

Database databsdetailIntro to Computer Applications

Chapter 1: Why Computers Matter to You: Becoming Computer Literate

- **Computer literate:** being familiar enough with computers that you understand their capabilities and limitations
- **Chart on pg. 4**
- **Data Mining:** process of searching huge amounts of data with the hope of finding a pattern
- **Bluetooth Technology:** A type of wireless communication to transmit the scanned data through radio waves to a terminal (Maxicode in UPS shipping, etc)
- **Computer forensics:** a specialty that analyzes computer systems with specific techniques to gather potential legal evidence
- **Radio Frequency Identification Tags (RFID):** agricultural outbreaks can be managed and minimized.
- **Patient simulator:** life-sized computer-controlled mannequins that can speak, breathe, and blink; Pulse and heartbeat and respond just like humans to procedures such as administration of intravenous drugs
- **Braingate Neural Interface:** implanted in the patient's brain, a signal converter recognizes patterns and then translates them into commands to a robotic arm.
- **Nanometers:** involves the study of molecules and structures (called nanostructures); one billionth of a meter
- **Nanotechnology:** the science of using nanostructures to build devices on an extremely small scale (wrinkle cream, etc)
- **Affective Computing:** is computering that relates to emotion or deliberately tries to influence emotion
- **Digital Divide:** The discrepancy between those who have access to the opportunities and knowledge computers and the internet offer and those who do not.
- **Digital Home:** A home that has televisions and other technological devices all hooked to a center home network.
- **Offshored:** The process of sending jobs previously performed in the U.S. to other countries
- **Public domain:** the status of software that is not protected by copyright.
- **Software :** the set of computer programs or instructions that tells the computer what to do and enables it to perform different tasks
- **Spam:** unwanted or junk email
 - Having an international population armed with cameras and a means to quickly distribute their video allows the invisible to become visible in many ways. The Witness Project, founded by Peter Gabriel, uses this strategy to stop human rights abuses throughout the world. Their slogan is "See it. Film it. Change it." And video from the Witness Project has

changed many lives; for example, it contributed to the arrest of warlords in the Democratic Republic of Congo for the recruitment of child soldiers.

Chapter 2: The History of the PC

- **All in one computer:** a desktop system unit that houses the computer's processor, monitor, and memory in a single unit
- **Application software:** the set of programs on a computer that helps a user carry out tasks such as word processing, sending email, balancing a budget, creating presentations, editing photos, taking an online course, and playing games
- **Aspect ratio:** the width-to-height proportion of a monitor
- **Binary digit (bit):** a digit that corresponds to the on and off states a computer's switches; either 0 or 1
- **Binary language:** language that computers use to process data; 0 or 1
- **blue ray disc (BD):** method of optical storage for digital data; developed for storing high definition media; largest storage capacity of all optical storage
- **Bluetooth:** a type of wireless technology that uses radio waves to transmit data over short distances (30 ft Bluetooth 1, 60 feet Bluetooth 2); often used to connect peripherals such as printers and keyboards to computers or headsets to cell phones
- **Brightness;** measure of the greatest amount of light showing when a monitor is displaying pure white/ candelas per square meter
- **Byte;** eight binary digits (bits)
- **Compact disc (CD);** method of optical storage; originally developed for storing digital audio
- **Central processing unit (CPU or processor);** the part of the system unit of a computer that is responsible for data processing (brains); largest and most important chip in the computer; all processes, commands and functions.
- **Cold boot;** process of starting a computer from a powered down or off state
- **Connectivity port;** a port that enables the computer to be connected to other systems (modems, internet)
- **Contrast ratio;** measure of the difference in light intensity
- **Cursor control key;** set of controls on standard keyboards that moves the cursor; flashing symbol; when next character is to be added
- **Desktop computer:** regular computer; only use in one location
- **Digital video for versatile disc (DVD);** greater storage capacity than CDs
- **Digital video interface (DVI);** video interface technology that newer LCD monitors (and other devices) use to connect to a PC
- **Drive bay;** special shelf in a computer that holds special storage devices

- **Embedded computer;** specially designed computer chip that resides inside another device, such as a car
- **Ergonomics;** how computer is set up to reduce injury, etc
- **Ethernet port;** port that is slightly larger than a standard phone jack and transfers data at speeds of up to 10,000 mbps used to connect a computer to a DSL or cable modem
- **Expansion card (adapter card);** circuit board with specific functions that augment the computer's basic functions and provide connections to other devices (sound card, video card)
- **External hard drive;** an internal hard drive that is enclosed in a protective case
- **FireWire 400;** interface transport that transfers data at 400 mbps
- **FireWire 800;** fastest interface transport; 800 mbps
- **Flash drive (jump drive, USB, or thumb drive);** drive that plugs into a USB port and stores data
- **Flash memory card;** form of portable storage; removable memory card often in digital cameras, PDAS, etc
- **Flat-panel monitor;** lighter and more energy efficient than CRT monitor, often in notebook computers
- **Gigabyte (GB);** a billion bytes (speed)
- **Gigahertz (GHz);** a billion hertz (physical memory)
- **Hibernate;** power saving mode that saves current state of system into the hard drive
- **High definition multimedia interface (HDMI);** compact audio video interface standard that carries both high definition video and uncompressed digital audio
- **Impact printer;** creates an image by using some mechanism to physically press an inked ribbon against the page, causing the ink to be deposited on the page in the shape desired. These printers are typically loud, but remain in use today because of their unique ability to function with multipart forms
- **Inkjet printer;** non-impact printer that sprays tiny bits of ink
- **Input device;** hardware device to enter data (keyboard, mice)
- **Internal hard drive;** hard drive installed in the system unit
- **Kilobyte (KB);** = one thousand bytes
- **Laser printer;** nonimpact printer quick and quiet high quality printing
- **Legacy technology;** comprises computing devices , software or peripherals and techniques from a previous time that are no longer popular
- **Liquid crystal display (LCD);** technology used in flat panel monitors
- **Mainframe;** large expensive computer that supports hundreds or thousands of users simultaneously and executes different programs at the same time
- **Megabyte (MB);** unit of computer storage; 1 million bytes
- **Megahertz (MHz);** processing speed; 1 million hertz
- **Modem card;** expansion card that provides the computer with a connection to the internet via conventional phone lines

- **Modem port;** port that uses a traditional telephone system
- **Monitor (display screen);** output device
- **Motherboard;** special circuit board in the system unit that contains the CPU, ram, and slots available for expansion, all connecting to it to receive power and communication
- **Mouse;** input device; hardware; enter commands, etc.
- **Netbook;** computing device that runs a full featured operating system but weighs 2 pounds or less
- **Network interface card (NIC);** expansion card that enables a computer to connect to other computers or a cable modem to facilitate a high speed internet connection
- **Non-volatile storage;** permanent storage; read only memory (ROM)
- **Operating system (OS);** the system software that controls the way in which a computer system functions, including the management of hardware, peripherals, and software
- **Optical drive:** a hardware device that uses lasers and lights to read or write on cds, dvds, etc
- **Optical mouse;** mouse that uses internal sensor or laser, sends signals to the computer
- **Organic light-emitting diode (OLDE) displays;** display that uses organic compounds to produce light when exposed to an electric current. Unlike LCDs, OLEDs do not require a backlight to function and draw less power and have a thinner display
- **Output device;** device that sends processed data and information out of a computer in the form of text, pictures, etc
- Peripheral device
- **Pixel;** single point that creates images on a monitor
- **Plotter;** large printer that uses a computer based pen to produce oversize pictures, such as maps and architectural plans
- **Random access memory (RAM):** temporary storage, short term memory, located in a set of chips on the systems units motherboard
- **Read-only memory (ROM);** set of memory chips in motherboard which stores data and instructions that cannot be changed; holds instructions for computer start up
- **Response time;** time it takes for a pixel to change colour; lower response time, better moving images
- **S-video (super video);** a type of technology used to transmit video signals, used on lower LCD monitors and other multimedia
- **Solid state drive (SSD);** drive that uses the same kind of memory that flash drives use but can reach data in a tenth of the time
- **Sound card;** expansion card in motherboard allows sound and mic to work
- **Stylus;** pen for touchscreens
- **Supercomputer;** specially designed computer to perform complex calculations extremely rapidly ; weather forecasting, etc
- **System unit;** metal or plastic that encases the hardware
- **Tablet PC;** notebook with handwriting recognition technology

- **Terabyte (TB);** 1, 099511627..bytes or 2^{40} bytes
- **Thermal printer;** melting wax based ink on paper
- **Touchpad;** mouse on laptop/ dif from touchscreen for PDAs
- **Trackball mouse;** mouse with rollerball on top instead of bottom
- **TrackPoint device;** small joystick like nub that enables you to move the cursor with your finger
- **Universal serial bus port (USB);** port that connects to a wide variety of peripheral devices to the computer
- **Video card;** expansion card that translates binary digits to images on screen
- **Video graphics array (VGA);** port that CRT monitor connects
- **Viewing angle;** measured in degrees, to which quality of image degrades to unacceptable levels
- **Volatile storage;** like ram, short term storage, when computer is shut off, volatile storage is emptied
- **Warm boot;** restarting system when its already powered up

Chapter 3

- **Aggregator;** software that gathers all the latest update of web material based on your specifications
- **Air card;** device that enables users to have wireless internet with mobile devices
- **Boolean operator;** a word used to refine logical searches; words like or and or not indicate a relationship between search words
- **Breadcrumb trail;** a hierarchy list that shows the web pages you viewed last on the current site you are viewing
- **Broadband;** high speed internet such as cable, satellite or DSL
- **Client;** a computer that requests information in a client/server network
- **Consumer to consumer (C2C);** ecommerce between consumers such as ebay
- **Data transfer rate;** bandwidth; maximum speed at which data can be transmitted between nodes on a network
- **Dial-up modem;** device that converts signals to telephone lines
- **Digital subscriber line (DSL);** phone line, but internet and phone share the same line
- **Domain name;** part of the URL; 2 parts, a sites host and suffix to what kind of organization
- **E-mail client;** software for email, like Microsoft outlook
- **Fiber-optic service;** internet at the speed of light though glass or plastic fibres
- **File transfer protocol (FTP);** a protocol used to upload and download files from one computer to another over the internet
- **Hypertext transfer protocol (HTTP);** protocol that allows for files to be transferred so that you can see them on your computer using a browser
- **internet backbone;** main pathway of the internet traffic where all information flows

- **Internet protocol address (IP address);** a unique set of 4 numbers separated by dots; the means by which all computers connected to the internet identify each other
- **Internet relay chat (IRC);** means of synchronous group communication used in discussion forums
- **Large scale networking (LSN);** program created by us government, the objective is to fund research and development of cutting edge network technologies
- **Live bookmark;** a bookmark that delivers updates to you using RSS
- **Metasearch engine;** dogpile; searches other search engines
- **Modem;** device that translates digital data to analog signal and back again
- **Network interface card (NIC);** expansion card that enables computer to connect to other computers or cables to facilitate high speed internet
- **Newsgroup;** like a forum or discussion board
- **Path (subdirectory);** the information after the slash indicates a particular file or path within the website
- **Plug in (player);** small software program that plugs in to a web browser to enable a specific function
- **Podcast;** a type of digital media consisting of an episodic series of audio, video, PDF, or files subscribed to and downloaded through web syndication or streamed online to a computer or mobile device
- **Really simple syndication (RSS);** a family of web feed formats used to publish frequently updated works—such as blog entries, news headlines, audio, and video—in a standardized format (web feed)
- **Server;** a computer that provides resources for other computers in a network
- **Social bookmarking (tagging); when you tag things**
- **Social networking;** people communicate with their friends and share information or meet others based on interests
- **Spider; program that constantly collects information on the web, following links in view sites and reading w pages.** Spiders get their name because they crawl over the web using multiple “legs” to visit sites simultaneously
- **Subject directory;** a structured outline of web; sites organized by topics and subtopics
- **Top-level domain; (TLD);** the suffix of a URL, like .com which specifies what kind of organization the website is
- **Uniform resource locator (URL);** a website’s unique address
- **Web 2.0;** tools and web-based services that emphasize online collaborations and sharing amongst users
- **Web browser;** software installed on a computer system that allows individuals to locate, view, and navigate the web
- **Web site; location on the web**
- **Webcast; the broadcast of audio or video content over the internet, unlike a podcast, a webcast is not updated automatically**

- **Wiki; a type of website that allows anyone visiting to change its content**
- **World wide web (WWW); the part of the internet that is used the most;**
 - o **What distinguishes the web from the rest of the internet**
 - **Use of common communication protocols**
 - **That enable different computers to and display information in a compatible format**
 - **Its use of special links (hyperlinks) that enable users to jump from one place to another on the web**

Chapter 4

- **Accounting Software:** An application that helps business owners manage their finances more efficiently by providing tools for tracking accounting transactions such as sales, accounts, receivable, inventory purchases, and accounts payable
- **Application Software :** the set of programs on a computer that helps a user carry out tasks such as word processing, sending email, balancing a budget, presentations, editing photos, playing games
- **Audio editing software:** Programs that perform basic editing tasks on audio files such as beginning or end of a song or cutting a portion from the middle
- **Beta Version:** the second state of software testing. Unlike products in the first, or alpha, state, beta version products
- **Bloatware:** the pre-installed software (often trial versions on a new computer)
- **Computer Aided Design (CAD):** a 3D modeling program used to create automated designs, technical drawings, and model visualizations
- **Copyleft:** a simplified licensing scheme that enables copyright holders to grant certain rights to a work while retaining other rights
- **Course management software:** A program that provides traditional classroom tools, such as calendars and grade books over the internet, as well as areas for students to exchange ideas and information in chat rooms, discussion boards, and emails
- **Custom installation:** The process of installing only those features of a software program that a user wants on the hard drive
- **Customer relationship management software (CRM):** A business program used for storing sales and contact client information in a central database
- **Database Software:** An electronic filing system best used for larger and more complicated groups of data require more than one table and an the ability to group sort data and generate reports
- **Desktop Polishing software (DTP):** programs for incorporating and arranging graphics and text to produce creative documents
- **Drawing software (illustration software):** programs for creating or editing 2 dimensional line based drawings
- **Entertainment software:** Programs designed to provide people with entertainment; computer games

- **Entertainment Software Rating Board (ESRB):** A self-regulatory body established in 1994 by the Entertainment Software Association that rates computer and video games according to age appropriateness of content
- **Financial planning software:** Programs for managing finances, such as Intuit's Quicken and Microsoft Money, which include electronic check book registers and automatic bill payment tools
- **Freeware:** Any copyrighted software that can be used for free
- **Full Installation:** The process of installing all the files and programs from the distribution CD to the computer's hard drive
- **Integrated help:** documentation for a software product that is directly built into the software
- **Integrated software application:** A single software program that incorporates the most commonly used tools of many productivity software programs
- **Macro:** A small program that groups a series of commands to run as a single command
- **Mapping program:** software that provides street maps and geographic location
- **Multimedia software:** programs that include image, video, and audio editing software, animation software and other special software required to produce computer games, animations, and movies
- **Online mapping service:** alternative to more traditional mapping software; easily accessible with any internet connection; google maps, etc
- **Open source software:** program code made publicly available for free
- **Personal information manager software (PIM):** programs such as Microsoft outlook that strive to replace the various management tools found on a traditional desk such as calendar ,address book, notepad, etc
- **Presentation Software:** an applications program for creating dynamic slide shoes such as powerpoint
- **Productivity Software:** programs that enable a user to perform various tasks generally required in a home, school, or business (Microsoft word, etc)
- **Program:** series of instructions to be followed by a computer to accomplish a task
- **Project Management Software:** an application program, such as Microsoft project that helps project managers generates charts and tables
- **Proprietary software:** Custom software application that is owned and controlled by the company who created it
- **Shareware:** Software that enables users to "test" the software by running it for a limited amount of time free of charge
- **Simulation program:** software used for training; "reality"
- **Software:** the set of computer programs or instructions that tells the computer what to do and perform different tasks
- **Software as a service (SaaS):** Software that is delivered on demand over the internet
- **Software license:** an agreement between the user and the software developer that must be accepted before developing the software
- **Software piracy:** violating a software license agreement by copying an application onto more computers than the licence permits

- **Software suite:** a collection of software programs that have been bundled together as a package
- **Speech recognition/voice recognition software:** software that translates speech into text
- **Spreadsheet software:** an application program such as Excel that enables a user to do calculations and numerical analysis
- **System requirements:** the set of minimum storage, memory capacity and processing standards recommended by the software manufacturer to ensure proper operations of software application
- **System software:** the set of programs that enables a computer's hardware devices and application software to work together, it includes the operating system and utility programs
- **Template:** a form included in many productivity applications that approved the basic structure for a particular kind of document
- **Vertical market software:** software that is developed for and customized to a specific industry's needs
- **Virtual reality program:** software that turns an artificial environment into a realistic experience
- **Web-based application:** a program that is hosted in a that is hosted on a website and does not require installation on the computer
- **Web-page authoring software:** program you can use to design interacting erb pages without knowing HTML
- **Wizard:** a step by step guide that walks you through the necessary steps to complete a task
- Word processing software programs to create and edit written documents

Chapter 5

- **Application programming interface (API):** A block of code in the operating system that software applications need to interact with
- **Authentication:** The process of identifying a computer user based on a login or username and password. The computer system determines whether the computer user is authorized and what level of access is to be granted on the network
- **Backup and restore utility:** A windows utility (found in control panel) that shows the user how to make a duplicate copy of all the data on a hard drive and copy it to another storage device
- **Basic input/output system (BIOS):** a program that manages the data between a computer's operating system and all the input and output device attached the computer; also responsible for loading the operating stem from its permanent location on the hard drive to RAM
- **Boot Process:** the process for loading the operating system into RAM when the computer is turned on
- **Command driven interface:** Interface between user and computer in which the user enters commands to communicate with the computer system
- **Device driver:** software that facilitates the communication between a device and the operating system
- **Device manager:** a feature in windows OS that allows the user to view an f change the properties of all hardware devices attached to the computer

- **Directory:** A hierarchal structure that include files, folders and rives used to create a more organizes and efficient computer
- **Disk cleanup:** A windows utility that removes unnecessary files from the hard drive
- **Disk defragmenter:** A utility that regroups related pieces of files on the hard drive enabling faster retrieval of the data
- **Error-checking:** a windows utility that looks for lost files and fragments as well as physical errors on a hard drive
- **Event:** mouse click/ respond, etc
- **Extension (file type):** in a file name, the three letters that follow the user supplied file name, .doc, etc
- **File:** collection of related pieces of information stored together for easy reference, in database terminology, a file or table is a group of related records
- **File allocation table (FAT):** An index of all sector numbers that the hard drive stores in a table to keep track of which sectors hold which files
- **File compression utility:** A program that takes out redundancies in a file to reduce the file size
- **File management:** The process by which humans or computer software provide organizational structure to a computer's contents
- **File name:** The first part of the label applied to a file; it is generally the name a user assigns to the file when saving it
- **File path:** The exact location of a file, starting with the drive in which the file is located, and including folders and subfolders, C/Users/whatever
- **Firmware:** System software that controls hardware devices
- **Folder:** A collection of files stored on a computer
- **Gadget:** A mini-application that runs on the desktop, offering easy access to frequently used tools (calendar, etc)
- **Graphical user interface (GUI):** Unlike command and menu driven interfaces; display graphics using point and click, easier earlier model.
- **Interrupt:** a signal that tells the operating system that it is in need of immediate attention
- **Interrupt handler:** a special numerical code that prioritizes requests from various devices. These requests then are placed in the interrupt table in the computer's primary memory
- **Kernel (supervisor program):** The essential component of the operating system that is responsible for managing the processor and all other components of the computer system, Stays in RAM, the entire time, the computer is powered on, the kernel is called memory resident
- **Last Known Good Configuration:** A windows feature that starts the computer by using the registry information that was saved during the last shutdown
- **Library:** in windows 7, a folder that is used to display files from different locations as if they were all stored in a single folder
- **Linux:** an open source operating system based on UNIX. Because of the stable nature of this system, it is often used on web servers
- **Mac OS:** The first commercially available OS to incorporate a graphical interface, (GUI) with user friendly point and click technology

- **Mainframe:** large expensive computer that supports hundreds and thousands of users simultaneously
- **Menu:** A list of commands displayed on the screen
- **Menu-driver interface:** A user interface in which users choose a command from the menu
- **Microsoft disk operating system (MS – DOS):** single-user, single-task operating system, first widely installed OS
- **Multi-task:** ability of an operating system to perform more than one process at a time
- **Multuser operating system (network operating system):** operating system (OS) that enables more than one user to access the computer system at one time by efficiently juggling all the requests from multiple users
- **Operating System (OS):** the system software that controls the way in which a computer system functions, including management of hardware
- **Paging:** The process of swapping data or instructions that have been placed in the swap file for later use back into active RAM the contents of the hard drive's swap file then becomes less active data or instructions
- **Path separator:** The backslash / in Microsoft, and : in UNIX
- **Platform:** the combination of a computer's operating system and processor the two most common platforms are PC and Apple
- **Plug and play (PnP):** the technology that enables the operating system, once it is booted up, to recognize automatically any new peripherals and configure them to work with the system
- **Power-on self-test (POST):** the first job the basic input output system performs, ensuring that essential peripheral devices are attached. This process consists of a test on the video card and video memory, memory test to make sure chips are working properly
- **Pre-emptive multitasking:** when the operating system processes the task assigned a higher priority before processing a task that has been assigned a lower priority
- **Real time operating system (RTOS):** a program with a specific purpose that must guarantee certain response times for particular computing tasks, or else the application is useless; robotic equipment
- **Recycle bin:** a folder on a windows desktop in which deleted files from the hard drive are held until permanently purged from the system
- **Registry:** a portion of the hard drive containing all the different configurations (settings) used by the windows operating system as well as by other applications
- **Ribbon:** a group of icons collected for easy access
- **Root directory:** the top level of the filing structure in a computer system. In windows computers, the root directory of the hard drive is represented as C:\
- **Safe mode:** a special diagnostic mode designed for troubleshooting errors that occur during the boot process
- **Sector:** A portion of a magnetic storage device making up the smallest addressable unit of information.
- **Server:** A server computer is a computer, or series of computers, that link other computers or electronic devices together.

- **Source code:** source code is any collection of computer instructions (possibly with comments) written using some human-readable computer language
- **Spooler:** A computer program that sequences print jobs by temporarily storing them in a buffer and sending each to the printer when the printer is able
- **Swap file (page file):** a space on a hard disk used as the virtual memory extension of a computer's real memory (RAM).
- **System files:** system file is any file with the system attribute turned on.
- **System restore:** System Restore is a Windows utility that allows a user to restore their computer data to a specific former state (known as a restore point)
- **System software: the operating system and all utility programs that manage computer resources at a low level**
- **Taskbar:** in later version of Windows OS, a feature that displays and opens favourite applications for easy access
- **Task Manager Utility :** Windows utility that shows programs currently running and permits you to end nonworking programs with End Task
- **Task Scheduler Utility:** Windows utility that enables you to schedule tasks to run automatically at predetermined times with no interaction necessary on your part
- **Thrashing:** A condition of excessive paging in which the OS becomes sluggish
- **Toolbar:** a group of icons collected for easy access
- **Track:** a concentric circle that serves as a storage area on a hard drive platter
- **UNIX:** an OS originally conceived in 1969 by Ken Thompson for AT&T's Bell Labs. In 1974, the Unix code was rewritten in the standard programming language C. Today there are various commercial versions of UNIX
- **User interface:** part of the operating system that enables users to interact with the computer
- **Utility program:** A small program that performs many of the general housekeeping tasks for the computer, such as system maintenance and file compression
- **Virtual memory:** the space on the hard drive where the OS stores data if there isn't enough RAM to hold all of the programs it is currently trying to run
- **Widget:** a mini application developed for Macintosh platforms
- **Window:** in GUI, a rectangular box that displays programs on the screen
- **Windows:** OS by Microsoft that incorporates user friendly graphical interface
- **Windows 7:** Microsoft OS that builds on the security and user interface upgrades that the Windows Vista release provided, . gives users with touch screen ability to use this program
- **Windows Explorer:** main tool for finding, viewing, and managing the contents of your computer by showing the location

Chapter 6

- **3D Sound Card:** An expansion card that enables a computer to produce sounds that are omnidirectional or three-dimensional
- **Access Time:** The time it takes a storage device to locate its stored data
- **BD-ROM disc:** Blue Ray Disc Read only memory

- **Benchmarks:** a measurement used in comparing software and hardware performances. Benchmarks are created software that are specially designed to push the limits of performance in computers
- **Bit depth:** the number of bits a video card uses to store data about each pixel on the monitor
- **Blue-ray disc:** a method of optical storage for digital data, developed for storing high definition media. It has the largest storage capacity of all optical storage options.
- **Cache memory:** small blocks of memory located directly on and next to the CPU that acts as a for frequently used and new data
- **Clock speed:** The steady and constant pace at which a computer goes through machine cycles, measured in hertz (Hz)
- **Core:** A complete processing session from a CPU embedded into one physical chip
- **CPU usage:** the percentage of time a CPU is working
- **Data transfer rate:** (bandwidth) the maximum speed at which data can be transferred at 2 nodes
- **DVD-RAM:** rewriteable
- **DVD-ROM:** only read not written
- **DVD-R/RW:** read/rewrite/ record
- **DVD+R/RW :** read/rewrite / record
- **External SATA (eSATA):** is an interface that provides fast data transfer for external storage devices. Compared to FireWire and USB
- **Front side bus (FSB):** local bus/ The frontside bus is a physical connection that actually connects the processor to most of the other components in the computer, including main memory (RAM), hard drives and the PCI slots
- **Graphics processing unit (GPU):** A specialized logic chip that is dedicated to quickly displaying and calculating visual data, such as shadows, textures, and luminosity
- **Hard drive:** A device that holds all permanently stored programs and data
- **Head crash:** impact of r/w head against magnetic platter of hard drive; often results in data loss
- **Hyperthreading:** A technology that permits quicker processing or by enabling a new set of instructions to start executing before the previous set has finished
- **Kernel memory:** the memory that the computer's operating system uses
- **Latency:** the process that occurs after the read/write head of the hard drive locates the correct track, and then waits for the correct sector to spin to the read/write head
- **Memory module memory card:** small circuit board that holds a series of random access memory chips
- **Moore's law:** A prediction named after cofounder of Intel; states that the number of transistor on a CPU chip will double every two years
- **Non-volatile storage:** permanent storage, read only ROM
- **Optical media:** portable storage devices, such as CDs, DVDs that use a laser to write data
- **Physical memory:** the amount of random access memory (RAM) that is installed in a computer
- **Platter:** a thin round metallic storage plate stacked onto the hard drive spindle
- **Random access memory (RAM):** the computer's temporary storage space is

- short term memory is located in a set of chips on the system unit's motherboard and its capacity is measured in megabytes or gigabytes
- **Read/write head:** the mechanisms that retrieve (reads and records the magnetic data to and from a data disk. They move from the outer edge of the spinning platters to the centre, up to 50 times per second
- **Serial Advanced Technology Attachment (SATA):** a new standard for connecting hard drives into computer systems.
- **Seek time:** The amount of time that a disk drive's head takes to move to a specific location on a disk
- **Solid state drive (SSD):** a storage device that stores persistent data on solid-state flash memory
- **Sound card:** a component inside the computer that provides audio input and output capabilities.
- **System evaluation:** evaluation of performance, from the perspectives of both developers and users, of complex systems of hardware and software.
- **Video card (video adapter):** an expansion card that is installed inside a system unit to translate binary data into the images shown on the monitor
- **Video memory:** RAM that is included in part of the video card
- **Volatile storage:** temporary storage as in RAM when the power is off, the data in volatile storage is cleaned out

Chapter 7

- **802.11 standard WiFi:** A wireless standard established in 1997 by the institute of electrical and electronics engineers, also known as Wifi Wireless Fidelity. It enables wireless network devices to work seamlessly with other networks and devices
- **Backward compatibility:** the accommodation of current devices being able to use previously issued software standards in addition to the current standards
- **Cat 6 cable:** a UTP cable type that provides more than 1 GB of throughput
- **Client:** a computer that requests information from a server in a client/server network
- **Client/server network:** a network consisting of a client computer and a server computer, in which client requests information and server gives info.
- **Coaxial cable:** a single copper wire surrounded by b layers of plastic installation; used mainly in cable TV and cable internet
- **Data transfer rate (bandwidth):** the maximum speed in which data can be transmitted between two nodes on a network usually measured in megabits per second (Mbps)
- **Ethernet network:** a network that uses the Ethernet protocol; by means of which the nodes of network communicate
- **Fiber-optic cable:** a cable that transmits data close to the speed of light along glass or plastic fibres
- **Firewall:** a software program that or hardware device designed to prevent unauthorized access to computers or networks

- **Firmware:** system software that controls hardware devices
- **Gigabit Ethernet:** the most commonly used wired Ethernet standard deployed in devices designed for home networks which provides bandwidth of up to 1 Gbps
- **Home area network (HAN):** a network located in a home that is used to connect all of its digital devices
- **Home network server:** a device designed to store media, share media across the network, and back up files on computers connected to a human network.
- **Local area network (LAN):** a network in which the nodes are located within a small geographic area.
- **Media access control (MAC address):** a physical address, similar to a serial number on a n appliance that is assigned to each network adapter; it is made up of sic 2-digit characters such as 91:40:44:79:as
- **Metropolitan area network (MAN):** a wide area network (WAN)that links users in a specific geographic area
- **Multiple input multiple output (MIMO) network:** a design in newer routers that provides for faster wireless transmission by utilizing more than one antenna to receive and transmit data
- **Network adapter:** a device that enables the computer (or peripheral) to communicate with the network of using a common data communication language or protocol
- **Network administration:** someone who has training in computer and peripheral maintenance and repair, network design, and the installation of network software, installs new equipment, configures computers for users, repairs equipment, and assigns network access to users.
- **Network attached storage device (NAS):** a specialized computing device designed to store and manage network data
- **Network Architecture:** the design on a computer network; includes physical and logical design
- **Network Interface Card (NIC):** an expansion card that enables a computer to connect other computers or to a cable modem to facilitate a high-speed internet connection
- **Network navigation device:** a device on a network such as a router, hub, and a switch that moves data signals around the network
- **Network Operating System (NOS):**software that handles requests for information, internet access, and the use of peripherals for the rest of the network nodes
- **Network Ready device:** a device (such as printer or external hard drive)that can be attached to a network instead of needing to be attached to a computer on the network
- **Node:** a device connected to a network such as a computer, a peripheral (such as a printer), or a communications device such as a modem

- **Packet:** a small segment of data that is bundled for sending over transmission media. Each packet contains the address of the computer or peripheral device which is being sent
- **Peer to peer (P2P) network:** a network in which each node connected to the network can communicate directly with every other node on the network.
- **Router:** A device that forwards data packets to parts of a computer network
- **Server:** a computer that provides resources to other computers on a network
- **Service set identifier (SSID):** a network name that wireless routers use to identify themselves
- **Switch:** a device for transmitting data on a network. A switch makes decisions based on the media access control (MAC)
- **Throughput:** The amount of material or items passing through a system or process
- **Transceiver:** A device that can both transmit and receive communications, in particular a combined radio transmitter and receiver.
- **Transmission Media:** Anything such as wire, coaxial cable, fiber optics, air or vacuum, that is used to carry a signal.
- **Twisted-pair cable:** Twisted pair cabling is a type of wiring in which two conductors (the forward and return conductors of a single circuit) are twisted.
- **Unshielded Twisted Pair (UTP) cable:** A cable that is made of one or more twisted pairs of wires and is not surrounded by a metal shield.
- **Wide Area Network (WAN):** A computer network in which the computers connected may be far apart, generally having a radius of half a mile or more.
- **WiFi:** the 802.11 standard for wireless data transmission established by the institute of electrical and electronic engineers (IEEE)
- **Wireless Range Extender:** A device that amplifies your wireless signal to get it out to parts of your home that are experiencing poor connectivity

Chapter 8

- **Analog:** waves that illustrate the loudness of a sound or the brightness of a colour in an image at a given point in time
- **Analog to digital converter:** converts analog signals into digital signals
- **Base transceiver system:** a large communication tower with transceivers, antennas and amplifiers.
- **Codec:** a rule implemented in either software or hardware which squeezes a given amount of audio and video information into less space
- **Data plan:** a connectivity plan or text message plan from cell phone, etc.
- **Derivative work:** intellectual properties that are based on an individual work but are modified in some way.

- **Digital signal processor:** a specialized chip that processes digital information that transmits signals very quickly
- **Flash memory:** portable removable memory
- **Global positioning system (GPS):** a system of 21 satellites (plus 3 working spares); built and operated by the U.S. military that constantly orbit the earth. They provide information to GPS-capable devices to locate locations on earth.
- **Internet Tablet:** a very light portable computing device without a keyboard
- **Microbrowser:** software that makes it possible to connect to the internet from a PDA/smartphone
- **Mobile Switching center:** a center station that receives cell phone requests from a base station
- **Multimedia message service (MMS):** an extension of short message service (SMS), that enables messages to include sound, images, text and video from a cell phone/PDA
- **Netbook:** A computing device that runs a full-featured operating system but weighs two pounds or less
- **Portable media player (PMP):** a small portable device like an iPod that enables you to carry your mp3s or other media files around with you.
- **Resolution:** the clearness or sharpness of an image which is comprised of the number of pixels displayed on the screen
- **Sampling rate:** the number of times per second a signal is measured and converted to a digital value. Sampling rates are measured in kilobits per second
- **Short message service (SMS):** technology that allows short text messages up to 160 characters to be sent over mobile networks
- **Smartphone:** a device that combines the functionality of a cell phone, a PMP to be sent over mobile networks
- **Syncing (for synchronizing):** the process of updating data on portable devices such as a cell phone or iPod, and computer so that they contain the same data
- **Telephony:** the use of equipment to provide voice communications over a distance
- **Ubiquitous computing:** the condition in which computing is so woven into the fabric of everyday life that it becomes indistinguishable from it.
- **VoIP (voice over internet protocol)**
- **Wireless Internet service provider (WIRELESS ISP):** an ISP that provides service to wireless devices such as PDA/smartphones
- **Wireless markup language (WML):** a format for writing content viewed on a cellular phone or PDA that is text based and contains no graphics

- **Adware:** a program that installs on your computer when you download freeware program game or utility. Generally, adware enables sponsored advertisements to appear in a section of your browser window or as a pop up ad .
- **Antivirus software:** software that is specifically designed to detect viruses and protect a computer from harm
- **Backdoor program:** a program that enables a hacker to take complete control over a computer without the legitimate user's knowledge or permission
- **Biometric authentication device:** a device that uses some unique characteristic of human biology to authenticate legitimate users.
- **Black hat hacker:** a hacker that destroys information or steals it for illegal gain.
- **Bomb software:** software that destroys information if someone continually keeps trying to access the password.
- **Boot-sector virus:** a virus that replicates until it reaches the master boot record or hard drive
- **Botnet:** large group of software applications that runs without user intervention through a wide variety of computers (called a robot or bot)
- **Cookie:** a small text file that some websites automatically on client computer's hard drive when the client uses the website.
- **Cyberloafing:** playing games on a computer when you are supposed to be working
- **Denial of service (DOS) attack:** an attack that occurs when legitimate users are denied access to a computer system because a hacker keeps repeatedly making requests
- **Distributed denial of service (DDoS) attack:** an automated attack that is made by several zombie computers at the same time
- **Drive by download:** the use of malicious software to steal your info while you browse the web without you knowing
- **Dynamic addressing:** the process of assigning IP addresses when users log on
- **Encryption virus:** a malicious program that searches for common data files and compresses them into a file; making the files unusable.
- **Hacker:** anyone who unlawfully breaks into a computer system
- **Hoax:** an email or website that contains false information with the intention of deceiving users.
- **Identity theft:** the process by which someone uses personal information about someone else to assume the victim's identity for the purpose of defrauding others.
- **Image backup (system backup):** a copy of an entire computer session created for restoration purposes.
- **Incremental backup (partial backup):** a type of back up that only the backup files that have been changed since they were last backed up.

- **Inoculation:** a process used by anti-software virus; compares old and new quality of files to detect viral activity.
- **Internet protocol address (IP address):** the means by which all the computers connect the internet identify each other; consists of 4 numbers separated by dots
- **Keystroke logger:** a type of spyware program that monitors keystrokes with the intent of stealing passwords, login ids, or credit card information
- **Logic bomb:** a computer virus that runs when a certain set of conditions is met, such as when specific dates are keyed off the computer's internal clock.
- **Logical port:** a virtual communications pathway that enables a computer to organize requests for information (such as web page downloads and email routing)
- **Logical port blocking:** a condition in which a firewall is configured to ignore all incoming packets that request access to a certain port so that no unwanted requests will get through to the computer
- **Macro virus:** a virus that is distributed by hiding it inside a macro
- **Malware: software that is intended to render a system temporarily or permanently useless or to penetrate a computer system for information gathering.**
- **Master boot record:** a small program that runs whenever a computer boots up
- **Multipartite virus:** literally meaning "multipart virus" a type of computer virus that attempts to infect both the boot section and the executable files at the same time.
- **Network address translation (NAT):** a process that firewalls use to assign internal IP addresses on a network
- **Packet:** segment of bundled data
- **Packet filtering:** a feature found in the firewalls that filters out unwanted data packets, sent to specific logical ports
- **Packet sniffer:** a packet that looks at the (sniffs) each data packet as it travels on the internet
- **Personal firewall:** a firewall specifically designed for home networks
- **Pharming:** planting a malicious code on a computer that alters the browsers ability to find web addresses and directs users to bogus websites
- **Phishing:** the process of sending e-mail messages to lure internet users into revealing personal information.
- **Polymorphic virus:** a virus that changes its virus signature, (the binary pattern) that makes the virus identifiable every time it infects a new file. Makes it difficult to detect.
- **Pretexting:** the act of creating an invented scenario (the pretext) to convince someone to divulge information
- **Program file:** a file that is used in the running of software programs and does not store data

- **Quarantining:** the placement (by antivirus software) of a computer virus in a secure area on the hard drive so that it won't spread infection to other files
- **Script:** a list of commands (mini-programs) that can be executed on a computer without user interaction
- **Script kiddie:** an amateur hacker who lacks sophisticated computer skills. These individuals are typically teenagers who don't create programs used to hack into computer systems but instead used tools created by skilled hackers that enable unskilled novices to wreak the same havoc as professional hackers
- **Social engineering:** any technique that uses social skills to generate human interaction for the purpose of enticing individuals to reveal sensitive information
- **Spyware:** an unwanted piggyback program that downloads with the software you want to install from the internet and then runs in the background of your system
- **Static addressing:** a means of assigning an IP address that never changes and is most likely assigned manually by a network administrator
- **Stealth virus:** a virus that temporarily erases its code from the files where it resides and hides in the active memory of the computer
- **Surge protector:** a device that protects the computers and other electronic devices from power surges
- **Time bomb:** a virus that is triggered by the passage of time or on a certain date
- **Trojan horse:** a computer program that appears to be something useful or desirable like a game, but at the same time does something malicious in the background without the user's knowledge
- **Uninterruptible power supply (UPS):** a device designed to power a computer from large batteries for a brief period during a loss of electrical power
- **Urban legend:** a hoax that becomes so well known that it is accepted by society as true even though it is false
- **Virus:** a computer program that attaches itself to another computer program and attempts to spread itself to other computers when files are exchanged
- **Virus signature:** a portion of the virus code that is unique to a particular computer virus and makes it identifiable by antivirus software
- **White-hat hacker:** a hacker who breaks into systems just for the challenge of it and doesn't wish to be malicious on the systems. Such hackers tout themselves as experts who are performing a needed service for society by helping companies realise the vulnerabilities that exist in their systems.
- **Whole-house surge protector:** a surge protector that is installed on or near the breaker panel of a home and protects all electronic devices in the home from power surges

- **Worm:** a program that attempts to travel between systems through network connections to spread infections. Worms can run independently of host file execution and are active in spreading themselves.
- **Zombie:** a computer that is controlled by a hacker who uses it to launch attacks on other computer systems

Chapter 10

- **AJAX (asynchronous Javascript and XML):** a collection of technologies that enable the creation of web applications that can update information on a page without requiring the user to do a page refresh or leave the page
- **ActionScript:** a program language included in Flash, similar to Javascript in its keywords, operations, and classes.
- **Active Server Page (ASP):** a scripting environment in which users combine HTML scripts and reusable Microsoft ActiveX server components to create dynamically challenged web pages.
- **Adobe Flash:** a software product for developing web-based multimedia.
- **Algorithm:** a set of specific sequential steps that describe in natural language exactly what a computer must do to complete a task.
- **Assembly language:** a language that enables programmers to write their programs using a set of short English-like that speak directly to the CPU give the program very direct controls in the hardware usage
- **Base class:** the original object class from which other classes derive
- **Binary decision:** a decision point that can be answered of one of only two ways; true or false
- **C:** the predecessor language of C++ developed originally for system programmers provides higher programming language but still allows programmers to manipulate the system memory and CPU registers directly
- **C++: the successor language to C;** uses all the same style and keywords of C but extends the language with better keywords, security, and more support.
- **C#:** a programming language released by Microsoft to compete with Java
- **Class:** a collection of descriptive variables and active functions that together describe a set of communication principles ; objects
- **Code editing:** step in which programmers actually type the code into the computer
- **Coding:** the process of translating the algorithm into the programming language
- **Comment (or remark):** a plain English notation inserted into a program code for documentation; the comment is never seen by the compiler
- **Control structure:** the general term used for keywords in a programming language that allows the programmer to control, redirect the flow of a program based on a decision

- **Data flow diagram:** A data-flow diagram (DFD) is a graphical representation of the "flow" of data through an information system
- **Debugger:** A computer program that assists in the detection and correction of errors in computer programs.
- **Debugging:** identify and remove errors from (computer hardware or software)
- **Decision point:** a point in which the computer must choose to do a task given the amount of tasks
- **Derived class:** a class created based on a previous class
- **Documentation:** a description of the development of technical details of a computer program including how the code works and how the user interacts with the code
- **Dynamic decision making:** a mechanism that allows the web page to decide how to display , itself based on the choice the reader makes as he or she looks at the page
- **Editor:** a tool that helps programmers when inputting a code, highlights, etc.
- **Error handling:** in programming, the instructions of a program that runs if the input data is incorrect or another error is encountered.
- **Extensible markup language (XML):** a language that enables designers to define their own tags; making it easier to transfer data
- **Extensible hypertext markup language (XHTML):** XHTML is a standard that for creating HTML-based documents in an XML-compliant manner
- **Fifth generation language (5GL):** A computer language that incorporates the concepts of knowledge-based systems, expert systems, inference engines, and natural language.
- **First generation language (1GL):** a machine-level programming language, which was written in 1s and 0s.
- **Flowchart:** a visual representations of patterns n algorithm comprises
- **For:** a keyword in visual basic that used with the next keyword to implement a loop
- **Fourth generation language (4GL):** A fourth-generation programming language (1970s-1990) (abbreviated 4GL) is a programming language or programming environment designed.
- **Hypertext Markup Language (HTML):** a client-side method of embedding programming language code directly within the HTML/XHTML code within a Web Page
- **If else:** in programming language C++, keywords for binary decision within an algorithm
- **Information:** Data that has been organized or presented in a meaningful fashion
- **Information system:** A system that includes data, people, procedures. Hardware, and software and that is used to gather and analyze information.
- **Inheritance:** the ability of a new class of objects to pick up all of the data and methods of an existing class automatically and then extend and customize those to fit its own specific needs
- **Initial value:** a beginning point in a loop

- **Integrated development environment (IDE):** a development tool that helps programmers write, compile, and test their programs
- **Interpreter:** a software program that translates source code into an intermediate form line by line is then executed as it is translated
- **Java:** a platform independent programming language that Sun Microsystems introduced in the early 90s. It quickly became popular because of its object oriented design enables Java programmers to benefit from its set of existing classes
- **Java applet: a small java-based program**
- **Java Server Page (JSP):** an extension of the java servlet technology with dynamic scripting capability
- **Logical error:** a mistake in the design and planning of the algorithm itself rather than in the use of syntax and in coding
- **Loop:** an algorithm that performs a repeating set of actions. A logical yes or no expression is evaluated. As long as the expression evaluates to TRUE the algorithm will perform the same set of actions and continue to loop around FALSE, the algorithm breaks free of the looping structure and moves on to the next step.
- **Machine language:** a set of instructions executed directly by the central processing unit (CPU)
- **Method (or behaviour):** an action associated with a class of objects
- **Next:** in the visual basic programming language, the keyword used to implement loop
- **Object:** A variable in a program that is an example of a class. Each object in a specific example in a specific class is constructed from similar data and methods
- **Object-oriented analysis:** An approach to software design that differs from the traditional "top-down" design. In object oriented (OO) analysis programmers, first identify all of the classes (collections of data and methods) that are required to describe completely the problem the program is trying to solve.
- **Operator:** any of the coding symbol that represent the fundamental actions of a computer language
- **Pascal:** the only modern computer language that was specifically designed as a teaching language; it is seldom taught now at the college level
- **PHP (hypertext reprocessed):** a scripting language used to produce dynamic Web pages.
- **Portability:** the capability to move a completed solution easily from one type of computer to another
- **Problem statement:** a clear description of which tasks the computer program must accomplish and how the program will execute these tasks and respond to unusual situations. IT is the starting point of programming work.
- **Program development life cycle (PDLC):** A number of stages, from conception to final deployment which a programming project follows

- **Programming:** This process of translating a task into a series of commands a computer will use to perform that task
- **Programming language:** a kind of “code” for the set of instructions the CPU knows how to perform
- **Prototype:** a small model of a computer program, often built at the beginning of a large project
- **Pseudocode:** a text-based approach to the documenting of an algorithm.
- **Rapid application development (RAD):** a method of system development in which developers create a prototype first, generating stem documents as they use and remodel the product
- **Release to manufacturers (RTM):** the version of a software product that is given to manufacturers to bundle into future versions of their hardware products.
- **Reusability:** the ability to reuse existing classes of objects from other projects; enabling programmers to produce new codes quickly
- **Runtime error:** an error in the problem logic that is only caught when the program executes
- **Scripting language:** a simple programming language that is limited to performing a specific set of specialized tasks
- **Second-generation language (2GL):** also known as an assembly language. Second-generation languages deal directly with system hardware but provide acronyms that are easier for human programmers to work with
- **Software update (service pack):** a downloadable software module that repairs errors identified in commercial program code
- **Source code:** the instructions programmers write in higher-level language
- **Statement:** a sentence in programming code
- **Structured query language (SQL):** the most popular database query language today
- **Syntax:** an agreed upon set of rules defining how a programming language must be structured
- **Syntax error:** an error that violated the strict, precise set of rules that defines a programming language
- **System development life cycle (SDLC):** an organized process (or set) for developing an information processing system
- **Test condition:** a check to see whether a loop is completed
- **Testing plan:** in the problem statement, a plan that lists specific input numbers that the program would typically expect the user to enter. It then lists the precise output values that a perfect program would return for those input values
- **Third-generation language (3GL):** a computer language that uses symbols and commands to help programmers tell the computer what to do

- **Top-down design:** a systematic approach in which a programming problem is broken down into a series of high-level tasks
- **VBScript:** A subset of visual basic' also used to introduce interactivity to web pages
- **Visual programming:** a technique for automatically writing code when the programmer sets the layout is complete. It helps programmers produce a final application much more quickly
- **Visual basic (VB):** a programming language used to build a wide range of windows applications quickly
- **Web service:** a program used by a web site to make information available to other web sites

Chapter 11

- **Alphabetic check:** confirms that only textual characters can be entered in a database field.
- **Artificial intelligence (AI):** the science that attempts to produce computers that display the same type of reasoning and intelligence that humans do.
- **Batch processing:** the processing of accumulating transaction data until a certain point is reached, then processing those transactions all at once.
- **Binary large object (BLOB):** in databases, a type of object that holds extremely large chunks of data in binary form' this data is usually video clips, pictures, or audio clips
- **Browsing:** (1) the process of viewing database records (2) the process of surfing the web
- **Clickstream data:** information captures about each click that users make as they navigate a website
- **Completeness check:** a process that ensures that all database fields designed as "required" have data entered into them
- **Computational field (computer field):** a numeric field in a database that is filled as the result of a computation
- **Consistency check:** the process of computing the value of data in a database field against established parameters to determine whether the value is reasonable.
- **Data centralization:** having all data in one central location (usually a database). Data centralization helps ensure data integrity by requiring data to be updated only in one place if the data changes.
- **Data dictionary (database schema):** a file that defines the name, data type, and length of each field in the database
- **Data inconsistency:** any difference in data in lists caused when data exists in multiple lists and not all lists are updated when a piece of data changes.

- **Data integrity:** the process of ensuring that data contained in a database is accurate and reliable
- **Data mart:** small slices of a data warehouse
- **Data redundancy:** when the same data exists in more than one place in a database.
- **Data staging:** a three step process extracting data from source databases, transforming the data and storing it the data in a data warehouse.
- **Data type (field type):** an attribute of a data field that determines what type of data can be stores in the database field or memory location
- **Data warehouse:** a large scale electronic repository of data that contains and organizes in one place all the data related to an organization
- **Database:** a collection of related data that can be easily stored , sorted, organized, and queried.
- **Database administration (database designer):** an individual trained in the design, construction, and maintenance of databases.
- **Database management system (DBMS):** a type of specially designed application software that interacts with the user, other applications, and the database to capture and analyze data (like oracle or Microsoft access)
- **Database query:** an inquiry the user poses to a database to extract a meaningful subset of data
- **Decision support system (DSS):** a system designed to help managers develop solutions for specific problems
- **Default value:** the value a database will use for a file unless the user enters another value
- **Detail report:** a report generated with data from a database that shows the individual transactions that occurred during a certain time period
- **Exception report:** a report that shows conditions that are unusual or need attention by users of a system
- **Expert system:** a system designed to replicate the decision making processes of human experts to solve specific problems.
- **Export:** the process of putting data into an electronic file in a format that other application can understand
- **External data source:** any source of information not owned by the company that owns a decision support system such as customer demographic data purchased from third parties.
- **Field constraint:** any property that must be satisfied for data entry to be accepted into the database field.
- **Field name:** an identifying name assigned to each field in the database

- **Field size:** the maximum number of characters for numbers in a database that field can confirm
- **Foreign key:** the primary key of another database table is included for purposes of establishing relationships with another table.
- **Fuzzy logic:** a type of logic that allows the interjection of experimental learning into an equation by considering probabilities
- **Hyperlink field:** a field in a database that stores hyperlink to webpages
- **Input form:** a form that provides a view of the data fields to be filled in a database with appropriate labels to assist database users in populating the database
- **Join query:** a database query that links (or joins) two database tables using a common field in both tables and extracts the relevant data from each
- **Knowledge-based system:** A support system that provides additional intelligence that supplements the users in intellect and makes a decision support system (DSS) more effective
- **Management information system (MIS):** a system that provides timely and accurate information that allows managers to make critical business decisions
- **Many-to-many relationship:** a database relationship in which one record in a database table (a) can have many related records in another table, or (b) any record in table B that may have been in table a
- **Memo field:** a text field in a database that is used to hold long pieces of text
- **Metadata: data that describes other data**
- **Model management system:** a type of software that assists in building management models in decision support systems (DSSs)
- **Multidimensional database:** a database that is stored in multiple dimensions and is organized in a cube format
- **Natural language processing system (NLP):** a system that enables users to communicate with computer systems using a natural spoken or written language as opposed to using computer programming languages
- **Normalization:** the process of recording data only once in a database to reduce data redundancy
- **Numeric check:** a data validation routine that confirms that only numbers are entered in the database field
- **Numeric field:** a field in a database that stores numbers
- **Object field:** a field in a database that holds objects such as pictures, video clips, or documents
- **Object-oriented database:** a database that stores data in objects, not in tables
- **Object-query language (OQL):** a query language that is used to extract information from an object oriented database

- **Office support system (OSS):** a system (like Microsoft office) designed to assist employees to accomplishing their day-to-day tasks and to improve communications
- **One-to-one relationship:** a database relationship in which one record in a data table can have many related records to another data table
- **Online transaction processing (OLTP):** the immediate processing of user requests or transactions
- **Primary key (key field):** the unique field that each database record in a table must have
- **Query:** the process of requesting information from a database
- **Query language:** a language used to retrieve and display records. A query language consists of its own vocabulary and sentence structure, used to frame the requests
- **Range check:** a type of data validation used in databases to ensure that a value entered falls within a specified range (such as requiring a person's age to fall in a range between 1 and 120)
- **Real-time processing:** the process of updating database for information immediately as changes are made
- **Record:** a collection of related fields in a database
- **Referential integrity:** for each value in the foreign key of one table there is a corresponding value in the primary key of the related table
- **Relation:** a database that organizes data in table format by logically grouping similar data into relations (or tables) that contained related data
- **Relational algebra:** the use of English like expressions that have variable and operations much like algebra equations
- **Relational database:** a database that organizes data in table format by logically grouping similar data into relations (or tables) that contain related data
- **Relationship:** in relational databases, the link between tables that defined how the data are related
- **Select query:** a query that displays a subset of data from a table based on the criteria the user specifies
- **Sort: index;** the process of organizing a database into a particular order
- **Structured (analytical) data:** data that can be identified and classified as discrete bits of information such as name or photo number. Unstructured data, includes non-traditional data such as audio clips, video clips, and pictures that must be viewed in their entirety rather than in discrete segments
- **Summary report:** a report that organizes data in some fashion (such as total of a data concession sales at an amusement park) AKA, summary data report
- **Table (file):** in database terminology, a group of related records (file).
- **Text field:** a database field that can hold any combination of alphanumeric data (letters or numbers) and is most often used to hold text.

- **Time-variant data:** data that doesn't all pertain to one period in time
- **Transaction-processing system (TPS):** a system used to keep track of everyday business activities (sales or products)
- **Unstructured data:** non-traditional database data such as audio clips including MP3 files, video clips, pictures, or large documents. Data of this type is known as a binary large object (BLOB) because it's actually encoded in binary form
- **Validation:** the process of ensuring that data entered into a database is correct (or at least reasonable) and complete
- **Validation rule:** a rule that is set up in a database to alert the user to possible wrong entries

Chapter 12

- **Access card reader:** a device that reads information from a magnetic strip on the back of a debit card-like access card (such as a student's ID card) card readers are easily programmed by adding authorized ID card numbers
- **Access method:** a program or hardware mechanism that controls which computer is allowed to use the transmission media in a network at a certain time.
- **Active topology:** a network topology in which each node on the network is responsible for retransmitting the token or the data, to other nodes.
- **Application server:** a server that acts as a repository for application software.
- **Authentication:** the process of identifying a computer user, based on a login or username and password, The computer system determines whether the computer user is authorized and what level of access is to be granted on the network.
- **Authentication server:** a server that keeps track of who is logging on to the network and which services on the network are available to each user.
- **Bastion host:** a heavily secured server located on a special perimeter network between a company's secure internal network and its firewall.
- **Biometric authentication device:** a device that uses some unique characteristic of human biology to identify authorized users
- **Bridge:** a network device that is used to send data between two different local area networks (LANs) or two segments of the same LAN
- **Brute force attack:** an attack delivered by specialized hacking software that tries many combinations of letters, numbers and pieces of a user ID in an attempt to discover their password
- **Bus (linear bus) topology:** a system of networking connections which all devices are connected to a central cable called the bus (or backbone)

- **Centralized:** a type of network design in which users are not responsible for creating their own data backups or providing security for their computers. Instead, those tasks are handled by centralized server software, and a system administrator.
- **Communications server:** a server that handles all communications between the network and other networks including managing internet connectivity.
- **CSMA/CD:** a method of data collision detection in which a node connected to the network listens (that is, has carrier nodes) to determine that no other nodes are currently transmitting data signals short for Carrier Sense Multiple Access with collision detection
- **Data collision:** when two computers send data at the same time and the sets of data collide somewhere in the media
- **Data transfer rate (bandwidth):** the maximum speed at which data can be transmitted between two nodes on a network, usually measured in megabits per second (Mbps)
- **Database server:** a server that provides client computers with access to information stored in a database
- **Decentralized:** a type of network to which users are responsible for creating their own data backups and for providing security for their computers.
- **Dedicated server:** a server used to fulfill one specific function (such as handling email)
- **Device driver:** software that facilitates the communication between a device and the operating system.
- **Extranet:** the importance of a company's intranet that is used to share information with businesses partners such as vendors, suppliers, and customers.
- **Fiber-optic cable:** cable that transmits at the speed of light
- **File server:** a computer deployed to provide remote storage space or to act as a repository for files
- **Frame:** a container designed to hold multiple data packets
- **Hybrid typology:** a topology comprised of several topologies and comprised into one network
- **Intranet:** a private corporate network that is used exclusively by company employees to facilitate information, database access, group scheduling, video conferencing, and other employee and customer collaborations .
- **Jam signal:** a special signal sent to all networks nodes, alerting that a data collision has occurred
- **Network:** a group of two or more computers that are configured to share information resources, such as printers, databases, and files .
- **Network topology:** the layout and structure of a network
- **Packet screening:** a process that involves examining incoming data packets to ensure they originated from, or are authorized by valid users on the internet network

- **Passive topology:** when data merely travels the entire length of the communications medium and is received by all network devices
- **Personal area network (PAN):** a network used to connect wireless devices (Bluetooth) enabled devices in close proximity to each other
- **Possessed object:** any object that a user carries to identify themselves and that grants the user access to a computer system or computer facility
- **Print queue:** a software holding area for printing jobs
- **Print server:** a server that manages all client-requested printing jobs for all printers on the network
- **Protocol:** (1) a set of rules for exchanging data and communication (2) the first part of the URL indicating the set of rules used to retrieve the specified document. The protocol is generally followed by a colon; two forward slashes; www, and then the domain name
- **Proxy server:** acts as a go-between for computers on the internal network and the external network (the internet)
- **Radio frequency identification tag (RFID):** a tag that looks like a sticker or label, is attached to a batch of merchandise and contains a microchip that holds a unique sequence of numbers used to identify the product to which it is attached
- **Ring (loop) topology:** a network configuration in which the computers and peripherals are laid out on a configuration resembling a circle. Data flows around the circle from device to device in one direction only.
- **Router:** a device that routes packets or of data between two or more networks
- **Scalability:** the ability to easily add more users to a network without affecting the performance of the other network nodes (computers or periphery)
- **Shielded twisted pair (STP) cable:** twisted pair cable that contains a layer of foil shielding to reduce interference
- **Star topology:** an active topology (meaning that data is transmitted) in which the nodes connect to a central communications device called a switch. The switch receives a signal from the sending node and retransmits it to the node that should receive it.
- **Terminator:** a device that absorbs a signal so that it is not reflected back onto parts of the network that have already received it
- **Token method: the access method that ring networks use to avoid data collision**
- **Virtual private network (VPN):** a network that uses public communication pathways (usually the internet) to provide branch offices or employees who are not at the office with secure access to the company network, CPNs maintain privacy by using secure data communication protocols
- **Wireless access point (WAP):** a device similar to a switch in an Ethernet network. It takes the place of a wireless network adapter and helps relay data between network nodes

- **Wireless media:** communications media that do not use cables but instead rely on radio waves to communicate
- **Wireless network interface card (wireless NIC):** a card installed in a system that connects with wireless access points on the network

Chapter 13

- **Applet:** a small program designed to be run from within another application. Java applets are often run on your computer by your browser through the Java Virtual Machine (an application built into current browsers).
- **Cascading style sheets (CSS):** a list of statements (also known as rules) that define in single location how HTML/XHTML elements are to be displayed
- **CGI script:** a computer program that conforms to the COMMON GATEWAY INTERFACE (CGI) specification, which provides a method for sending data between end users (browser users) and web servers.
- **CGI bin:** a directory where CGI scripts are normally placed.
- **Circuit switching:** a method of communication in which a dedicated connection informed between two points (such as two people on telephones) and the connection remains active for the duration of the transmission
- **Classless Interdomain routing (CIDR):** pronounced CIDER; this is an addressing scheme that allows as single IP address to represent several unique IP addresses by adding a network prefix (a slash and a number) to the end of the last octet; also known as supernetting)
- **Client-side program:** ; a computer program that runs on the client computer and requires no interaction with a webserver
- **Cloud computing:** the process of using the internet to deliver business, entertainment, or other services that were preciously delivered by conventional means
- **Commerce server:** a computer that hosts software that enables consumers to purchase goods and services over the Web. These servers generally are special security protocols to protect sensitive information)such as credit card numbers) from being intercepted
- **Common gateway interface (CGI):** provides a methodology by which a browser can request that a program file be executed instead of just being delivered to the browser.
- **Computer protocol:** a set of rules for accomplishing electronic information exchange. If the internet is the information superhighway, the n protocols are the driving rules.
- **Connectionless protocol:** a protocol that a host computer can use to send data over the network without establishing a direct connection with any specific recipient computer
- **Connection-orientated protocol:** a protocol that requires two computers to exchange control packets, which set up the parameters of the data exchange session before sending packets that contain data.

- **Crowdsourcing:** the process of taking a task that an employee or contractor usually performs such as a product design and instead outsourcing that task to a large group of people, usually via the internet.
- **Document object model (DOM):** a means to organize objects and page elements in a Web page; DOM defines every item on a web page such as graphics, tables, and headers, as an object
- **Domain name system (DNS) server:** a server that contains location information for domains on the internet, and functions like a phone book for the internet
- **Dotted decimal number (dotted quad):** one of the numbers in an IP address
- **Dynamic host configuration protocol (DHCP):** the protocol that handles dynamic addressing. Part of the Transmission Control Protocol/Internet Protocol (TCP/IP) takes a pool of IP addresses and shares them with hosts on the network on an as-needed basis
- **Dynamic HTML (DHTML):** a combination of web development technologies including HTML, CSS, and a scripting language that are used to add interactivity to a website after the website has loaded onto the client computer
- **Element:** the tags and the text between the tags in HTML
- **E-mail server:** a server that processes and delivers incoming and outgoing e-mails
- **Encryption:** the process of encoding data (ciphering) so that only that person with corresponding decryption key (the intended recipient) can decode or decipher and read the message
- **Handshaking:** the process of two computers exchanging control packets to set up the parameters of data exchange
- **Hexadecimal notation:** a number system that uses 16 digits to represent numbers; also called a base-16 number system
- **Hypertext:** text that is linked to other documents or media (such as video clips or pictures)
- **Hypertext transfer protocol secure (HTTPS):** a combination of the HTTP protocol and a network security protocol (usually SSL or TLS) that ensure data is sent securely over the Web
- **Internet cache:** a section of your hard drive that stores information that you may need again for surfing (such as IP addresses and frequently accessed Web pages)
- **Internet corporation for Assigned Names and Numbers (ICANN):** the organization responsible for allocating IP addresses to network administrators to ensure they are unique and have not been assigned to other users
- **Internet exchange point (IXP):** a device that allows different internet service providers to exchange information between networks
- **Internet protocol version (IPv4):** the original IP addressing scheme

- **Internet protocol version 6 (IPv6):** a proposed IP addressing scheme that makes IP addresses longer, thereby providing more available IP addresses. It uses eight groups of 16-bit numbers
- **Key pair:** a public and private key used for coding and decoding encrypted messages
- **Multipurpose internet mail extensions (MIME):** a specification that that was introduced into 1991 to simplify attachments to email messages, all email software now uses this protocol.
- **Negative acknowledgement (NAK):** what computer Y sends to computer X is a packet is unreadable, indicating the packet was not received in understandable form
- **Network prefix:** the part of a network address under the CIDR IP addressing scheme. It consists of a slash and a number added to the end of the last octet of an IP address
- **Octet:** eight bits. For example, each of the four numbers in the dotted decimal notation of an IP address to represent by an octet
- **Open system:** a system whose designs are public, enabling access to any interested party
- **Packet switching:** a communications methodology in which data is broken into small chunks and send over various routes at the same time. When the packets reach their destination, they are reassembled by the receiving computer
- **Point of presence (POP):** a bank of modems through which many users can connect to an internet service provider (ISP) simultaneously
- **Positive acknowledgement (ACK):** what computer Y sends when it receives a data packet that it can read from computer X
- **Pretty good privacy (PGP):** a popular public key encryption package
- **Private Key:** one half of a pair of binary files that is needed to decrypt and encrypted message. The private key is kept only by the individual who created the key and is never distribute to anyone else. The private key is used to decrypt message created with the corresponding public key
- **Private key encryption:** a procedure in which only the two parties involved in sending a message have the code. This could be a simple shift code where letters of the alphabet are shifted to a new position
- **Proprietary system:** a software product whose code is not generally available (is kept private) and that is generally developed and marketed by a single company
- **Public key:** one-half of a pair of binary files that is needed to decrypt an encrypted message. After creating the keys, the user distributes the public key to anyone who wishes to send them an encrypted message. A message encrypted only using the corresponding private key.

- **Public key encryption:** a procedure in which the key for coding is generally distributed as a public key that may be placed on a web site. Anyone wishing to send a message codes it using the public key. The recipient decodes the message with a private key
- **Root DNS server:** a group of servers maintained through the internet to which ISP web servers connect to locate the master listings for an entire top-level domain
- **Second-level domains:** a domain that falls within top-level domains of the internet. Each second level domain needs to be unique within that particular domain but not necessarily unique to all top level domains
- **Secure sockets layer (SSL):** a protocol that provides for the encryption of data transmitted using the internet. The current versions of all major web browsers support SSL
- **Server-side program:** a program that is run on a web server as opposed to inside a web browser
- **Simple mail transfer protocol (SMTP):** a protocol for sending email along the internet to its destination
- **Static addressing:** a means of messaging an IP address that never changes and is most likely assigned manually by a network administrator
- **T line:** a high speed fiber optic communications line that is designed to provide much higher throughput than conventional voice (telephone) and data (DSL or cable lines)
- **TCP/IP:** the main suite used on protocols of the internet
- **telnet:** a network protocol used primarily on the internet for connecting to a remote computer to make it accessible to other computers
- **three-way handshake:** a process used by the transmission control protocol to establish a connection
- **transmission control protocol (TCP)** a protocol that prepares data for transmission and provides for error checking and resending of data
- **Transport layer security (TLS):** and its predecessor, Secure Sockets Layer (SSL), are cryptographic protocols that provide security for communications over networks such as the Internet.
- **user-datagram protocol (UDP):** a protocol that prepares data for transmission but that has no resending capabilities
- **web server:** a computer running a specialized operating system that enables it to host web pages and other information and provide requested web pages to clients