'automatically' and 'magically'.

This term is sometimes used in a satirical way to say that the technological process is quite magical. For example, "You stand in front of a Kinect and it automagically recognizes all your gestures and movements."

Automatic Speech Recognition

ASR is a technology that translates speech into text. Attempts to develop this technology began in the late 60s when stenographers were very costly and recording minutes of meetings was proving to be quite inefficient. In 1960, Suzuki and Nataka at the Radio Research Lab developed the vowel recognizer – a notable achievement in this area. At Kyoto University, the first use of a speech segmenter was witnessed; it helped with analysis and recognition of speech in different portions of input utterance. By the mid 70s, fundamental pattern recognition technology was being applied to speech recognition. With the help of algorithms such as the Hidden Markov model, satisfactory Speech Recognition software was developed by the 90s.

Presently, Automatic Speech Recognition is used in a wide range of fields varying from telephony to military. Applications have been developed to help the hearing and speech impaired and much research fund is being pumped into this area. Even though this technology is quite accurate, it's not completely flawless. For huge vocabulary sizes the error rate is as high as 3%.

Albert Einstein

Albert Einstein needs no introduction: he's one of the most intelligent men who ever lived and is considered to be the father of modern physics. Today, 'Einstein' is used more often as a common noun than as a proper noun. In his childhood, he was quite different from the other kids and preferred isolation. He would score zeroes in all subjects except for Maths and Physics in which he would score full marks.

Einstein's work in Photons and Energy Quanta, Quantized atomic vibrations and Theory of Relativity are till date considered to be beyond comparison. The Theory of Relativity is still an unproven concept. In 1921, he received the Nobel prize for discovery of the Photoelectric effect.

Originally from Germany, the prodigy decided to stay back in the U.S. where he was visiting in 1933 on account of the violence back home due to Hitler's reign. He accepted US citizenship in 1940.

Einstein published more than 300 scientific papers in the fields of quantized atomic vibrations, the Adiabatic Principle and action-angle variables, wave-particle duality, Theory of Critical Opalescence, zero-point energy, general relativity, the Equivalence Principle, Entwurf theory, Cosmology, Modern Quantum theory, Bose-Einstein statistics, energy momentum pseudo tensor, Unified field theory, wormholes, Einstein-Cartan theory, equations of motion... phew. Einstein passed away in 1955, and Thomas Stoltz Harvey, his autopsy performer removed his brain without the permission of his family and preserved it hoping that the neuroscience of the future would be able to discover what made Einstein so intelligent.

B

Backlink

A backlink or an incoming link is an external link or reference to the website from some other web page. If there are 20 other websites that link to your webpage, it has 20 backlinks. Web developers benefit from large numbers of backlinks as there is direct traffic to your website, and your web presence expands. Backlinks are an important factor for search engine optimization(SEO). Since search engines use backlinks as part of their algorithms for search result placements, the more backlinks your website has, more is its popularity, and it is more likely to turn up in search results with the right keywords. Anchor text is the text that appears on the hyperlink that leads to the website. Search engine bots analyse that anchor text and check its relevance to the contents of the web page. Their congruence is important for search engine result rankings. Many websites employ various SEO techniques to improve their ranking, an example of which is "linkbaiting".

Backup

Backup is a copy of data to be on the safer side, in case the original data is lost or becomes irretrievable. The data stored on your computer, tablet or phone is not completely immune from permanent damage. Another reason to back up your data is when you want to restore data from an earlier time. Data loss can occur due to hard drive crashes, accidental deletion, files corrupted by viruses or due to software corruption. In any case, all your important data becomes irrecoverable. So back up your data on an external hard disk, or another computer. You can even burn CDs and DVDs. Even better, have a commercial software perform regular backups for you. Many softwares are available which offer scheduled backup and system restore services.

Barcode

Barcode is an optical machine-readable code consisting of a series of black and white spaces of varying widths along with a variation of different numbers. They are printed on various labels to uniquely identify them and rep-

resent data such as the item's description and price. Barcodes are read by a barcode scanner; softwares to read barcodes are now available for phones and tablets. The scanner reads special information from the code and sends it to a database, where it is used to get the necessary details. Different companies use different numbers of bars and number combinations. You can see barcodes on every item you purchase from a departmental store or a gift shop. Barcodes can also be used for various purposes other than to just check the price. For example, your luggage gets a barcode when checking in to an airport. Tracking shipments and other goods is also facilitated by barcodes. Their first use was to label railroad cars.

BarCamp

BarCamp is a "democratic" conference of computer enthusiasts. The topics of discussion are focused on technology and the Internet. The conference is put together by a committee of IT professionals, professors and other industry veterans. These conferences are open for all and are better known as "unconferences" because they are participant-driven. Anyone can fill in their names and the topic on which they want to speak in the schedule chart; BarCamps make their organizational process open for all, coordinating with the help of a wiki. The quality of speakers is maintained by the "law of two feet", i.e. anyone who finds the talk boring can use their two feet and walk away. Attendees are encouraged to form small groups in hallways and discuss about their favourite topics. The first BarCamp was held in the offices of Socialtext in Palo Alto, California in 2005. BarCamp was organized as an alternative to Foo Camp which was an invite-only conference organized annually by Tim O'Reilly, a supporter of open-source softwares.

BASIC

BASIC stands for "Beginner's All-purpose Symbolic Instruction Code". It is a high level programming language developed with a goal to help non-science students write simple computer programs. The original BASIC language was designed in 1964 by John Kemeny and Thomas Kurtz. The language was based on FORTRAN II, with modifications to make it suitable for timesharing. The instructions in the programs were numbered in order to tell the processor in what order they are to be processed. It facilitated

rectifying of programs later by adding statements, and numbering them properly. "GOTO" statements were used to change the order of execution. BASIC has evolved since then, and can be used to write advanced programs for today's computers. It uses "while" loops and may even use GUI(Graphical User Interface). Some of the popular BASIC implementations include REALbasic and Microsoft Visual Basic.

Batch Process

A batch process executes a series of instructions or programs without manual intervention. Batch processing can run in the background, and stops only if an error has occurred or if all tasks are completed. Batch processing stores up several tasks and runs them all together when the computer is idle, thus saving time and improving your system's performance. A batch process can be run by your OS using a batch file or a script. Batch processes can be used to automate repetitive tasks and save time. For example, a user may create a script that performs required calculations every time the data is updated. Virus scanning is a form of batch processing too. E-mail systems have batch jobs that periodically archive and compress old messages to save memory. The IBM mainframe z/OS platform has the best batch processing facilities for supporting thousands of complex job scripts concurrently.

Baud

Baud is a unit for symbol rate, i.e. the number of distinct symbol changes per second. It is not a direct measure of data transmission speed, but measures electrical state changes per second. A single state change can involve more than one bit of data. So the accurate term to measure data transmission rate is bits per second(bps). The Baud unit is named after a French engineer, Jean-Maurice-Emile Baudot, who invented the Baudot telegraph code. The unit Baud was first used to measure the speed of telegraph transmissions.

Bcc

Bcc stands for Blind Carbon Copy. When you send an email to multiple recipients, the addresses can be written in any of the three fields: To, Cc, and Bcc. You enter the addresses of persons in the To field who are directly involved in the conversation and from whom you expect a reply. The addresses in the Cc field are of those people who are not directly involved, but kept in the loop to keep them informed. They do not need to reply. All the recipients of these fields can see the addresses of all other people. Bcc is the third field, wherein

you write the addresses of those people who will receive the message, but you don't want the other recipients to know they got it. When a message is blind carbon copied, neither the main recipients nor the Bcc recipients can see the list of recipients. It is faster than sending the original message to the main recipients and then forwarding the sent message to the other recipients. It is good netiquette to use Bcc when sending a message to many people. It also prevents people from getting others' email addresses which they might use for spamming.

Beta

Beta(ß) is the software development phase following alpha(α). When a software is released, it goes through a beta phase, where it's tested for bugs, performance issues and other problems. A software in beta phase is only available to developers. First it goes through the beta testing phase, only then is it released for public use. Sometimes you can obtain a beta release from the software's website, but it might not work properly. You can tell if a software is still in its technical preview stage by checking the program's properties. If there is a "b" in the version number (i.e. Version: 1.2 b3) that means it's a beta version.

Big Data

Big data, as the name suggests, refers to large volumes of data, structured or unstructured, that becomes difficult to process by the usual database management tools. This data comes from everywhere: sensors used to gather climate information, pictures and posts on social media websites, digital media, cameras, transaction records, wireless sensor networks, emails and cloud storage to name a few. Common softwares face problems in analyzing such quantities of big data, especially when analyzing a set of data reveals even more data. Big data cannot be quantified: what constitutes big data depends on the organization's capabilities to analyze it, or lack thereof. Big data may require parallel processing techniques spread over hundreds and thousands of computers. As of 2012, we have created 2.5 quintillion bytes of data every day, so much that almost 90% of the world's data has been created in the last two years.

Big Mother

Big Mother is an advanced concept in which parents track the activities of their child using technology. The parents use GPS devices, digital cameras

and other wireless technologies to monitor their children. Although it is seen by some parents as an act of safety, teenagers consider it as an invasion of their privacy. Some parents use an RFID tag which they place in their kid's bag or clothes to track their whereabouts. Parents can use security cameras to check on their children when they are in the playground. Some people also insist on school buses having a GPS system, for the parents to know where and how fast the bus is going. There are several softwares for parents to check on their child's activity online. They can even put parental controls and restrict access to certain websites which they don't deem fit for their child.

Bill Gates

Bill Gates is the co-founder and Chairman of Microsoft. He founded the world's largest PC company with Paul Allen, his school friend. The first program that he wrote, at age 13, was an implementation of tic-tac-toe using BASIC where you could play against the computer. As young teenagers Bill Gates and Paul Allen ran a small company called Traf-O-Data and sold a computer based on the Intel 8008 processor to the city of Seattle that could count city traffic The founders of Microsoft wrote a BASIC interpreter for the Altair 8800 in 1975 that fit into a mind-blowing 4K of memory. An entire language, plus floating point arithmetic, in 4K of machine code. Gates bought the licensing rights for 86-DOS operating system from Seattle Computer Products (SCP) and sold the OS to IBM as PC-DOS for their first personal computer. He retained the copyrights on the OS and proceeded to make a fortune with MS-DOS. Microsoft launched Windows, an operating system based on MS-DOS with GUI, in 1985. Gates was the world's youngest self-made billionaire at 32 in 1987. The Gates family funds various charitable and scientific research organisations through the Bill & Melinda Gates Foundation, the largest transparently operated private organization in the world.

Binary

Binary means two. In the binary number system, every digit is represented using only two two digits: 0 and 1. The binary system is used by computers

to store data and instructions, compute a function and communicate. Digital switches inside the computer can take only two states, ON or OFF. ON is represented by a 1 and OFF is represented by a 0. A binary digit is called a bit. A binary string of 4 bits can have 16 possible combinations that can represent 16 unique symbols or characters. The digit's weight in binary numbers increase by power of 2 from right to left. In decimal number system, that we commonly use, digit's weight increases by a power of 10.

Biometrics

Biometrics refers to the technology that is used for identification of humans by their physical characteristics. In the IT world, biometrics is used for authentication and access control. Biometric authentication includes fingerprint scan, facial recognition, eye retina and iris scan, DNA test and voice analysis. A biometric scan is similar to login. For example, a facial scan is done using a camera, and the image is processed using a biometrics software.

DECIMAL = 21	64	32	16	8	4	2	1
Binary	0	0	1	0	1	0	1

The software identifies specific points as match points and looks them up in the database. Those match points are translated into a numeric value using an algorithm, which is compared against the value in the database. If the scan is close enough to a specific user, he is granted access. To prevent identity theft, biometric data is usually encrypted when stored in the database. At the Walt Disney World in Florida, biometric measurements are taken to ensure that the ticket is used by the same person throughout the day.

BIOS

BIOS(Basic Input/Output System) is a program pre-installed based on Windows based computers that the microprocessor uses to start up. The BIOS is an integral part of your computer, and your CPU communicates through it to check all the hardware connections such as the hard disk, video adapter, keyboard, mouse, and printer. If all attachments are in place, it loads the operating system into the RAM. When device details change, only the BIOS

program needs to be changed. It frees the operating system from worrying about the exact details of hardware attached to the system. BIOS is located in the EPROM(Erasable Programmable Read Only Memory). When the computer is switched on, the microprocessor passes control to the BIOS which is always located there. To reprogram the BIOS, the EPROM chips have to be physically removed from the motherboard. They may be erased by prolonged exposure to ultraviolet light. Modern systems use rewritable flash memory (which can be electrically erased) to store BIOS, as hardware manufacturers frequently release BIOS updates. Rewriting the contents of ROM is also called flashing. BIOS is being replaced by the more complex Extensible Firmware Interface (EFI) in many new machines.

Bitmap

A bitmap is a map of dots or bits that looks like a picture if you're sitting at a reasonable distance from the screen. Each bit contains color information for the image. Bitmap graphic formats have a fixed resolution. If you zoom in on the image, it appears to be blocky. Common bitmap file-types include BMP, JPEG, GIF, PICT, PNG, and TIFF. A pixmap (a rectangular grid of pixels) is used for images with multiple bits per pixel. Pixels of 8 bits and fewer can represent either grayscale or indexed color.

BitTorrent

BitTorrent is a peer-to-peer(P2P) file sharing protocol which uses the upload bandwidth of each individual who is downloading or has downloaded the content, to transfer the content to others. It distributes file transfers across systems, reducing the bandwidth usage of each system. The bittorrent transfer is initiated through either a .torrent file or a magnet link. The system locates multiple computers with that file and starts downloading from all of them at once. Since most ISPs offer a higher download speed than upload speed, the file transfer takes place speedily. In order to use this, you need a bittorrent client such as uTorrent, LimeWire and Tribler. The client is a

software that uses the BitTorrent protocol. The author of the BitTorrent protocol, Bram Cohen, made the first BitTorrent client, which he also called BitTorrent. Most BitTorrent clients give you the option to pause and resume the download. There are legal issues associated with this service as various copyrighted softwares and media is being distributed via torrents illegally, causing serious financial damage to the developers.

BlackBerry

BlackBerry is a brand of wireless handheld devices and services that allow easy access to email, phone, text messages, Internet and various applications. Research In Motion(RIM) is the company behind BlackBerry. RIM is best known for BlackBerry smartphones which are widely used for their push email and instant messaging services, which employ on-device encryption. The BlackBerry 850 was the first mobile device(a two-way pager) released under the BlackBerry brand name in 1999. The BlackBerry was originally known as "LeapFrog", but the marketing company Lexicon Branding chose it's new name because the keyboard's buttons resembled the drupelets that compose the blackberry fruit. Third-party developers can write applications using BlackBerry APIs. The Android App Player for BlackBerry allows its devices to run Android applications. RIM's first entry into the tablet market is the BlackBerry PlayBook. The upcoming BlackBerry 10 operating system will be based on QNX, a Unix-like real-time operating system.

Blog

Blog, short for Web Log, is an online journal, intended for public eyes. Au contraire to the traditional way of a personal diary, people are now making an online presence with their blog. The blog posts are sorted in reverse chronological order. The topics of the posts include anything and everything that's going on in one's mind, including social issues, trivia from day-to-day life and funny anecdotes. Most people use it as a way to vent. Most blogs are interactive, allowing readers to comment on the post. Blogging can be seen as a part of social networking. You can either create your own website and publish content, or use a blogging website where you don't need to be an HTML expert to write. Microblogging, as in Twitter and Tumblr, features

very short posts. The term "weblog" was coined by Jorn Barger, which was then broken into “we blog” by Peter Merholz.

Blu-ray

Blu-ray disc is an optical disc for playing high definition(HD) video and storing large volumes of data. It is of the same size as a CD or DVD. While a CD has a capacity of 700MB and a DVD of 4.7GB, a blu-ray disc can store up to 25GB of data per layer. Dual-layer Blu-ray discs can store 50 GB of data, that is equivalent to 4 hours of HDTV. For audio, BD-ROM players are required to support Dolby Digital (AC-3), DTS, and linear PCM. Blu-ray discs are designed to supersede the DVD format.The term “Blu-ray” is coined after the blue-violet laser that is used to read the disc, as compared to the longer-wavelength red laser used for DVDs. The blue laser can be focused on a smaller area which allows information to be stored at a greater density than is possible with the DVDs. The Dark Knight Blu-ray disc was the first to sell over a million copies in the first week of release. The Blu-ray Disc specification requires it to be scratch resistant, unlike DVDs.

Bluetooth

Bluetooth is a wireless technology for exchanging data over short distances between Bluetooth-compatible devices. Infrared served the same purpose but it had speed and distance limitations. Bluetooth uses radio waves at a standard 2.4 GHz frequency and sends information at distances up to 30 feet; even if there are obstacles between the devices, the connection won’t be interrupted. Bluetooth was developed by Ericsson in 1994. Bluetooth was named after 10th-century King Harald Bluetooth of Norway and Denmark(where Bluetooth was invented), who united several warring Scandinavian tribes, in line with how Bluetooth promotes collaboration between different companies. Bluetooth is managed by the Bluetooth Special Interest Group, which has more than 17,000 member companies in the areas of telecommunication, computing, networking, and consumer electronics.

Bookmarks

Similar to the bookmarks for a book, an Internet bookmark acts as a marker for a website. A bookmark is a Uniform Resource Identifier (URI), that is stored by your browser as a shortcut to your favourite website. This way you don't have to type the address of your favourite web pages each time you visit it. All modern browsers including Internet Explorer, Google Chrome and Mozilla Firefox support bookmarking. Bookmarks have been incorporated in browsers since the Mosaic browser in 1993. In Mosaic, the bookmark list was called Hotlist. Most browsers have a colourless star shaped symbol near the address bar; if you click on it, the webpage you're on is saved to bookmarks and the colour of the star changes. Mozilla Firefox introduced Live Bookmarks which allow users to dynamically monitor changes to their favorite websites. New stories are attached as a list of links to the bookmarked web page, which are regularly updated via RSS feeds. Bookmarks have led to the development of link storing and sharing services such as Del.icio.us.

Boot

Booting a computer means to get it up and running. The process begins when the power is turned on. It involves performing a power-on self-test(POST), checking all the peripheral devices followed by loading the operating system from the current boot disk. The boot disk is usually an internal hard drive. However, most computers allow you to boot from CD-ROMs, DVD-ROMs, and floppy disks. A boot loader is a computer program that loads the main operating system. Once the boot process is complete, the computer is ready to perform its normal operations. The term boot is short for bootstrap. In Linux, the flow of control during booting is from BIOS, to boot loader, to kernel. The kernel then runs a program called init(short for initialisation). init is typically assigned a PID number 1, and all other processes are spawned from it. It continues running until the system is shut down.

Bosack, Len

Leonard Bosack and his wife Sandy Lerner co-founded Cisco Systems, a company that designs, manufactures, and sells networking equipment. Sandy was later fired by the management, following which Leonard resigned from the company. He is presently the CEO of XKL, LLC, a company that develops optical networking equipment for data communication. While studying at Stanford, he worked on the network router that connected com-

puters of various wings of the University, and enabled data sharing between them. He, along with his fellow staff members, created the first true LAN(Local Area Network) system by connecting 5,000 computers across a 16-square-mile (41 km2) campus area. Later, the couple founded their own company, Cisco, which designed and built routers. The company produced the first multiport router-specific line cards, which gave them an edge against their competitors. Bosack was awarded the Computer Entrepreneur Award in 2009 for his contribution in commercialization of LAN technology.

Bot

Bot, also known as web robot, is an automated computer software that performs repetitive tasks over the Internet. Botnet is a collection of Internet connected bots. Chatterbots are online chat bots used by organizations for interacting with users, promotion of websites and for providing automated online assistance. Bots are used extensively in web spidering or crawling, where an automated program searches the web in a methodical manner and analyzes the content and links found on the pages. Search engines use spidering as a means of providing up-to-date data. Web crawlers generate electronic catalogs of all the visited pages, which are indexed by the search engine to provide fast searches. If a site owner wishes to give instructions to the bots they must place a text file called robots.txt in the root of the web site hierarchy. This is the Robots Exclusion Protocol. This file is the first thing that the bot reads while accessing a website. Internet bots are also used for malicious purposes such as harvesting email addresses from forums and spamming. DDoS(Distributed Denial of Service) attacks also employ botnets. There are also gaming bots, which help a person cheat in an online game. These bots are programmed to ignore the Robots Exclusion Protocol.

Bozo Filter

A bozo filter is an email filtering software. It enables a user to block emails from specific addresses. Besides blocking unwanted messages from indi-

viduals, it also employs anti-spamming techniques. The bozo filter moves the undesirable emails to the trash. It can be configured to filter email containing specific phrases or keywords. A list of addresses you want to block is called bozo list or kill file. Bozo filters are primarily used for incoming emails, but may also be used to inspect outgoing messages. Some email clients automatically filter your emails for spam; users can also install mail filters. They are also used by website owners to block unwanted visitors to the website and offensive content posted by someone. Bozo filter can be set up using JavaScript to prevent people from visiting a web page coming from another web pages.

Bridge

In telecommunication networks, a bridge is a device that connects two or more local area networks (LANs) together. The device is similar to a router, but less versatile. It does not analyse the data or act as a firewall unlike most routers. It broadcasts the message to every address on the network, and is only accepted by the intended destination node. Bridge networks are typically interconnected LANs, because broadcasting a message to every other node may flood a larger network with unnecessary traffic. A bridge works at the data-link (physical network) level of a network, and can transfer data between different protocols.

Bring Your Own Cloud

Bring your own cloud (BYOC) is a business trend in which employees use third party cloud services to get their job done. It often involves combined use of the enterprise and consumer software for completion of the task. All the cloud services, Google Drive, Microsoft SkyDrive, Apple iCloud, Dropbox, Box, or some other variant, offer some level of free storage. Google Drive is used by many individuals to store, share and collaborate on documents. Many workers use their personal account on Dropbox for work. Some organizations may encourage the use of these services as it reduces their operational costs and provides the flexibility of work-from-anywhere. The major downside to BYOC services is that the enterprise has no control over the cloud content. It is an employee-driven change, following the success of the Bring Your Own Device(BYOD) policy, in which you could bring your smartphones, tablets and notebooks to work and use them to access privileged company resources such as emails and file servers.

Broadband

Broadband refers to the wide bandwidth that is used for high-speed data transmission; information can be multiplexed and sent on many different frequencies(or channels). Because of its ability to transport multiple signals simultaneously, it has started to replace baseband the single-channel technology. Prior to broadband, we used the slow dial-up Internet access at home, which are now being replaced by broadband internet connections: cable modems, which use your cable TV line, and DSL(Digital Subscriber Line) modems, which use your phone connection. With a broadband connection, the connection to the Internet is always on, no need to dial up; Internet access is faster and more efficient. The digital information is sent over a high-bandwidth channel via DSL. This channel is at a higher frequency than the baseband voice channel, so the phone line remains unaffected, i.e. you can make calls whilst using the Internet.

Bropia Worm

The Bropia worm is a malware that spreads through instant messaging using MSN Messenger. It starts with a file, apparently sent from a friend, which is infected with the virus. Once it enters your system's memory, it resides in the memory and repetitively copies itself in the Windows System folder with various file names such as winhost.exe, updates.exe or lexplore.exe. These files make modifications to the registry's RUN section so that they are executed automatically. After the worm has been executed, you may notice strange effects such as changes in sound volume, disabled right mouse button, and other limitations in accessing menus. It also leaves a Spybot worm variant in your computer. This Spybot variant then connects to specific Internet Relay Chat (IRC) channels, giving the attacker unauthorized remote access to the infected computer, while running in the background as a service process. This backdoor entry into your system can be exploited by the hacker to steal sensitive information and do further damage.

Browser

A web browser is an application program that is used to access, retrieve and view documents and other resources on the world wide web. Technically, browser is a client program that uses the Hypertext Transfer Protocol (*HTTP)* to load pages from the web servers. A browser translates the HTML(Hypertext Markup Language) code which lets you view text, images and videos. It also interprets hypertext links, Javascript, and Java applets.

After rendering the HTML code, the browser displays a nicely formatted page. The first web browser, called WorldWideWeb, was invented in 1990 by Sir Tim Berners-Lee. The name was later changed to Nexus. The first Web browser with a graphical user interface was Mosaic, which later influenced Netscape Navigator. Some common browsers are Microsoft Internet Explorer, Opera, Mozilla Firefox, and Apple Safari.

BSD

BSD(Berkeley Software Distribution) is a version of the Unix operating system that was developed and distributed by the University of California, Berkeley. The first Berkeley Software Distribution (1BSD) was just an add-on to Sixth Edition Unix. The 2.9BSD was the first release that was a full OS in itself. Earlier versions of the SunOS, the operating system developed by Sun Microsystems for their workstation systems, was based on BSD. SunOS version 5.0 and later are based on UNIX System V Release 4, and are called Solaris. The BSD code has also been incorporated in the TCP/IP (IPv4 only) networking code in Microsoft Windows and is a part of the foundation of Apple's Mac OS X.

Buffer

Buffer is a memory area where data is stored temporarily while moving it from one place to another. It's usually a part of the RAM due to much faster access time. Buffers are typically used when the rate at which data is received is less than the rate at which it can be processed. Buffering can be seen when you stream a video on YouTube. Part of the video is stored in the system buffer, whilst the rest of it is still downloading. Since you're playing it from your buffer instead of the Internet, there is less chance that it might get stuck due to network traffic. Buffer can be used by hardware devices to enable more efficient access to the data on the disk and improved coordination of separate activities. In programming, buffer is used to store data where it can be edited or processed before it is moved to the destination file.

Bunny hopping

Bunny hopping is a technique used in video games where the player jumps repeatedly, often while firing a weapon, in order to run faster while attacking their opponents. The player can also dodge attacks from his opponents because they become a difficult target to hit. The hopping player gets to play on the offensive. The term is typically used in in first-person shooter (FPS)

games. To bunnyhop, you need to press the jump key while holding crouch and a movement key to move faster. It is a simple technique to evade attacks efficiently. As a countermeasure, many game developers have introduced stamina meters so that the player gets tired after continued running and jumping. Many shooter games have been patched to reduce hopping speeds. Traditional bunny hopping is possible in many games such as Tribes, QuakeWorld, Half-Life, Half-Life 2, and Counter-Strike.

BusyBox

BusyBox provides tiny utilities for small and embedded operating systems such as Linux, Android, and FreeBSD. It combines several UNIX tools into a single executable. BusyBox is released as a free software under the GNU General Public License. It is also known as "The Swiss Army Knife of Embedded Linux". BusyBox was written by Bruce Perens. It was originally written to put a complete bootable system on a single floppy disk that could be used as a recovery disk and an installer for the Debian distribution. BusyBox is a powerful set of Linux utilities that you install on your Droid to give you some additional handy LINUX/UNIX based commands which you may need for some root level tasks. It is used by apps like MetaMorph and Titanium backup in order to do special operations.

C

Cache

Cache is a form of Random access memory (RAM) that a computer microprocessor can access more quickly than it can access regular RAM. Whenever a processor processes data, it first goes to cache and checks for the data in there. If the data is not found in the cache, then the main RAM is accessed. Scanning a larger memory block for data, a block which is also much further away, consumes a lot more time and resources than just accessing the cache. Cache memory is widely used in modern computers to store relevant near-use data during processing. Quicker access of data from Cache considerably increases the execution rate of the machine/processor. Usually, cache stores the data that is used most frequently by the applications run on a machine. There are various levels of cache including L1, L2, etc. The performance of the cache depends upon its Hit rate which is the "number of times data was successfully found in cache without accessing main memory". Often cache systems use a technique known as Smart Caching in which the system slowly recognizes certain types of frequently used data and uses this information while caching.

Caesar Cipher

Caesar Cipher, also known as a shift cipher, is one of the simplest encryption techniques in cryptography. It is also one of the most popular techniques of encryption and is a form of substitution cipher. Here, each letter in the message is replaced by a letter at some fixed position down in the alphabets. Therefore for a shift of 2, BOY will be written as DQA. The technique was named after Julius Caesar who used it in his confidential communications. As each letter in the message has a linear translation to each letter in cipher text, frequency analysis can be used to decipher the message. Even Brute force could also be used to decipher the message given the limited number of possibilities. Due to this linear relationship, multiple encryptions do not provide additional security. Say we shift by 2 once and then shift by 4, the total shift is 6, leading to no additional security.

Cain and Abel

Cain and Abel is a password recovery tool for the Windows OS. It lets you recover various kinds of passwords by sniffing the network, using cryptanalysis or Brute force to crack encrypted passwords, decoding

jumbled passwords, gaining access to wireless network keys, recording VoIP communications , revealing password boxes on web forms and recovering cached passwords . Instead of exploiting vulnerabilities in the software the tool utilizes certain weaknesses in authentication methods, caching mechanisms and loopholes in present protocol standards. It just makes your password recovery process from different sources a cakewalk. The latest version adds a feature called APR (Arp Poison Routing) that enables sniffing on Man-in-the-middle attacks and provides dictionary and brute force crackers for all common hashing algorithms and popular cryptanalytic attacks. This tool is available as a freeware and can be downloaded from the internet.

Call of Duty

The Call of Duty franchise started as a World War II themed first person shooter game and was a surprise hit. The WWII theme was dumped in favour of a more modern setting when Modern Warfare was announced and that game almost redefined the entire FPS genre. It was one of the first few games that started the trend of chopping down on actual play time but delivering a more cinematic experience overall. The series, since Modern Warfare, has developed such a compelling multiplayer experience that it has replaced Halo as the most played multiplayer game on Xbox. The game made Activision billions and now follows a yearly release cycle. Some claim that this has watered down the initial appeal of the game and that the series is getting increasingly repetitive with each subsequent release, but Black Ops 2, which released this month, set new records for first launch sales and is already a runaway success. The Call of Duty games are published and owned by Activision and published for Apple OS X by Aspyr Media. The Majority of them are developed by Infinity Ward and Treyarch. Associated with the franchise, Activision Blizzard created an NGO called The Call of Duty Endowment (CODE) to aid and find employment for US military veterans.

Camera Pill

Camera Pill is a pill loaded with technology similar to a digital camera and is used in medical science. It is used for capsule endoscopy to examine parts of the body that cannot be seen by other types of Endoscopy. The procedure was approved by the U.S. Food and Drug Administration (FDA) in 2001. PillCam, developed by Israel based company is the size of a large multivitamin supplement with a tiny camera at both ends. It travels through the entire length of the gastrointestinal tract through intestines in four hours and captures about four images per second following which it exits the body naturally in 5 to 8 hours. Many variants have been developed over the years and these pills have grown smaller and as with any form of technology, have grown smarter and more advanced over time.

Captcha

Captcha is a program that generates and grades tests that are solvable by humans by not by computer bots/scripts. The term Captcha (Completely Automated Public Turing Test to Tell Computers and Humans Apart) was coined in the year 2000 by Luis von Ahn, Manuel Blum, Nicholas Hopper and John Langford of Carnegie Mellon University. The first Captcha was developed for use by Yahoo. Captcha can be both Audio or Graphic. An image Captcha shows a random distorted string to authenticate a human user and is almost impossible for computer bots and scripts to decipher. Captcha is used in a variety of ways including the prevention of spam in comments, web-form submissions, the protection of email addresses, in online polls, forums for protection from spam and Search Engine bots and so on. The important thing while making a Captcha is to make sure that it is accessible to a human and is based on visual/audio perception.

Carbon Footprint

Carbon Footprint is defined as the total amount of greenhouse gas (GHG) emissions caused by an organization, event, product or individual. It's a single figure that gives us a quick idea of our impact on carbon change in the environment. Carbon footprints are easy to calculate, compare and understand with new measuring tools available today. Your carbon foot print depends on a lot of daily activities including the number of electric appliances you use, how often you travel by air and what kind of transport you use on a day-to-day basis. These measurement techniques are called Carbon Accounting. The reduction of carbon footprints through the use of alternative energy sources, such as solar or wind energy or activities such as reforestation is known as Carbon offsetting.

Cascading Style Sheets (CSS)

Cascading Style Sheets (CSS) is a style sheet language, developed first in 1997 and is used for defining the look, formatting and style of web documents written in any mark-up language including HTML, XHTML, and HTML 5 etc. or even plain XML documents. CSS is used to separate formatting rules from content. It specifies a priority scheme to determine what rule has to be applied if more than one rule is matching and is thus called Cascading Style Sheet. These CSS specifications are maintained by the World Wide Web Consortium (W3C). A style sheet consists of rules and declaration blocks. CSS Filters are used for different browsers so that all browsers parse CSS correctly. It is one of the most powerful tools for a web designer and a well-designed CSS style sheets can make a website look awesome. CSS allows you more precise control of layout and helps you apply different layouts to different media-types such as web and print and different advanced techniques.

Certificate Authority (CA)

A Certificate Authority (CA) is a trusted third-party authority on a network that manages and controls security credentials and issues the digital certificates used in creating digital signatures and public-private key pairs. It checks with a registration authority to verify that the information provided by the user requesting a digital certificate is accurate.

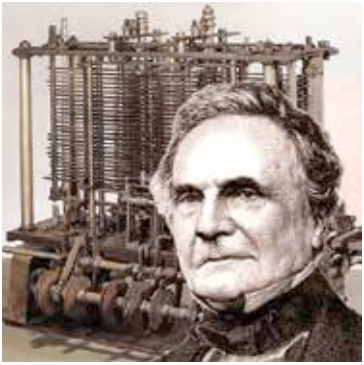
If the Registration Authority verifies the users' information, the CA can then issue a certificate. CA is a crucial component in data security, E-Commerce and M-Commerce where the identity of the user and service provider is of prime importance while information is exchanged between the two. For this reason, CA's usually use a combination of authentication techniques, including payment infrastructure, secured encrypted passwords and other custom heuristics. There are different service providers that act as CA and are scattered locally in all countries. In India, Digital Signatures are increasingly used in E-Governance and E-Commerce. For example, it is used by the Ministry of Corporate Affairs when a user registers a new company with them online.

C V Raman

Shri Chandrasekhara Venkata Raman was the first Asian to be awarded the Nobel Prize for physics for his work on the scattering of light and the discovery of the Raman Effect. Born on 8 November 1888 in Madras, his earliest researches were in optics and acoustics. Raman joined the Indian Finance Department in 1907 and conducted experimental research in the laboratory of the Indian Association for the Cultivation of Science at Calcutta. Later, he became Professor at the Indian Institute of Science at Bangalore (1933-1948).The Raman institute of research in Bangalore was also established by him. Raman published about 475 research papers and wrote five remarkable monographs covering a wide variety of subjects. His contributions were in the fields of optics, magnetism, crystal physics and acoustics. In 1954 he was awarded the Bharat Ratna. He passed away on November 21, 1970.

Charles Babbage

Charles Babbage was born on the 26th of December 1701 in London, England. An English Mathematician, mechanical engineer, phi-



losopher and inventor, Babbage invented the first mechanical computer and is thus known as the "Father of the Computers". One of his earliest honours bestowed on him include a Gold Medal from the Royal Astronomical Society for his invention of an engine for calculating mathematical and astronomical tables using a difference engine. He also invented an analytical engine that could be programmed using punch cards. A very unsociable man, Babbage wrote numerous letters to the Times even complaining about the music being played on London's streets (he hated music). As a result, he was much reviled and musicians used to play outside his house just to annoy him. There were also times when people broke his windows and at least one person went to the extent of throwing a dead cat at him. Ever the statistician, Babbage actually kept track of the number of times these "annoyances" occurred. He died on 18th October, 1871.

Checksum

Checksum also called a hash sum and is a value used to verify the integrity of a data/file transfer and detect any accidental error that may occur during the transmission or storage of that file. Network data transmissions produce errors, such as toggled, lost or duplicated bits. Checksums are typically used to compare two sets of data to check if they are same. Before sending, the transmitter calculates a checksum and once the receiver receives it, the receiver again calculates the checksum. If both the checksums match, the data has been transmitted successfully without manipulation/loss. Other applications include verifying a disk image or checking the validity of a downloaded file. Both Mac and Windows include free programs that can be used to generate and verify checksums. For Mac users, we have a built-in Apple Disk Utility and for Windows users we have the File Checksum Integrity Verifier (FCIV). These tools use different algorithms for finding the checksum. One of the most popular algorithms is the Cyclic Redundancy Check algorithm.

Chipset

Chipset refers to a group of integrated circuits, or chips designed to work together to perform certain processing tasks. A chipset is generally marketed as a single product and is designed to work with a specific family of microprocessors as it controls communications between the processor and external drives. In PCs, the first chipset, the "NEAT chipset" was developed by Chips and Technologies for the Intel 80286 CPU. Mobile phones run on embedded chipsets that perform dedicated functions that are embedded as part of the hardware of that mobile device. Smartphones have advanced chipsets which can perform a variety of tasks. There are different chipsets for Intel-based and AMD-based CPUs. In the past, several different companies provided chipsets for the PC.

Chrome OS

Chrome OS is based on Linux Operating System designed by Google for working exclusively on Web Applications. Launched on July 7th, 2009, it was made an open source project, Chromium OS on 9th Nov, 2009. Chrome OS is exclusively designed with a search key instead of the Caps Lock key. It is based on a minimal UI design philosophy and combines applications and web pages in a single tab strip. The first Chromebooks for sale were announced by Samsung and Acer Inc. along with a desktop called Chromebox. With 16 GB flash memory and a revamped media player, Chrome OS is a real treat. With next-gen Chrome OS running on the cloud without a hard drive, a lot more can be seen coming from the Chromium side. Certain disadvantages of Chrome OS being cloud based include issues with the security of data, not having an offline mode for Google Docs, etc. and other apps and the need for a reliable, high-speed Internet connection to run data-heavy applications or to perform multitasking.

Cipher Text

Cipher Text is the result of encryption performed on plaintext/message using an algorithm or key, called a cipher. Cipher text is also known as encoded/encrypted text as it contains information which is un-readable until decrypted by a proper cipher. The process of converting cipher text back to plain text is called decryption. Computer scientists use Cryptanalysis for obtaining the meaning of encrypted information, without access to the secret information needed to break the cipher. Cryptanalysis involves understanding how the cipher text

was created and finding the secret key. Encryption has been used since time immemorial (see Caesar cypher) and has been one of the most popular forms for clandestine communication.

Cisco Systems Inc.

Cisco Systems Inc. is an American multinational corporation which designs, manufactures and sells network equipment. Leonard Bosack and Sandy Lerner, a married couple who wanted to email each other across the campus started research into network equipment and were later joined by Richard Troiano who established Cisco Systems in 1984. The name cisco originated from San Francisco city. Cisco works on a wide range of next-gen network related hardware and software solutions using which the world network. The company has created a revolution with a project called "The future of Retail touch points" for changing the way people do retail shopping. It also has a project called "The future of Shopping" currently in line which uses the gesture-control technology of Kinect and helps shoppers pick up garments and other items without actually wearing/trying them. According to Anil Menon, President of Globalisation and Smart+Connected Communities at Cisco, "in 2020 a single family will be able to upload as much data onto the 'net as all the information that existed online in 2008." Cisco is also undertaking interesting projects including Road mapping the future of smart cities.

Clean Technology

Clean Technology The term Cleantech has become renowned through the work of Nick Parker and Keith Raab founders of the Cleantech Group from 2002; it began as a term and was later expanded to Clean Technologies. It includes renewable energy sources like wind power, solar power, biomass, hydropower, biofuels, recycling, green transportation, electric motors etc. Aimed at creating a pollution free environment, green/ clean technology is about creating technological solutions that are more energy efficient or use alternative forms of energy to run and minimize electronic waste. A lot of companies are on their way to support the clean technology initiative. Wipro has developed green PCs. Panasonic has developed green Air-Conditioners. Nokia secured the top position in green electronic marketing. Clean technology also involves measures of recycling and take-back programs similar to the "We recycle" program by Nokia. Siemens has developed a range of energy-efficient products

that conserved some 1.2 billion tons of carbon dioxide in a year. Intel's Instantly Available PC (IAPC) technology reduces a PC's power consumption in "sleep mode" to less than 5 watts, thus reducing power consumption by 71% over a year. GE announced its "Ecomagination" initiative under which it plans to commercialize technologies that aid customers in curbing emissions.

Cloaking

Cloaking refers to the practice of presenting different content/URLs to human visitors and search engine bots. It is considered as a violation of all major Search Engine Guidelines including Google Webmaster as it manipulates the search results and furnishes the wrong results to users. There are various methods of cloaking, such as serving up an HTML page to search engines and a flash file/image based page to users or manipulating key-words when a page is accessed by search engine bots. Cloaking is done by furnishing content based on IP addresses and running a server-side script to alter the page content when the search engine is accessing it. Cloaking is a bad practice when it comes to maintaining high search engine ranks as many of the sites detected using cloaking are banned/black-listed by search engines. Often hackers use cloaking to make the hack harder to find. In September 2007, Ralph Tegtmeier and Ed Purkiss coined the term "mosaic cloaking" where only a certain portion of the page is cloaked by changing CSS and JavaScript, thus reducing the difference between the cloaked and the real page.

Cloud Computing

The term “Cloud Computing” originated from the use of stylized clouds to denote networks in scientific diagrams. Cloud Computing is a computing model that enables convenient on-demand network and content access to a shared pool of resources including software, Installers, Scripts, Servers, Applications, Services and Storage Media etc. A lot of popular services such as YouTube, Vimeo, Flickr, Slideshare, and

Skype can be included in the list of cloud-based services. To put it more simply, cloud computing refers to computing resources (hardware or software) delivered over a network.

Codec

Codec is a device or computer program that can encode and decode a stream of digital data or a digital signal. Originating from the pair Coder-Decoder, the term Codec should not be confused with a coding format as it is a program that can read and write files as opposed to a format that is coded to and decoded from. Based on the compression quality codecs can be classified as lossy codecs where quality is reduced to achieve compression and lossless codecs where archiving is done but all the information presenting in original stream of data is retained. There are media codecs which are designed to put special emphasis on certain aspects of a media. For example, a sport video needs better motion encoding while an art exhibit video demands better encoding of color information. The Codec Engine is a set of APIs that we can use to instantiate and run relevant algorithms. Codecs normally come grouped in libraries that contain the codecs any application needs to access different audio/visual file types.

CDMA

CDMA or Code division multiple access is a channel access method in wireless technology where several transmitters can simultaneously send and receive data over a single communication channel through the use of specific codes assigned to each sender. CDMA techniques allows users to share the same bandwidth and uses spread-spectrum technology and a special coding scheme to allow multiple users on a single channel, thus optimizing the use of bandwidth. Each transmitter is assigned a code which is specific to it. Originally designed by Qualcomm in the U.S., the CDMA Standard was primarily used in the U.S. and portions of Asia by other carriers. GSM is the latest upgrade over CDMA. While both GSM and CDMA are competing with each other when it comes to higher bandwidth speed, GSM has a definite advantage because of its stronger global coverage. In India, the major players in CDMA technology are Reliance and Tata Teleservices.

Command-Line Interface (CLI)

A Command-Line Interface (CLI) is defined as a means of interaction with a computer program where we issue commands to a program using

successive lines of text called Command Lines. The CLI was the primary means of human interaction for most early operating systems including MS DOS, UNIX and Apple DOS. Implemented with a command-line interpreter, command processor or shell, CLI can be either Operating System CLI (e.g. Linux) or Application CLI (Git). Using CLI over Graphical User Interfaces (GUI) has definite advantages for advanced users such as programmers and system administrators. Programs with command-line interfaces are easier to automate via scripting and are preferred whenever a large vocab of commands along with a wide range of options can be entered more frequently with text than with a GUI. For systems with insufficient resources to run a GUI such as Tiny Core OS, CLI is preferred. CLIs are also popular among the blind, who use refreshable Braille displays, and people with other visual disabilities such as colour blindness. CLIs have also been seen on many of the early text-based adventure games.

Command Prompt

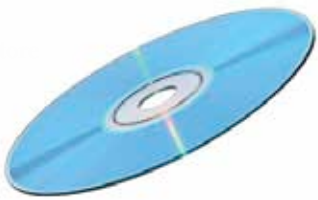
Command Prompt is a command line interpreter application available in most Windows operating systems including Windows Vista, Windows Server 2008, Windows 7, and Windows 8. Officially called Windows Command Processor or CMD, it emulates many of the command line abilities available in MS-DOS. As opposed to COMMAND.COM, which is a DOS program, cmd.exe is a native Windows application which allows it to take advantage of features available to native programs on Windows that are otherwise unavailable to DOS programs. Therese Stowell developed the initial version of cmd.exe for Windows NT. It is used to execute batch files, perform advanced administrative functions and troubleshoot issues in Windows. It can be accessed from Accessories or from the Run Dialog by typing cmd. The wide variety of commands helps users in quickly operating CMD as opposed to using a GUI, for advanced users.

Commodity Computing

Commodity Computing is about using many different already available computing components to get the most efficient parallel computation at a low-cost. This type of computing is done on hardware that is referred to as commodity hardware. The underlying principle in commodity

computing is that it is preferable to have more low-cost, low-performance hardware running in parallel than to have less/one high-cost, high-performance hardware. Commodity Computing as understood today came into the picture when Compaq developed its first IBM PC Compatible. An IBM PC Compatible is a PC that clones the IBM PC architecture and is capable of running Microsoft Windows, Linux etc. without requiring specific drivers. Commodity Hardware is very crucial to start-ups who cannot afford high-cost computers.

Compact Disc



The Compact Disc is an optical disc used to digital data. It was originally developed to store and playback sound recordings back and was later adapted for all types of data and has since been extensively used for backup and other purposes. Evolving from Laser Disc technology, many prototypes of the current CDs were made by both Sony and Philips independently in the late 1970s. The two companies then collaborated to release a standard format and CD player technology. The first CD player, known as the Sony CDP-101 was released by Sony in Japan on October 1, 1982 and Billy Joel's album, 52nd Street, was the first commercially released CD album. CD-ROM (Compact Disc, Read-Only-Memory) was an adaptation over the CD to store Data in other formats. The CD has long since been replaced by the DVD given the fall in manufacturing costs and the very Spartan storage capacity. It is still a very popular medium for the distribution of high-quality audio tracks.

Compiler

Compiler is a program or set of programs that convert the source code written in high-level programming language by programmers into object code or binary form understandable by the computing machine. A compiler usually performs Lexical analysis (converting a sequence of characters into a sequence of tokens), pre-processing, parsing, semantic analysis (determining the correctness of the syntax of programs), object-code generation and optimization. The first compiler was written by Grace Hopper, in 1952 but officially the FORTRAN at IBM is credited

as the developer of the first complete compiler in 1957. Later, the Just-In-Time (JIT) compiler was introduced which was used by Smalltalk and Java systems, and also by Microsoft's .NET Common Intermediate Language (CIL). In JIT compilers, applications are delivered in byte code and are compiled to native machine code just before execution. These days we also have online compilers using which a programmer can store his code online and use it from any internet connected device. Online compilers aid a lot in collaboration among remote teams. CodePad and CodeRun are a couple popular online compilers.

Computer-aided Design (CAD)

Computer-aided Design (CAD) is the use of computer systems (Hardware and Software) to assist in the creation, manipulation, analysis and optimization of a design. Computer aided Design is a sub process of the design process. CAD has applications in Aerospace Engineering, Military and Defence, Rail and Marine etc. CAD involves the graphics pipeline where the real world object is modelled, transformed and rasterized for display. CAD involves the use of Geometric Models and Graphics, Moving or animating models to visualize how they will behave in real world, using analysis tools and software and optimizing the design. CAD can also be used to evaluate or test the model in a simulated world. There are several software solutions for computer aided design, with Autodesk's AutoCAD being a leading player. AutoCAD supports both 3D and 2D formats and has several variations for factory design, building design, plant design and other infrastructural requirements.

Computer Generated Imagery

Computer Generated Imagery, or CGI for short, is a term applied to any type of imagery that has been entirely computer generated. This includes almost all the special effects that you see in movies and those fancy digital wallpapers and artwork that you might be downloading. CGI isn't just restricted to static imagery and is a blanket term for everything 2D and 3D generated on a computer, including animation and even those little animated GIFs.

Computing

Computing is the study of how computers and computer systems work and how they are constructed and programmed. Its primary aspects of

theory, systems and applications are drawn from the disciplines of Technology, Design, Engineering, Mathematics, Physical Sciences and Social Sciences. Computer science has many sub-fields; some emphasize the computation of specific results (such as computer graphics), while others relate to properties of computational problems (such as computational complexity theory). The first known computing tool, the Abacus, was invented in Babylon circa 2400 BC. It was originally used by drawing lines in sand with pebbles. Also, the Antikythera mechanism, designed to measure astronomical positions is believed to be the earliest known mechanical, analogue computer. After John Napier discovered Logarithms in 17th century, there was a significant upsurge in the tools and methods of computing.

Console

A console has many definitions when we're talking about computers and technology. The most popular reference is with regards to game consoles though. Dedicated devices that are built to serve one primary purpose, namely, allow you to play compatible games. Gaming consoles include devices such as the PlayStation 3, XBOX360 and Nintendo Wii U.

Another definition of console is the system console, which is the text-based admin panel that you see when you boot into your PC or even the terminal or Command Prompt in Linux or Windows. See Command Prompt for more details.

Cookie

A cookie is a packet of data that a program receives and sends without any change. It is also referred to as an HTTP Cookie, Web Cookie or a browser Cookie which is a small piece of data sent from a website and stored in a user's web browser while a user is browsing that specific website. Cookies do not carry viruses or install malware on the host

computer. There are different types of cookies including tracking cookies that, if misused, can facilitate in the stealing of a user's identity, Authentication Cookies that facilitate the finding of the login status of a user and a session cookie (transient cookie) that tracks your browsing session and is erased when a session is terminated. Interestingly, Cookies are so small that they will never fill up your hard drive as it would take about a 100 million cookies to fill up a 10GB drive!

Copyright

Copyright is a legal process to protect an author's specific work which restricts the rights of exclusive publication, usage and distribution rights only to the author. This means that nobody else other than the author can publish a copy of that work without the author's permission. The length of the copyright protection is usually about the length of an author's lifetime plus 50 to a 100 years. For online content, it can be copyright protected by putting a copyright logo next to the content/image. Copyrights have to be registered with a central agency. Timely registration can help you protect your work better under law. Copyright doesn't apply to an idea, procedure, process, system, method of operation, concept, principle, or discovery. EA recently filed a copyright infringement lawsuit against Zynga for copying elements from EA's game, Sims Social. Also recently Apple won a case filed against Samsung for $2.5bn in damages, claiming Samsung's phones and tablets copied its devices' behaviour and appearance.

Cracker

The term Cracker was coined in 1985 by hackers in defence against the journalistic misuse of the term Hacker. A security cracker is someone who purposely circumvents or breaks security measures illegally. Many of the security crackers use their skills for evil and are generally referred to as computer criminals or Black Hats as opposed to Hackers or White Hats who break security for non-malicious reasons, perhaps to test and improve security systems. Crackers break into secure networks to destroy data or make the network unusable for authorized access, perform

security exploits, crack passwords and access authorized information. Recently, crackers stole the personal records of more than 77 million PlayStation Network users including their credit card information and social security numbers. Crackers use the same tools as hackers do but create/share illegal cracked software. There are strict laws against crackers. Till date, the longest sentence for computer crime was given to Albert Gonzalez for 20 years, who was accused of performing credit card theft and subsequent reselling of 170 million card numbers during the period 2005- 2007, regarded as the largest cyber fraud in history.

Cray Inc.

Cray Inc. is a global leader in the supercomputing world, providing world-class advanced systems and solutions to industry, government and academia. The Company was incorporated in December 1987 under the name "Tera Computer Company" and changed its name to Cray Inc. after it acquired the assets of Cray Research in April 2000. Cray Research was founded in 1972 by Seymour Cray. Their first product was the Cray-1 supercomputer which was a huge success when it was released as it was faster than all the computers available at that time. Their recent offerings include Cray XE6™ Series Supercomputer and Cray Sonexion™ Data Storage System. Cray's YarcData Inc. is a Cray company that provides efficient big data solutions for businesses worldwide. Cray's 2011 revenue was pegged at $236M. Currently, Cray is conducting two major research programs: "Adaptive Supercomputing", which combines multiple processing technologies into a single system clubbed with innovative software technologies and "Cascade", which is aims at building a system capable of sustained multi-petaflops performance on real-world applications.

Creative Commons

Creative Commons or (CC) is a non-profit organization for expanding the range of creative works available for others to build upon legally and to share. It has its headquarters at Mountain View, California. The organization has launched several copyright licenses known as "Creative Commons licences" free of charge to the public. With more than 100 affiliates in over 70 jurisdictions, the organization has strong support for promoting its activities around the world. It has corporate support from Google, the Mozilla Foundation and Red hat, etc. With a wide range of

applications including Snap Gallery, Inkscape and many other web and mobile applications, Creative Commons gives users the ability to make clear licenses and terms of usage before sharing their content. If you've created something and want to share it with people and let them use and build upon your work, you should consider publishing under a Creative Commons license. Also if you are an educator, a student or scientist looking for content that you can freely and legally use, you can access the huge library of CC-licensed content available to you.

Crippleware

Any software program that cannot be utilized to its optimum level until it gets registered or is purchased is called a Crippleware. The usage of the software can be limited in many different ways until a full version is purchased officially and a license key is obtained. There are two types of Crippleware programs. One is where you cannot get full advantage of all the features of the program and the second where you get access to the entire set of features but for a limited time/usage such as Adobe Photoshop. Often Crippleware does not allow export or exports files with a watermark of the company owning the software e.g. Nitro PDF. In cases where the feature set is limited, the user may not get a real understanding of the locked features and may not be in a condition to justifiably judge the software. Considering the hardware aspects, it is a term used for those products whose functionality is limited and needs to be upgraded. The manufacturer generally releases the Crippleware as low-end or economy version of their product and interested customers can buy upgraded versions.

Cryptography

Cryptography is derived from a Greek word "crypto" meaning hidden or secret, and "graphien" which means "writing". Cryptology is the study of techniques that help us in performing secure communications through networks without allowing the information dissemination to the adversaries or any other unauthorized third party. It involves concepts

of data integrity and confidentiality and calls for strict authentication. Cryptography involves processes such as Encryption, Decryption, and Cryptanalysis etc. Different types of cryptography include Symmetric Key encryption where both the sender and receiver share the same key and Public key Cryptography where the sender and receiver have different keys. Cryptography has always gained genuine traction from intelligence and law enforcement agencies. The crime investigation agencies have groups of cryptanalysts who are continuously involved in the decryption of un-cracked ciphers and generating new, stronger ciphers for encryption.

CRM

CRM or Customer Relationship Management is a widely implemented model for managing a company's interactions with its customers, clients, and sales prospects. It involves the use of software solutions that help organizations in organizing, automating and synchronizing sales and marketing activities, customer service, feedback and technical support. Earlier, CRM was also known as Database Marketing in the 80s and later, Relationship Marketing in the 90s. Major vendors of CRM solutions include Microsoft, SAP, Oracle and Amdocs. For people who want open-source solutions, Zurmo, openCRX, SugarCRM and CentricCRM are the top rated ones. Today, many CRM vendors offer cloud-based CRM solutions that are sold as subscriptions with no added investment of purchase/maintenance required from the organization's side. This interesting trend towards cloud-based CRM forced traditional vendors to enter this market by several acquisitions including RightNow by Oracle and SuccessFactors by Sap in 2011. Salesforce.com, first company to provide enterprise applications through a web browser still continues to be the leader amongst providers in cloud CRM systems.

Cut the Rope

Cut the Rope is a 2010, physics-based puzzle video game released for a number of platforms and devices. It was developed by the Russian entertainment and gaming company, ZeptoLab. The game was published by Premier iOS game publisher Chillingo and was followed by its sequel Cut the Rope: Experiments. The game is based on the physics of cutting ropes and feeding candy to an adorable green monster named Om Nom while collecting stars for better score. ZeptoLab also released Cut

the Rope comic based on Om Nom's story which was published by Ape Entertainment. Since its release, the game has been downloaded more than 100 million times. The game won an Apple Design Award for the iOS platform (obviously) at WWDC 2011 along with an award in the handheld category of the 7th British Academy Video Games Awards. The game also won Bafta Award becoming the first iOS game to do this. The character Om Nom was very well received and became the subject of a viral video and has its own plush toys in the market.

Cyber Crime

Cyber Crime refers to offences that are committed against individuals or groups of individuals with a criminal motive to intentionally harm the victim directly or indirectly, using modern telecommunication networks such as Internet (Chat rooms, emails, Social Networks) and mobile phones (SMS/MMS). The term cybercrime is used as an umbrella term for crimes such as phishing, credit card frauds, bank robbery, scams, cracking, child pornography, cyber terrorism, the creation and distribution of viruses, spam and copyright infringement. These crimes are either network facilitated or network targeted. There are also cases where confidential information is lost or intercepted. In the past, cybercrime was committed by individuals or small groups. However, we are seeing a shift from small traditional groups to highly organized malicious technology professionals working together to make these crimes happen. With this shift, large scale cybercrimes have been possible recently. The cost of cybercrime worldwide was estimated to be about USD 8 billion in 2007-08.

CMYK

CMYK is actually short for Cyan-Magenta-Yellow-Black. In a four colour printing machine, cyan, magenta and yellow printing plates are aligned with a black plate. This black plate is the Key and is represented by 'K'

in the acronym. In the CMYK colour model, all the colours are obtained from these basic colours. In general, any image viewing/editing program such as Photo Viewer or Photoshop displays an image in an RGB format. If you want the image/text to be printed, you need to convert it into CMYK mode so that the colour scheme appears to be the same as the one displayed in print. We have applications for converting images from RGB mode to CMYK mode, such as Adobe Photoshop, Adobe Illustrator, QuarkXPress, and Adobe InDesign etc. To avoid these problems in converting into CMYK mode from RGB, Apple filed a patent application for a monitor containing filters that automatically convert into CMYK mode instead of RGB mode to avoid the need for a change in mode for printing from a Mac system.

Cybernetics

The term "cybernetics" was coined by Norbert Wiener, a mathematician, engineer and social philosopher, from the Greek word which means "to steer." He defined it as "the science of control and communication in the animal and the machine". Early applications of Cybernetics were in physical systems such as in the design of electronic circuits; later its relevance to mechanical, biological, cognitive, and social systems was understood and it became an interdisciplinary approach for exploring regulatory systems and their constraints. It's valid for any closed loop system which takes an input and generates an output which is fed back as an input to the system. It includes the study of feedback, black boxes and communication and control in organisms and machines. Cybernetics is used as an umbrella term for systems related fields such as AI, Robotics, Bio-Cybernetics, Computer Vision, Management Cybernetics, Operations Research, Cognitive Psychology, etc.

C#

The name 'C sharp' was inspired by the musical notation in which the sharp indicates that the written note should be made a semitone higher than the pitch. While the .NET framework was being developed, the class libraries were written in Simple managed C. In January 1999, Anders

Hejlsberg headed a team in developing C#. The latest version C# 5.0 was launched in August 2012. For building Android based applications using C# and .Net, there is software called Monodroid which can be used. The main applications of C# are Winforms (Windows like forums), Console (Command line Input and Output) and Websites. We can use Matlab plotting tools to plot data from C# applications. The game engine XNA developed by Microsoft runs on C # using which you can develop games for Windows PC, Xbox and Windows Phone. Also, XML documentation can be generated from source code comments in C#.

C++

C++ was invented by Bjarne Stroustrup and is one of the most popular languages for programming. While working at AT&T labs, Stroustrup faced a problem in analysing the UNIX Kernel. With a view to solve that, he began with the C classes and ended up making a new programming language called C++. With continuous evolution, the standard library evolved with it with gradual additions to the iostream Library for input-output functions and a standard template library, C++ became a strong language for advanced programming. C++ is an Object Oriented Programming Language (OOP) under which it has features like Abstraction, Polymorphism, Function Overloading, Operator Overloading, Inheritance and Encapsulation. Most of the big applications like Windows 95, 98, Me, 2000 and XP are also written in C++. Also, Microsoft Office, Internet Explorer, Mozilla, Thunderbird and Visual Studio are written in Visual C++. For most programmers, C++ is the mother of all programming languages.

D

Daemon Tools(Disk And Execution MONitor tools):

Daemon Tools is an optical media emulator for Microsoft Windows. It's a free tool that lets you create virtual drives on your PC for temporary usage, and burn images of CD/DVD/HD DVD/Blu-ray-ROM in the form of ISO, MDS/MDF and MDX files. These virtual drives work just like a physical optical drive, without you having to insert the actual disc every time, and data transfer speeds of images stored on teh hard drive are 50x faster than a normal optical drive. Daemon Tools also compresses disc images, enables password protection and allows you to add upto four virtual drives to your system. Also, all CD-like behaviour, such as autoplay and copy protection are replicated. The program also circumvents most copy protection schemas such as SafeDisc, SecuRom, LaserLock, and StarForce, which some game discs use.

Data recovery

Data Recovery is the process of retrieving or salvaging data from a secondary storage media (such as hard drives, removable disks, USB flash drive, CD/DVD, or any other electronic storage media), which is no longer accessible by normal means of computer operation. It is needed for several reasons including physical damage to the device, accidental deletion of files, forgotten passwords, or OS failures. When files are deleted, the actual contents are not removed immediately from the drive, only references to them in the directory structure are removed, and memory is made available for overwriting. The data remains in distributed fragments of memory and may be recoverable. If there is a hard disk failure, the goal is one-time recovery. This involves repairing a file system, partition table or master boot record using software, and sometimes even physically repairing parts of the disk. When the OS fails, a Live CD is required to boot the system in order to be able to get to the data, or else the hard drive has to be physically removed and connected to another PC.

Database

Raw data forms the very basis of computing these days. And if any data has to make sense it has to be structured properly for easy retrieval. That's exactly what a database is – a structured collection of interrelated data. The

stored data can be in the form of text, numbers, pictures, audio or video. The database is organised to model the real world in a way that it can be efficiently accessed, modified and updated whilst also ensuring security and consistency of data. Most databases are based on the Relational model, consisting of tables with various fields in the form of rows and columns. Databases are used everywhere these days – ranging from all of the world's financial data in banks, in universities, to run most web sites, etc. Basically if there's data to be stored, such as your name, address, telephone number, your airline booking, your salary being credited to a bank, your Facebook profile photo... it's all just entries in a database. Popular database software are Microsoft Access, MySQL and Oracle.

Dave Arneson

Dave Arneson (1947 – 2009) was an American game designer who co-created the first role playing game Dungeons and Dragons (DnD) with Gary Gyax in 1974. DnD shifts from the traditional wargaming tactics to character involvement now called role-playing. Initially the game used miniature figures to represent combatants. Arneson modified the rules of the game Chainmail, to apply to his role playing game scenario and developed the game Blackmoor. In early 80's he set up his own game company called Adventure Games. Arneson also wrote the TV series 'Dungeons and Dragons' (1983), and had a cameo role in the movie (2003) with the same title. In late 1980s he stepped into the computer industry and founded 4D Interactive Systems Inc. in Minnesota. He also worked as a professor of computer game design later in his life.

David Filo

David Filo is the co-founder and chief of Yahoo! Inc. Filo directs the technical end of operations behind Yahoo!. He wrote the Filo Server Program in C language, which was the server-side scripting software that dynamically served several

web pages (called Filo Server Pages) on the Yahoo! web site. Later the company switched over to PHP. According to Forbes, he was estimated to be worth $1.2B as of September 2012, ranking him as the 960th richest person in the world. David Filo and Jerry Yang started a web site "Jerry and Dave's Guide to the World Wide Web", which was later renamed "Yahoo!". It started as a web portal consisting of a directory of other web sites, and has now come to provide various other services such as Yahoo! Directory, Yahoo! Mail, Yahoo! News, Yahoo! Finance, Yahoo! Groups and Yahoo! Answers.

DDR 3

DDR stands for Double Data Rate. It is a type of SDRAM (synchronous dynamic random access memory) for computer memory. DDR memory can transfer data on both rising and falling edges of the clock signal, and thus they are twice as fast as regular SDRAM chips. The current version, DDR3 RAM is about 30 per cent more efficient in power usage than its predecessor DDR2, having a 1.5V supply voltage (DDR2 - 1.8V), with improved performance and speeds. While DDR2 memory can transfer data at up to 3200 MBps, DDR3 memory supports maximum data transfer rates of 6400 MBps. DDR3 memory modules look similar to DDR and DDR2 chips, but are not backward compatible with DDR2 memory slots.

Debian

Debian is a free operating system for your computer released under the GNU General Public License. Its is a popular Linux distribution. It runs on a variety of devices including laptops, desktops, phones and servers. It comes with a large repository of packages to choose from. The open source community focuses on security and stability of Debian, and packages are scrutinised for flaws before being released to the public. Debian is the only OS that supports three kernels – Linux, FreeBSD and the Hurd kernel. Its standard install makes use of the GNOME desktop environment, and includes programs such as LibreOffice, Iceweasel (Mozilla

Firefox), Evolution mail, media players, and CD/DVD writers. The Maemo operating system (seen in Nokia N900 and Nokia N9), developed by Nokia for smartphones and tablets, is based on the Debian Linux distribution.

Debug

A computer program may contain several errors known as 'bugs'. These can be syntax errors or logical errors which change the whole meaning of the code. The process of finding and correcting or removing these errors is called "debugging". Debugging is a complex methodical process, and fixing some bugs may lead to others. Debuggers are software tools that help a programmer to test and debug a program by monitoring its execution, and allowing provisions to start, re-start, stop and set breakpoints in the program. The term "debugging" is not restricted to software code, and may be used to refer to correcting defects in a piece of hardware. Anti-debugging, on the other hand refers to techniques that hinders the debugging process and is used by some malware to hamper their detection.

Decoder

A decoder turns a scrambled electronic signal into something meaningful. It does the reverse operation of an encoder to retrieve the original information that was encoded for security and other reasons. Whatever method is used to encode the signal is just reversed in order to undo the encoding. A decoder is a combinational circuit made of logic gates which are embedded on a single integrated chip. It is a multi-input multi-output circuit that can convert binary information from n input lines to a maximum of 2n unique output lines. It can be used to convert a binary number into decimal and vice-versa. They are also used in designing the computer architecture to obtain control signals for various functions of the CPU.

Defragment

When a file is stored on your computer, it is distributed across the memory, i.e it is fragmented. To access that file, the reading head of hard drive has to skip many locations to fully read its contents. Because the data is spread across the entire disk, the hard disk seek time is increased and it can reduce your computer's performance. Defragmentation is the process to compile those fragments and store them in contiguous memory locations from start to finish. If you hear more than the usual amount of sputtering noises from your hard disk, in all likelihood it's extremely fragmented and it's time to

run defragmentation. Windows comes bundled with a defragmentation program or a commercial disk utility such as Norton Utilities can also be used. Mac users can use DiskWarrior or Tech Tool Pro. Its good practice to defragment your hard disk once a month. Of course defragmentation doesn't apply to SSDs and in fact doing so will reduce their life.

Degauss

The Earth has a magnetic field, and charges due to this field may build up inside a CRT monitor which causes a loss of colour accuracy. Degaussing is the process of removing or reducing the unwanted magnetism from the monitor. Many of the later generation monitors could automatically degauss their picture tubes on startup causing the screen to go crazy for moment and a buzzing sound can be heard; others had a "degauss" button on them. Magnetism doesn't build up in flat-panel displays, so degaussing is not required there. Degaussing is also used to erase the data stored on magnetic storage media. Data is stored on magnetic media by aligning small areas called magnetic domains. Degaussing causes these domains to align randomly with no fixed orientation causing erasure of data. A degausser is a device that generates magnetic fields to erase data from magnetic tapes or disks.

Del.icio.us

Del.icio.us(now Delicious) is a social bookmarking web service for collecting, categorizing and sharing your favourite web pages from across the web. Common bookmarked web pages include videos, pictures, blogs, news articles and tech support pages. You can add tags to your bookmarks for better search results and you can also add other's bookmarks to your list. The service keeps a track of all the bookmarks and you can see what are the most popular and trending items on the web. Delicious was founded by Joshua Schachter in 2003; later acquired by Yahoo! in 2005. The site was sold again in 2011 to AVOS, a company owned by YouTube founders Chad Hurley and Steve Chen. Delicious is just one example of the social bookmarking phenomenon that drives content discovery in the online space today. The name "del.icio.us" is a well known example of domain hack (like "goo.gl" and "fold.it"), where "del" is the domain prefix and "icio.us" is the domain name.

del.icio.us

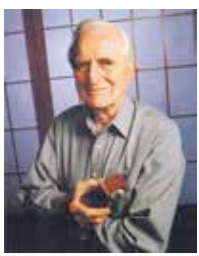
Dell

Dell is an American company, headquartered in Texas, that develops and sells computers and related products and services. It is named after its founder and CEO Michael Dell. It is the third largest PC vendor in the world after HP and Lenovo; it's ranked #44 in the Fortune 500 list The precursor to Dell was PCs Limited, created by Michael Dell in his hostel room in college. In 2006, Dell acquired Alienware, a computer hardware company that assembles third party components into computers. Alienware products have distinctive sci-fi looks that appeal to geeks. In 2009, Dell bought Perot Systems which we know as Dell Services.

Denial of Service

In a denial-of-service(DoS) attack, streams of requests are sent to a targeted server in order to overload its bandwidth and thus make it unavailable to the intended legitimate users. It may result in temporary or indefinite suspension of services. These requests may be as small as pings or large packets of data. While handling all these unwanted requests, others are queued to be processed and the backlog increases to a great extent slowing down the server. Even a highly secure network is vulnerable to a DoS attack since flooding the server with requests does not require authentication. A DoS attack initiated from several computers spread across the network is known as distributed-denial-of-service(DDoS) attack. It is commonly implemented using botnets which are more difficult to trace. It's a popular weapon of choice for hacker groups such as Anonymous.

Dennis Ritchie



Dennis Ritchie is the creator of C language. He also co-created the Unix operating system with Ken Thompson at AT&T Bell Laboratories. His main contribution to Unix was the operating system's portability to various platforms. He also wrote The C Programming Language with Brian Kernighan; he was the R in K&R C. Ritchie received the Turing Award in 1983 and the National Medal of Technology from President Clinton in 1999. He was commonly known by his username dmr. He died a week after Steve Jobs in October 2011, but this news was overshadowed by the demise of the Apple CEO.

DHCP

DHCP, or Dynamic Host Configuration Protocol, is a network protocol that allows the server to dynamically assign an IP address to your computer from a defined range of numbers stored on the server. When your modem comes online, it indicates to the DHCP server that it is looking for an IP address. The server acknowledges this request and your modem transmits its MAC address to the server. The server looks up the reserved IP or assigns a new one to your system. DHCP is preferred over static IP addressing, in which a computer is configured manually to a specific IP address, in setting up large networks. Static assignment may lead to loss of service if two computers are configured with same IP address. DHCP servers typically grant IP addresses to clients for a limited time interval, and renewal of IP address is client's responsibility before expiration of that period.

Dial-up

Some of you may still remember the weird beeps and singsong tones of a modem from yesteryears. Those were the good old days when 56 kbps was the standard speed. A dial-up connection was the standard way of connecting to the internet in the 1990s, but of course now it is being replaced by DSL and cable modem connections (known as broadband) that provide speeds much better speeds. Dial-up used the facilities of Public Switched Telephone Network(PSTN) to establish a connection with your Internet Service Provider(ISP). When you initiated a dial-up connection, the modem dialed the phone number of your ISP which then establishes the connection. The dialing process would take a few seconds and you were greeted by that familiar beeping and whirring. The down side was that you could not make calls and use Internet from the same telephone line. Popular dial-up Internet Service Providers in India are Tata Indicom, BSNL, VSNL and MTNL.

Digital Signature

Digital Signature is the digital analog for a paper signature for the purpose of authentication of sender's identity. It is attached electronically to data such as pdf, emails and other word processing documents, after which no changes can be made to it. Your unique digital signature should be difficult to forge. It can also provide non-repudiation, which means that you cannot claim that you didn't sign any electronic document bearing your signature. Digital signatures employ a type of public-key cryptosystem and hashing. The electronic message is encrypted with the private key and decrypted

with the public key that is sent with the message. The hash code is also sent along with the message to verify your identity. To digitally sign a document, you must obtain a digital ID from certification authorities like VeriSign and EchoSign. Using that digital ID, you can use the "sign" feature of programs such as Adobe Acrobat or Microsoft Outlook to stamp your documents.

DirectX

DirectX is a set of commands and functions that are ready-to-use and makes it easier for the programmers to create software; mainly games. By using DirectX commands, developers can use predefined functions to manage video and sound of their game. Technically DirectX is a set of APIs(Application Programming Interfaces) that software developers use when creating programs on Microsoft platforms. It is used to denote all the APIs beginning with Direct, i.e Direct3D, DirectPlay, DirectMusic, DirectDraw, DirectSound and the like, with X substituted for each API. The X initial was later used by Microsoft to name its gaming console Xbox which uses the DirectX technology. DirectX was introduced with the Windows 95 Service Release 2. The purpose of DirectX was to make Windows as developer-friendly as MS-DOS.

Disk Image

A disk image is a soft copy of a physical storage device such as hard drive, CD, DVD, optical disc or a USB flash drive. Disk image is a clone of the physical disk that serves as backup in case system restore is required. It is created by copying the disk sector by sector thereby replicating the exact file structure and the entire data from the disk. Nero, Acronis True Image and Norton Ghost can be used for creating disk images for Windows, and Apple Disk Utility and Roxio Toast can be used by Mac users. The disk images are stored as .ISO, .BIN or .DMG files which aren't directly readable, they require mounting by the operating system or a disk utility program.

DNS

DNS stands for Domain Name System. It is a naming system for computers, servers and other resources connected to the Internet. It is used because websites are located by their IP addresses, which are difficult to remember. When you type a website's name, the computer sends a request to the nearest

DNS server which finds the correct IP address for that website. Your computer then connects to the server with that IP address. You can bypass the DNS by entering the IP address directly in your browser, but that's only if you can remember all those numbers correctly. The DNS is kind of like the phone book on your cellphone. Paul Mockapetris invented the Domain Name System in 1983. Before that, the HOSTS.TXT file on each computer which mapped hostnames to numerical addresses. Modern operating systems still contain a hosts file by default which may be used to define any hostname or domain name for use in the local system.

Dock

Dock is a GUI feature, originally introduced in the Mac OS X, with a virtual tray of icons that provides one-click access to frequently used programs. It can be displayed as an autonomous entity on the top or bottom of your desktop, and can be incorporated in the Taskbar. It contains shortcuts of various applications. You can customize your Dock by adding and removing applications of your choice. The earliest known implementations of Dock is the Iconbar in RISC OS. There are several dock applications available for various operating systems, for e.g. The Dell Dock application comes pre-installed on Dell computer systems running on Windows OS.

Dolby Digital

Dolby Digital, formerly known as AC-3, is a digital audio coding technique developed by Dolby Laboratories. It is Dolby's third generation audio compression technique that makes it possible to store and transmit high quality digital sound far more efficiently than previously possible. It reduces the amount of data needed to produce high quality sound. Dolby Digital was first used in Batman Returns and debuted in theaters in 1992. Dolby Digital is used with DVDs, HD television, and digital cable and satellite transmissions. It has been selected as the audio standard for digital television. At the option of their producers, Dolby Digital programs provide five full bandwidth channels (left, centre, right, left surround, and right surround) and a sixth low-frequency effects(LFE) channel (sometimes referred to as .1 channel because it takes only one-tenth the bandwidth of the others) for action sequences and special effects that are felt more than they are heard in movie theaters.

Domain Name

A domain name is a string of characters that uniquely identifies a website or any other service connected to the Internet. Every website has a domain name that serves as its address. Every domain name is translated to an IP address by the DNS which locates the server of the website you want to access. Domain names are a component of the URL (Uniform Resource Locator). For e.g. In the case of *www.thinkdigit.com* "thinkdigit" is called the label, the domain name is "thinkdigit.com"; the "*www*" isn't part of the domain name, while the ".com" is called domain suffix. A domain suffix helps in identifying the type of website. Some suffixes indicate geographies – ".in" for India, ".us" for the United States, and so on. The first commercial registered domain name was symbolics.com by Symbolics Inc in 1985. Domain names conform to the rules of Domain Name System (DNS). Ultimately, the Internet Corporation for Assigned Names and Numbers (ICANN) is responsible for managing the Internet domain name space.

Dongle

A dongle is a hardware device that plugs into the serial or USB port of the computer and serves as an electronic key for some software and applications. Wordcraft was the first program to use a software protection dongle. Dongle can also be used to designate any hardware that plugs into the computer. A 3G or WiMAX dongle is a device that attaches to the USB port in your computer to connect to 3G or WiMAX networks. Internet dongles have a SIM inserted in them, which uses a network to connect to the Internet. These portable devices provide Internet connectivity while you're on-the-go.

DOS

DOS, short for Disk Operating System, was the first operating system used by IBM compatible computers. DOS uses a non-graphical command line interface. The user has to type commands to perform functions, which is a tedious job as one has to remember a lot of commands. The first version of DOS for personal computers was developed by Bill Gates for IBM and called PC-DOS. Gates retained the rights to sell it under Microsoft's name and named it MS-DOS. The first Microsoft Windows operating system(until Windows 95) was really an application that ran on top of MS-DOS. The OS was rewritten and Windows NT was the first to run on its own. The DOS command prompt can be run from Windows by going to Run in Start Menu and typing cmd. There are various DOS emulators

for modern operating systems such as DOSEMU for Linux, and DOSBox for Windows.

Dot Matrix

Dot Matrix is a 2D matrix of dots which can be used to represent characters, symbols or images. They are used in electronic LED displays, monitors and even printers. In a dot matrix display, the figure is approximated using a set of dots. The more the number of dots, more accurate and clear is the picture. If the number of dots is sufficient, the picture will seem continuous to the human eye instead of being formed by a group of dots. The resolution of a 16x16 matrix is more than that of a 8x8 matrix and so on. Bitmap images are also made up of rectangular matrix of pixels. Dot matrix printers, also known as impact printers use a matrix of pins (dots) to print characters. The pattern of dots is made to hit against the ink-soaked cloth ribbon and against the paper. LED dot matrix display is a low resolution display which can be used in large hoardings for industrial purposes.

Douglas C Engelbart

Douglas Carl Engelbart made it easy to interact with the computer. He is the man behind the computer mouse. He invented a number of user-friendly systems that make interacting with the computer easier. He set up an Augmentation Research Center(ARC) at the Stanford Research Institute in California, which was funded by Defence Advanced Research Projects Agency (DARPA). There, he developed the mouse, chorded keyboard, hypertext, shared screen teleconferencing, real-time collaborative editing and more. The first mouse prototype developed by him and his colleague Bill English in 1963. It was a wooden shell with two metal wheels which were perpendicular to each other: the rotation of each wheel translated into motion along the axes. Engelbart applied for a patent for an "X-Y Position Indicator for a Display System", which was later nicknamed as mouse.

Download

Download is the process in which your computer receives data from a remote computer or server. When you save something from the Internet, you are

downloading it to your computer. The opposite of this process, sending data from your computer to a remote server is known as uploading. Downloading implies that the data that is received is stored at least for a while in your computer, and can be used only after receiving it entirely, like when you download an attachment from your email. It is different from the concept of streaming, in which data is used almost immediately as it is received while the whole file is still in transmission.

DPI

DPI, short for Dots Per Inch, is a measure of sharpness of an image both on electronic display and in print. As is clear from its name, it determines the number of dots that fit in a linear inch. More the number of dots or illumination points(on screen), better is the resolution of image. Pixels per inch(ppi) can also be used to indicate the sharpness of an image on screen; dots per inch is reserved for print medium. The average printer today provides 300 or 600 dpi. If a printer has 600dpi, it means that it can print 600x600 dots per square inch. Higher quality prints reduce the speed of printing. When viewing the image on the screen, 72 or 96dpi is sufficient as the pixels on screen take more space than dots on paper.

DreamWorks

DreamWorks Studios is a motion picture company founded by Steven Spielberg, Jeffrey Katzenberg and David Geffen in 1994. The studio develops films, television programs and video games. Presently, it is owned by Steven Spielberg, Stacey Snider and The Reliance Anil Dhirubhai Ambani Group. While it released great movies such as American Beauty, Gladiator, A Beautiful Mind, Minority Report and The Terminal, it's greatest success was in the development of animated movies. DreamWorks' animation division split and merged with Pacific Data Images under the banner DreamWorks Animation Studios. They have released a total of 24 animated films yet including Shrek, How To Train Your Dragon, Madagascar and Monsters vs. Aliens. DreamWorks Interactive, the game developer wing of the DreamWorks Studios released several games like The Lost World: Jurassic Park and Medal of Honor for the PlayStation, and Someone's in

the Kitchen! and Clive Barker's Undying for Windows. This company is now known as Danger Close Games and has released the games Medal of Honor and Medal of Honor: Warfighter under its banner.

Driver

A driver is a software that allows a particular hardware to work with your computer's operating system. It issues commands to the hardware device on requests by a program. Drivers may be required for internal components such as video adapters, network cards, as well as external hardware components such as printers, hard-disks and CD-ROM drives. Drivers are hardware-dependent and operating-system-specific. Most modern external devices are "plug and play" i.e. they do not require driver installation. But installing the specific driver may provide you additional options to customise the function of your device. For example, some keyboards are ready to use as soon as you connect them, but a driver may allow you to assign control functions to specific keys. Drivers can be installed from CDs that come with your device. Most drivers are pre-installed on your PC, and others can be downloaded off the internet from the support section of the company's website. When you check for updates, your operating system automatically detects the driver that need updation.

Dropbox

Dropbox is a personal cloud storage service that allows you to store your documents, media and more on their server, which can be accessed from anywhere around the world via the internet. It creates a special folder on your computers, which can be accessed offline, and are kept in synchronisation. The file structure is preserved, and your data can even be accessed from their website and mobile application. Dropbox also facilitates sharing of data amongst its users. It is mostly used as an online backup service. Dropbox was founded by Drew Houston and Arash Ferdowsi, MIT graduates, in 2007. The file hosting service is written in Python, and runs on almost all platforms(Microsoft Windows, Mac OS, Linux, iOS, Android, Symbian, Blackberry OS, MeeGo/Harmattan). Until 2009, Dropbox's official domain name was "getdropbox.com". Dropbox now allows its users to directly share files to Facebook Groups. The service has now reached 100 million users.

DSLR

A Digital single-lens reflex(DSLR) camera is a single-lens reflex(SLR) camera with a digital sensor instead of a photographic film. SLR employs a light reflecting mechanism which uses a single lens and a mirror to reflect the photographic image into the camera's viewfinder. You see what the lens sees. The lens on your DSLR can also be changed according to current photographic needs. These cameras store the images on a memory card which can then be transferred to the computer. The image quality depends primarily on the size of the image sensor, and then the number of megapixels. DSLRs have larger image sensors than the compact point-and-shoot cameras, and thus produce a better quality picture. DSLRs are bulky cameras and they provide various creative options to customise your camera settings. A DSLR has a near-zero lag time; it is ideal for action photography.

Dual-core

A dual-core processor is a computing element with two independent CPUs, called cores, in the same integrated circuit. You can integrate more than two cores on a single chip, which is called a multi-core processor. Each processing unit has its own controller and cache which enables it to work as efficiently as a single processor. The instruction set is the same as for a single core, but the processors execute multiple instructions at the same time. They can perform functions at twice the speed of a single processor. But the performance is software-dependent, as the program algorithm may not utilise both processors effectively. Parallel programming techniques can benefit from dual-core processor. However, most programs will be benefited from a multiprocessing system. Examples of dual core processors are AMD Phenom II X2 and Intel Core Duo.

E

E3 (Electronics Entertainment Expo)

E3, which is short for the Electronics Entertainment Expo, is an expo presented by the Entertainment Software Association (ESA) and is reserved exclusively for the computer and video games industry. Video game publishers and gaming accessory manufacturers come here to promote their upcoming games and show off their newly releasing gaming peripherals.

E3 is considered the flagship expo of the gaming industry, it is easily the biggest gaming event of the year.

The first E3 was held in 1995 and featured the very first PlayStation, i.e., Sony's debut into the video game industry. The release of the Nintendo 64, then known as the Ultra 64 and Sega's Saturn were also announced at the very same E3.

E3 2005 was the first one to be aired on television. E3 was changed to the E3 Media and Business Summit for the duration of 2007-08, during which the number of attendees steeply declined as the ESA announced that new E3 was by invitation only. It was later reverted to E3 in 2009 and was reopened to all qualified computer and gaming audiences. This move was well received and saw an attendance boost of 820%.

E-Commerce

The term e-commerce generally refers to business done via the internet. Amazon, flipkart and bestbuy are a few examples of websites devoted solely to the buying and selling of products over the internet.

The two major forms of e-commerce are Business-to-Consumer (B2C) and Business-to-Business (B2B). While B2C refers to catering directly to the consumers, B2B provides goods and products in bulk exclusively to other businesses.

E-commerce can be dated to way back in the 1960's when credit cards were first introduced. Electronic sales prior to the 1990's were pioneered by services like CompuServe and America Online which catered sales directly to consumers before the World-Wide-Web was readily available to all.

E-commerce is now a steadily growing sector with over 1.5 billion internet users world-wide feeding it, of which China has over 250 million users, making it the largest online market in the world. Successful e-commerce sectors include books, music and movies, clothes and electronics. Global e-commerce sales are steadily growing annually and are expected to hit about US$1 trillion by the year 2013.

E-mail

An E-mail, or electronic mail, can be defined as the sending of a message through a computer connection. E-mails today are a standard means of communication with over a billion messages sent out each year. The origins of e-mails can be dated back to the 1960's when users of a time-sharing computer would leave messages in a file which was accessible to all its other users.

The first glimpse of the conventional e-mail was seen in 1971 over the ARPANET (an ancestor if the internet) when Ray Tomlinson, a researcher at *Bolt Beranek and Newman Technologies* sent the first ever e-mail from one computer to another. Ray Tomlinson is more famously known for introducing the "@" sign to the email addresses we currently use.

The ARPANET was fueled by the use of e-mails through the 1970's which eventually acquired newer and better features as use of e-mails increased. Eventually, use of e-mails reached its peak after the 1990's with the universal availability of the Internet. The first free email service provider Hotmail, which was launched in 1996 by Sabeer Bhatia and Jack Smith paved the way for companies like Google and Microsoft who are now competing to offer the best full-featured e-mail programs.

E-Reader (e-Book Reader)

E-readers or eBook readers are portable hardware devices designed for reading digital books or publications. These can be anything from eBooks, e-Magazines, and even digital versions of newspapers! Similar to an iPod or any kind of portable media player, e-readers can store thousands of publications and unlike media files, textual data requires comparatively little space so you can carry around all your favorite publications in your pocket and still have room for thousands more.

E-readers support a wide range of eBook formats and can download content via a wireless network. Many e-readers offer monochrome displays, called E Ink displays or e-paper displays, while others maintain the usual full-color backlit display. While monochrome displays do not

provide colour images, the screen appears like real paper and is easily readable even in bright sunlight. According to research, these displays are safer for the eyes and allows for longer reading sessions. While there are many e-Readers available in the market, some of the more popular ones include the Amazon Kindle, the Barnes and Noble Nook, the Pocketbook and the Sony Reader.

EA (Electronic Arts)

Electronic Arts, or EA for short, is a gaming company which pioneered the early computer gaming industry. EA is still a prominent maker of games across all platforms and boasts the world's third-largest gaming company revenue following those of Nintendo and Activision Blizzard.

EA was founded and incorporated on May 28, 1983 by Trip Hawkins. Trip Hawkins, along with several of his colleagues, left Apple Computer and founded a company called "Amazin' Software" in 1982. The name was then changed to Electronic Arts late in 1982.

While EA initially published games developed by independent designers and programmers but started developing games in-house by the late 1980's.

Some of the company's biggest sellers come under the EA Sports label, including Madden NFL, FIFA Soccer, NHL and NBA Jam. EA has also established other popular franchises like Battlefield, Need for Speed, The Sims, Medal of Honor, Command & Conquer, and newer franchises like Dead Space, Dragon Age, Mass Effect and Star Wars.

EA acquires a large percentage of its revenues from console game sales. Over 40% of EA's annual revenue over the past few years have been solely from console game sales.

eBay

eBay Inc., is the world's largest online auction and shopping site. It first made its appearance in 1995 as AuctionWeb, which was part of Pierre Omidyar's personal web site. While it was initially free, Omidyar was surprised at the rapid growth of the auction service. After imposing a modest listing fee and receiving thousands of dollars in small checks, he decided that online auctions could become a full-time business.

It was in September 1997 after Jeff Skoll became president of the board, that AuctionWeb officially became eBay. The company went public in 1998, at the height of the first "Internet Boom", which made Omidyar and Skoll instant millionaires. eBays revenue for the year 2011 was $11.7 billion.

While eBay now has a more "traditional" shopping experience with fixed prices, online auctions still remain the core of eBay's business, with over a million items across a dozen categories being listed and sold every day. Several small to medium sized businesses derive their revenue from eBay, either by selling their own merchandise or by acting as agents for others.

eBay has regional operations in over 20 countries, including India and China, as of 2007.

Eiffel (Programming Language)

Eiffel is an interesting ISO-standardized, object-oriented programming language developed by Bertrand Meyer and his company Eiffel Software in 1986. The software was indeed named after Gustav Eiffel, architect of the famous Eiffel Tower in Paris. Eiffel fully supports and has in many ways pioneered programming concepts we see in more widely used programming languages today, with Java and C++ now using concepts which were first introduced in Eiffel.

While C++ and Eiffel were in development at around the same time, Eiffel provided arguably cleaner and superior design as compared to C++. However, the dominance of C++ was largely due to two factors, it had a readily available inexpensive compiler, and thousands of programmers already knew how to use C.

Eiffel is currently available for virtually all platforms and has interfaces to C, C++ and most other common languages, but remains a niche language which is used for teaching software design for a limited number of applications which still use the EiffelStudio programming environment.

Emoticon

An emoticon is defined as the pictorial representation of a facial expression, usually by using punctuation marks, numbers and letters to give

the reader a sense of the writer's mood. This boring definition is far from what an emoticon can convey right? :-)

The word emoticon is the combination of the words emotion and icon. They are often automatically replaced by small corresponding images on web forums, instant messengers and online games. These small images are also called emoticons.

The first documentation of emoticons, " : -) " and " : - (", being used over the internet was by Scott Fahlman on the 19th of September, 1982 at 11:44 am, where he proposed that emoticons be used with specific suggestions to express emotion. This documentation was considered lost, but was found 20 years later from old backup tapes by Jeff Baird.

Emoticons quickly became viral on the ARPANET and Usenet and saw a large number of variations over time.

Emulation

The word emulation comes from the verb emulate, which means to imitate or replicate.

Computer emulation can be defined as when one system imitates or replicates another system. Emulation is achievable by using hardware, software or a combination of both. But since hardware is expensive to reproduce, most emulation is software based.

Software emulation enables running of operating systems across different types of computers, such as being able to run Windows on an Apple Macintosh or Android on an iPhone. It also allows console video games, such as Super Nintendo, PlayStation and Game Boy games, to run on the PC. Creation of disk images is also considered a type of emulation. The .ISO file (Windows) and the .DMG file (Mac) are a few examples of disk images which can be mounted on the desktop to emulate a physical disk.

Encapsulation

Encapsulation is a programming term which generally refers to the process of combining elements to create a new entity.

The class mechanism in C++ and other object-oriented languages are good examples of programs which utilize encapsulation. A class generally includes both private data and procedures and public methods that make up the interface. The main program's code uses the class interface to create and manipulate new objects. By doing so, the main program's code is protected by uncontrolled modifications or access. This prevents programmers who simply want to use the functionality of the program, from viewing information that they don't need to know about.

Encapsulation, more commonly known as the term "tunneling" in networking, is a technology that enables one network to send its data through another network's connections.

Encoding

Encoding means converting of data from one form to another. It has several types including image encoding, audio and video encoding and character encoding.

By encoding digital audio, video and image files into different, more efficient, compressed formats a lot of disk space can be saved. Encoded media files typically maintain similar quality to their original uncompressed counterparts but have comparatively smaller file sizes. A WAVE (.wav) audio file that has been converted to an MP3 (.mp3) file may be 1/10th the size of the original WAVE file. This also applies to the MPEG (.mpg) compressed video file which takes only a fraction of the disk space the original digital video (.dv) file would take.

Encoded data can only be read by a program that supports that type of encoding. This is accomplished by Codecs in the case of audio and video files, which decodes the data in real-time.

Encryption

Encryption is used to code or scramble the meaning of messages. These messages can then be decrypted only by someone who has the correct code or key, which is called a cipher. Encryptions are primarily used to secure web sites or any other means of data transfer. If a third party were to intercept a message sent via a secure connection, they would be unable to make any sense of the encrypted data.

The use of encrypted messages dates back thousands of years to the Romans, who first used substitution ciphers. The first machines to use ciphers came into use during the 1930's. The German Enigma cipher machine which was used during World War II used multiple rotors to create a continuously varying cipher that was thought to be unbreakable. Allied code breakers succeeded in exploiting the flaws of the German machine with electro-mechanical and electronic devices, while simultaneously unknowingly advancing computing technology.

End User

The term "end user" comes from the idea of the "end goal" of a software or hardware product, which is ultimately to be useful to the consumer. While software and hardware go through various intermediaries as they progress through development, the end user is the person who the software application or hardware device is finally designed for. Developers, programmers, installers and administrators of the product are considered the intermediaries in this case.

Simply put, the end user is someone who uses the fully developed software or hardware product after it has been marketed and installed.

The term "user" and "end user" generally mean the same thing.

Eric Emerson Schmidt (Chairman, CEO Google)

Eric Emerson Schmidt is the executive chairman of Google. He was Google's CEO between 2001 and 2011 but later stepped down and Google co-founder, Larry Page took up the position. Eric Schmidt has a net worth of $6.9 billion.

Born in Washington on the 27th of April, 1995, he pursued his higher studies at Princeton University, where he got a BSEE (Bachelor of Science and Electrical Engineering) in 1976. He got a Master of Science at California University in 1979 and then a PhD in EECS (Electrical Engineering and Computer Science) in 1982.

He worked in Sun Microsystems as the technical and general Director in 1983. In 1997 he became Novell's CEO and president of the board of directors. In 2001, he joined Google as the CEO. In 2006 he was elected as a member of National Academy of Engineering. As strange as it may sound, he also joined Apple's board of Directors in the same year but was later forced to resign due to conflicts between Google and Apple.

Error

An error can be described as a flaw, fault, mistake, bug or failure in a computer program or system. This usually causes the program or system to produce incorrect and inaccurate results and/or behave in unintended and unexpected ways. The most common source of errors is when people make mistakes in the code, script or design of a program. In other cases it is due to the compiler producing incorrect code.

The first computer error was said to have been caused by an insect that was attracted by the heat of the computer's vacuum tubes and got lodged in them. This caused the machine to short circuit, creating the term "bug". As a result, programs with a large number of errors or software bugs that affect its functionality are called "buggy".

A study in commissioned in 2002 by the US concluded that software errors and bugs annually cost the US economy $59 billion.

eSports

eSports is described as the competitive playing of video games where gamers come together to compete before live audiences.

Much like athletic events, video games also have various categories or

genres associated with eSports. These include real-time strategy (RTS) with games like StarCraft 2, DotA and League of Legends. First-person shooters (FPS) including games like Call of Duty: Modern Warfare and Counter Strike. Massively-multiplayer online (MMOG) and racing games such as FIFA Soccer, Need for Speed, Forza Motor Sport and Gran Turismo.

Annual gaming events like the World Cyber Games (WCG) and Major League Gaming (MLG) bring the world's best gamers together and offer cash prizes to the winners.

eSports date back to the 1980's when gaming tournaments were held in arcades. The 2000's saw a steep rise of PC gaming and LAN tournaments. Online gaming via the internet fostered a whole new era of eSporting with players being able to compete in gaming competitions remotely.

Ethernet

Ethernet is the most common type of connection computers use in a LAN (local are connection). It was developed in 1976 by the Xerox Corporation in collaboration with DEC and Intel. Ethernet was introduced commercially in the 1980's and was standardized in 1985 as the IEEE 802.3 (Institute of Electrical and Electronics Engineers project 802).

An Ethernet port resembles a regular phone jack but has slightly wider dimensions. This port can also be used to connect one computer to another computer, local network, or an external DSL or cable modem.

Ethernet originally came in two forms, the 10BaseT and the 100BaseT, with transfer speeds of up to 10mbps and 100mbps respectively. The newer and faster "Gigabit" Ethernet connection's data transfer speeds peak at a whopping 1000mbps.

EUP

EUP stands for "Enterprise Unified Process". It is a software development methodology which helps companies create software in an organised and systematically structured manner. The EUP is an extended variant of the RUP or "Rational Unified Process" which was developed by Scott

W. Ambler and Larry Constantine in 2000. It was reworked in 2005 by Ambler, John Nalbone and Michael Vizdos. The EUP was made to improve upon the shortages of the RUP and adds two new development phases.

Exabyte

An Exabyte is a unit of data or information storage and is 2 to the 60th power bytes, or 1,152,921,504,606,846,976 bytes. That's over one quintillion (1,000,000,000,000,000,000) bytes. An exabyte is 1024 petabytes and precedes the zettabyte in units of computer storage measurement. Every piece of content ever written would take up roughly 5 exabytes.

Global computing capacity has increased at a rate of about 58% every year from 1986 to 2007. The world's technological capacity for information storage was 2.6 exabytes in 1986, which grew rapidly to 295 exabytes in 2007. 295 exabytes is equivalent to roughly 404 billion CD-ROMs, that's almost 61 CD-ROMs per person. Piling up 404 billion CDs would easily create a stack from the earth to the moon and still have around a quarter of the pile left over. In today's world around 2000 exabytes of information is broadcast every day.

Excel

Excel, or Microsoft Excel, is a spreadsheet program used for Windows and Mac computers. It is one of the components of the Microsoft Office suite which include other useful programs like Word and PowerPoint.

Ironically the first version of Excel was released for Mac in 1985. Later in 1987 when Microsoft first introduced Windows 3.0, Excel was made available for Windows. After the introduction to Windows, Excel has been available to both platforms and has been regularly updated at a period of about two years.

Since the release of Microsoft

Excel, the IBM Lotus 1-2-3 (for Windows) and the AppleWorks spreadsheet program (for Mac OS) were almost completely replaced in the spreadsheet industry. Excel continues to lead the spreadsheet market and is still the most popular spreadsheet program to date.

Executable File (.exe)

An executable file runs a program when it is opened. It basically executes a series of codes or instructions contained within the file. There are 2 types of executable files – compiled programs and scripts.

Compiled programs have the .exe file extension, short for executable. While Windows systems use the .exe file extension, Mac computers have the .app extension, short for application. These files are compiled into binary machine code and are executable by the CPU. The code is executed by the operating system, which only understands OS specific formats. This means that the EXE files will only run on Windows and APP files will only run on Mac OS X.

Scripts are files that are saved in plain text format, rather than binary. This allows you to open the script file and read the code. Since they have no machine code, they require and interpreter to run.

Opening unknown .exe files can run malicious code which why it is advised not to open them, especially ones received as email attachments or via the internet.

EXIF

EXIF stands for exchangeable image file format. It is a standard means of tagging image files with additional information about the image, or metadata (metadata is data which describes data). It supports most image file formats, including the TIFF and JPEG formats. EXIF is most commonly seen in images captured with digital cameras, which mostly consist of JPEG images.

When taking pictures with a digital camera, EXIF data is automatically saved with a photo. These include various bits of info like the shutter speed, whether the flash was on or off and the date and time etc. Additionally, some cameras may include EXIF data such as the brightness value, white balance setting and sensing method.

The Japan Electronic Industries Development Association (JEIDA) first introduced EXIF in 1995. Versions 2.1 and 2.2 of the specification were later established by JEIDA in June 1998, and by the Japan Electronics and

Information Technology Industries Association (JEITA) in April 2002, respectively. EXIF is not currently being maintained by any standards organization, but almost all camera manufacturers use it.

Expansion Card

An expansion card, also called an expansion board, adapter card or accessory card, is a printed circuit board which can be installed in a computer to add to its functionality. To add 3D graphics processing power to a computer, the user adds a new graphics card. Sound cards may be added to machines to increase the computers audio input and output connections. Users who want more USB ports can add USB expansion cards and so on. Expansion slots were first seen commercially in 1973, on the Micral N microcomputer, but were standardized by the Altair 8800, which was developed in 1974-75.

Expansion cards are usually installed in PCI slots. PCI slots have a few variations, such as PCI-X and PCI express.

Expansion cards require free slots. All-in-one machines like the Apple's iMac cannot accept expansion cards. In more simple terms, no slot, no expansion card.

Export

The Export command is usually found within a program's File menu. The export command is similar to the Save as... command, which is also located in the File menu. Instead of just saving files with different name or format using the "Save as..." command, "Export" can be used to save parts of a file, create a backup copy of the file, or save a file with customized settings.

The Export command is very situational, hence, it is not available in all programs. Text editors usually don't include the export feature simply because text documents do not (usually) contain specific content to export. The Export command is often used in multimedia programs, such as photo and video editing programs like Adobe Photoshop and the Apple QuickTime Player where users can play around with multiple settings, formats and dimensions.

Extranet

The extranet is an internal network which allows controlled access to other users over the Internet. An extranet can be viewed as an extended intranet which is accessible only to specified users. Extranets can be accessed via the

Internet and certain security protocols need to be followed while accessing an extranet.

While intranets are used within businesses and companies, extranets are used to share selective information with other businesses or individuals securely over the Internet, without divulging information to the general public.

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