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Chapter 1   Computers, Devices, and the Web

Digital literacy

Involves having a current knowledge and understanding of IT related technologies (computers, mobile devices, the web and related technologies).

Computer

An electronic device, operating under the control of instructions stored in its own memory.

Green Computing

Recycling

Using energy efficient hardware and energy saving features

Regulating manufacturing processes

Extending the life of computers

Immediately donating or properly disposing of replaced computers

Software / Program

A series of instruction tells the computer what tasks to perform and how to perform them.

Chapter 2   The Internet, Websites, and Media

Internet

A worldwide collection of networks.

Connection

Wired	Wireless
Cable Internet services	Wi-Fi – wireless fidelity
DSL – Digital Subscriber Line	Mobile broadband
FTTP – Fibre to the Premises	Fixed wireless
	Satellite internet service

Hot spot

A wireless network that provides internet connections to multi-devices.

ISP – Internet Service Provider

A business that provides individuals and organizations access to the Internet.

Bandwidth

A measure of the capability of a network to send and receive data.

Connection

home computer <-> cable modem <-> central cable system <-> ISP <-> internet backbone <-> server

IP address

A sequence of numbers that uniquely identifies the location of each computer or device connected to the internet.

IPv4 address	IPv6 address
74.125.22.139	2001:4860:4860::8844

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Domain name

A text-based name that corresponds to the IP address of a server.

DNS server

Translates the domain name into its associated IP address.

WWW - World Wide Web

A worldwide collection of electronic documents.

Website

A collection of related webpages and associated items.

Web server

A computer that delivers requested webpages to the computer or mobile device.

HTML - Hypertext Markup Language

A set of symbols that developers use to specify the headings, paragraphs, images, links, and other content elements, that a webpage contains.

Web 2.0

Websites that provide a means for users to share personal information, allow users to modify website content, and provide applications through a browser.

Browser

An application that enables users with an internet connection to access and view webpages on a computer or mobile device.

Home page

The first page that a website displays.

Tabbed browsing

View multiple pages by loading website into different tab.

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URL - Web address

http://   www.   nps.gov/   history/   preserve-place.html

[protocol]   [host name] [domain]   [path/folder name]   [webpage name / file name]

google.   com.   hk

[third level domain]   [second level domain]   [country level domain]

Web app

An application stored on a web server that you access through a browser.

Search engine

A software that finds information related to a specific topic.

Subject directory

Classifies webpages in an organized set of related categories and subcategories.

Web publishing

Plan the website -> Design the website -> Create the website

-> Host the website -> Maintain the website

Multimedia

An application that combines text with media.

Graphic

A visual representation of non-text information.

Infographic

A visual representation of data and information, designed to communicate quickly, simplify complex concepts, or present patterns or trends.

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Animation

The appearance of motion created by displaying a series of still images in sequence.

Audio

Includes music, speech, or any other sound.

Video

Consists of images displayed in motion.

VR – Virtual Reality

The use of computers to simulate a real or imagined environment that appears as a three-dimensional (3-D) space.

Plug-in / Add-on

A program that extends the capability of a browser.

Email

The transmission of messages and files via a computer network.

Internet messaging service

Communications services that notify you when one or more of you established contacts are online and then allows you to exchange messages or files or join a private chat room with them.

Chat

A real-time typed conversation that takes place on a computer or mobile device with many other online users.

Char room

A website or application that permits users to chat with others who are online at the same time.

Online discussion

An online area in which users have written discussions about a particular subject.

VoIP

Enables users to speak to other users via their internet connection.

FTP – File Transfer Protocol

An Internet standard that permits file uploading and downloading to and from other computers on the internet.

FTP server

A computer that allows users to upload and / or download files using FTP.

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Chapter 3   Evaluating Options for Home and Work

Mobile computer

A portable personal computer.

Personal Computer

A mobile computer or desktop that can perform all of its input, processing, output etc. by itself and is intended to be used by one person at a time.

Laptop / Notebook computer

A thin, lightweight mobile computer with a screen in its lid and a keyboard in its base.

Tablet

A tablet is a thin, lighter-weight mobile computer that has a touch screen.

Handheld computer

A computer small enough a fit in one hand.

Stick computer

A small computer which usually is the same size as, or a little larger than, a USB flash drive.

Desktop / Desktop computer

A personal computer designed to be n a stationary location, where all of its components fit on or under a desk or table.

Server

A computer dedicated to providing one or more services to other computers or devices on a network.

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Rack servers

Easier management of cables and servers, offers the capability to use servers from different manufacturers.

Blade servers

Cost-efficient and slim, housed inside a chassis.

Tower servers

Easier cooling and scalability.

Mainframe

A large, expensive, powerful server that can handle hundreds or thousands of connected users simultaneously.

Terminal

A computer, usually with limited processing power, that enables users to send data to and / or receive information from a server, or host computer.

Thin client

A terminal that looks like a desktop buy has limited capabilities and components.

Supercomputer

The fastest, most powerful and most expensive computer.

Cloud computing

An environment that provides resources and services accessed via the Internet.

Smartphone

An Internet-capable phone that includes numerous apps.

Digital camera

A mobile device that allows users to take photos and store the photographed images digitally.

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Portable media player

A mobile device on which you can store, organize, and play or view digital media.

Digital media player

A device typically used in a home, that streams digital media from a computer or network to a television, projector, or some other entertainment device.

E-book reader

A mobile device that is used primarily for reading e-books and other digital publications.

Wearable device

A small, mobile computing device designed to be worn by a consumer.

Game console

A mobile computing device designed for single-player or multiplayer video games.

Handheld game device

A small mobile device that contains a screen, speakers, controls, and game console all.

Embedded computer

A special-purpose computer that functions as a component in a larger product.

Port

The point at which a peripheral device attaches to or communicates with a computer or mobile device so that the peripheral device can send data or receive information from the computer or mobile device.

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Connector

Joins a cable to a port.

Radio signal

Bluetooth, Wi-Fi, NFC are all using radio signal.

Security measures

Physical access controls

Alarm system

Security or device-tracking app

Require identification

Surge protector

A surge suppressor, uses electrical components to provide a stable current flow and minimize the chances of an overvoltage reaching the computer and other electronic equipment

UPS – Uninterruptible Power Supply

A device that contains surge protection circuits and one or more batteries that can provide power during a temporary or permanent loss of power.

RSI – Repetitive Strain Injury

An injury or disorder of the muscles and joints etc.

CVS – Computer Vision Syndrome

A technology-related health condition that affects eyesight.

Ergonomics

An applied science devoted to incorporating comfort, efficiency and safety into the design of items in the workplace.

Technology addiction

It occurs when the technology consumes someone's entire social life.

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Chapter 4   Productivity, Graphics, Security, and Other Tools

Program / Software

A series of related instructions, organized for a common purpose that tells the computer what tasks to perform and how to perform them.

Application

It consists of program designed to make users more productive and / or assist them with personal tasks

Operating system

A set of programs that coordinates all the activities among computer or mobile device hardware.

Retail software

Software that delivered via physical data storage media by companies.

Custom software

Software that specially developed for some specific organization or other user.

Shareware

Copyrighted software that is distributed free for trial period

Freeware

Copyrighted software provided at no cost

Open source software

Provided for use, modification and redistribution

Public-domain software

Freeware with no copyright restrictions

Word processing software

Allow users to create and manipulate documents.

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Presentation software

Allows users to create visual aids for presentations to communicate ideas, messages and other information to a group.

Spreadsheet software

Allows users to organize data in columns and rows and perform calculations on the data.

Database

A collection of data organized in a manner that allows access, retrieval and use of that data.

Database software

Allows users to create, access and manage a database.

Note taking software

An application that enables users to enter typed text, handwritten comments, sketches etc. anywhere on a page.

Calendar and contact management software

It helps organize calendar, keep tract of contacts and share this information with other users.

Project management software

An application that allows a user to plan, schedule, track and analyse the project.

Accounting software

An application that helps businesses of all size record and report their financial transactions,

Personal finance software

A simplified accounting application that helps home users and small office users.

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Legal software

An application that assists in the preparation of legal documents and provides legal information to individuals, families and small businesses.

Tax preparation software

An application that can guide individuals, families or small businesses through the process of filing federal and state taxes.

Document conversion software

An application that save documents created in any application into a common format that has the same appearance as the original document.

Software suite

A collection of individual related applications available together as a unit.

Multimedia authoring software

Allows users to combine multimedia in an interactive application.

Website authoring software

Helps users create business websites for a variety of purposes.

Media player

A program that allows you to view different media on your computer or mobile device.

Augmented reality app

Overlays information and digital content on top of physical objects or locations

Virtual reality app

Provide an immersive user experience

Firewall

A security tool that detects and protects a personal computer and its data from unauthorized intrusions.

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Antivirus program

Protect a computer against viruses by identifying and removing any computer viruses found in memory, storage media or incoming files.

Spyware

A type of program placed on a computer or mobile device without the user's knowledge that secretly collects information about the user and then communicates the information it collects to some outside source while the user is online.

Adware

A type of program that displays an online advertisement in a banner or pop-up or pop-under window on webpages, email messages, or other internet services.

Spyware remover

A type of program that detects and deletes spyware and similar programs.

Adware remover

A type of program that detects and deletes adware.

File manager

A tool that performs functions related to file management.

Search tool

A program usually included with an operating system, that attempts to locate a file, contact, calendar event etc. that stored on computer or mobile device based on criteria specified.

Image viewer

A tool that allows users to display, copy and print the contests of graphics file.

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Uninstaller

A tool that removes a program and all associated entries in the system files.

Disk clean-up

Search for and removes unnecessary files.

Disk defragmenter

A tool that reorganizes the files and unused space on a computer's hard disk so that the operating system access data more quickly and programs run faster.

Screen saver

A tool that causes a display device's screen to show a moving image or blank screen if no keyboard or mouse activity occurs for a specified time.

File compression tool

A tool that shrink the size of files

PC maintenance tool

A program that identifies and fixes operating system problems, detects and repairs drive problems, and includes the capability of improving a computer's performance.

Backup tool

Allow users to copy or back up selected files or contents of an entire storage medium to another storage location.

Restore tool

Reverses the process and returns backed up files to their original form.

Power management tool

A tool that monitors a laptop or mobile device's battery usage, showing apps that consume the most battery power, displaying battery usage since the device was last charged and estimating usage time remaining.

Blogging

Allows articles or posts in a diary or journal format.

Web Feeds

Keeps track of changes made to websites by checking feeds. A feed reader is required.

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Chapter 5   Threats, Issues and Defences

DSR – Digital Security Risk

Any event or action that could cause a loss of or damage to a computer or mobile device hardware, software, data, information or processing capability.

Computer crime

Any illegal act involving the use of a computer or related devices.

Cybercrime

An online or Internet-based illegal act.

Hacker

Someone who accesses a computer or network illegally.

Cracker

Someone who accesses a computer or network illegally and has the intent of destroying data, stealing information.

Script kiddie

Has the same intent as a cracker but does not have the technical skills and knowledge. They often use prewritten hacking and cracking programs to break into computers.

Cyberextortionist

Someone who uses email to threaten an organization for money, expose confidential information or launch an attack to the network.

Cyberterrorist

Someone who uses the internet or network to destroy or damage computers for political reasons.

Corporate spies

Someone who work in the company, secretly monitor and infiltrate to groups in a company that object to steal information.

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Unethical employees

Someone who steal time and money from the business.

Malware – Malicious software

Consists of programs that act without a user's knowledge and deliberately alter the operations of computers and mobile devices.

Adware

A program that displays an online advertisement in a banner, pop-up window or pop-under window on webpages, email messages or other internet services.

Ransomware

A program that blocks or limits access to a computer, phone or file until the user pays a specified amount of money.

Rootkit

A program that hides in a computer or mobile device and allows someone from a remote location to take full control of the computer or device.

Spyware

A program placed on a computer or mobile device without the user's knowledge that secretly collects information about the user and then communicates the information it collects to some outside source while then user is online.

Trojan horse

A program that hides within or looks like a legitimate program. Unlike a virus or worm, a trojan horse does not replicate itself to other computers or devices.

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Virus

A potentially damaging program that affects or infects a computer or mobile device negatively by altering the way the computer or device works without the user's knowledge or permission.

Worm

A program that copies itself repeatedly, for example in memory or on a network, using up resources and possibly shutting down the computer, device or network.

Botnet

A group of compromised computers or mobile devices connected to a network

Zombie

A compromised computer or device

DoS attack – Denial of Service attack

Disrupts computer access to an Internet service.

DDoS attack – Distributed DoS attack

Back door

A program or set of instructions in a program that allow users to bypass security controls.

Spoofing

A technique intruders use to make their network or Internet transmission appear legitimate.

Firewall

A hardware and / or software that protects a network's resources from intrusion.

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Unauthorized access

The use of a computer or network without permission.

Unauthorized use

The use of a computer or its data for data for unapproved or possibly illegal activities.

Passphrase

A passphrase is a private combination of words with mixed capitalization and punctuation, associated with a username that allows access to certain computer resources.

CAPTCHA

A type of challenge-response test used in computing to ensure that the required response is not generated by a computer.

PIN - Personal Identification Number

A numeric password, either assigned by a company or selected by a user.

Possessed object

Any item that you must possess or carry with you in order to gain access to a computer or computer facility.

Biometric device

Authenticates a person's identity by translating a personal characteristic into a digital code that is compare with a digital code stored in a computer or mobile device verifying a physical or behavioural characteristic.

Two-step verification

It uses two separate methods, one after the next to verify the identity of a user.

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Digital forensics

The discovery, collection and analysis of evidence found on computers and networks.

Software theft

It refers to someone steals software media, intentionally erases programs, illegally registers or activates a program or illegally copies a program.

Product activation

Users provide the software product's identification number to associate the software with the computer or mobile device on which the software is installed.

License agreement

The right to use software.

Information theft

It refers to someone steals personal or confidential information.

Encryption

A process of converting data that is readable by humans into encoded characters to prevent unauthorized access.

Example of Public Key Encryption

Sender creates the message.

Sender uses the RECEIVER'S PUBLIC KEY to encrypt the message.

Receiver uses the RECEIVER'S PRIVATE KEY to decrypt the message.

Receiver reads the message.

Digital signature

An encrypted code that a person, website or organization attaches to an electronic message to verity the identity of the message sender.

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Digital certificate

a notice that guarantees a user or a website is legitimate.

Secure site

A website that uses encryption techniques to secure its data.

Hardware theft

The act of stealing digital equipment.

Hardware vandalism

The act of defacing or destroying digital equipment.

Backup

A duplicate of a file, program or media that can be used if the original is lost, damaged or destroyed.

Off-site backup

Stored in a location separate from a computer or mobile device site.

Technology ethics

The moral guidelines that govern the use of computer, mobile devices, information systems and related technologies.

IP – Intellectual Property

It refers to unique and original works such as ideas, inventions, art etc.

IP rights – Intellectual Property rights

The rights to which creators are entitled to their work.

Copyright

Protect any tangible form of expression.

DRM – Digital Rights Management

A strategy designed to prevent illegal distribution of movies, music and other digital content.

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Code of conduct

A written guideline that helps determine whether a specification is ethical or allowed or not.

Green computing

It involves reducing the electricity and environmental waste while using computers, mobile devices and related technologies.

Information privacy

It refers to the right of individuals and companies to deny or restrict the collection, use, and dissemination of information about them.

Cookie

A small text file that a web server stores on your computer.

Allow for personalization

Store user name and passwords

Assist with online shopping

Track how often users visit a site

Target advertisements

Phishing

A scam in which a perpetrator sends an official looking message that attempts to obtain your personal information

Clickjacking

An object that can tapped or clicked on a website contains a malware.

Chapter 6   Processors, Memory, the Cloud and More

Case

Contains and protects the electronic of the computer or mobile device from damage.

Motherboard

The main circuit board of the computer.

Chip

A small piece of semiconducting material, usually silicon on which integrated circuits are etched.

CPU - Central Processing Unit

Interprets and carries out the basic instructions that operate a computer.

Multi-core processor

A single chip with two or more separate processor cores.

CU - Control Unit

The component of the processor that directs and coordinates most of the operations in the computer.

ALU - Arithmetic Logic Unit

Performs arithmetic, comparison and other operations.

Machine cycle of a processor

Fetch -> Decode -> Execute -> Store

System clock

It controls the timing of all computer operations.

Clock speed

The pace of the system clock, measured in GHz.

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Registers

Hold data and instructions

Analog signals

Continuous and vary in strength and quality.

Digital signals

Two states, on or off.

Memory

Consists of electronic components that store instructions waiting to be executed by the processor, data needed by those instructions, and the results of processing the data.

The operating system and other programs

Applications

Data being processed and the resulting information

Address

Each byte resides temporarily in a location in memory that has an address.

Volatile memory

Loses its contents when power is turned off.

e.g. RAM

Non-volatile memory

Does not lose contents when power is removed.

e.g. ROM, flash memory and CMOS

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Common types of RAM

Dynamic RAM (DRAM)   Static RAM (SRAM)

SPEED:

RDRAM – Rambus DRAM   FASTEST

DDR4

DDR3

DDR2

DDR SDRAM – Double Data Rate SDRAM

SDRAM – Synchronous DRAM

DRAM   SLOWEST

Memory Cache

Speeds the processes of the computer because it stores frequently used instructions and data.

L1   in processor chip   FASTEST

L2   in processor chip

L3   separate chip

RAM   SLOWEST

ROM – Read-only memory

Refers to memory chips storing permanent data and instructions.

e.g. Firmware

Flash memory

Can be erased electronically and rewritten

e.g. CMOS

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Access time

The amount of time it takes the processor to read from memory, measure in ns.

Adapter card

Enhance functions of a component of a desktop or server system unit or provides connections to peripheral devices.

Expansion slot

A socket on a desktop or server motherboard that can hold an adapter card.

Plug and Play

The technology that let the computer automatically can recognize peripheral devices as you install them.

USB adapter

Enhances functions of a mobile computer or provides connections to peripheral devices.

Bus

Allows the various devices both inside and attached to the system unit to communicate with one another.

e.g. data bus, address bus

Word size

The number of bits the processor can interpret and execute at a given time.

Chapter 7   Extending Capabilities of Computers and Mobile Devices

Input

Any data and instructions entered into the memory of a computer.

Keyboard   Pointing devices   Touch screens

Pen input   Motion input   Voice input

Video input   Scanners and reading devices

RFID – Radio Frequency Identification

Uses radio signals to communicate with a tag placed in or attached to an object.

RFID reader reads information on the tag via radio waves.

RFID can track:

Tracking times of runners in a marathon

Tracking location of people and other items

Checking lift tickets of skiers

Gauging temperature and pressure of tires on a vehicle

Checking out library books

Managing purchases

Tracking payment as vehicles pass through booths on auto toll way systems

Output

Data that has been processed into a useful form.

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Displays

Quality depends on:

Resolution	Response time	Brightness
Dot pitch	Contrast ratio	

Nonimpact printer

Forms characters and graphics on a piece of paper without actually contacting the paper.

Ink-jet printer	Photo printer	Laser printer
All-in-one printer	3-D printer	Thermal printer
Mobile printer	Label printer	Plotter
Large-format printer		

Impact printer

Form characters and graphics on a piece of paper by striking a mechanism against an inked ribbon that physically contacts the paper.

Headphones

Speakers that cover or are places outside of the ear.

Earbuds / Earphones

Rest inside the ear canal

Data projector

A device that projects the text and images displaying on a computer or mobile device screen on a larger screen so that audiences can see the image clearly.

Interactive whiteboard

A touch-sensitive device, resembling a dry-erase board that displays the image on a connected computer screen.

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Chapter 8   Preserving Content Locally and on the Cloud

Storage medium

A physical material on which computer keeps data, information, programs and applications.

Storage device

A hardware that records or retrieves items to and from storage media.

Capacity

The number of bytes a storage medium can hold.

Transfer rates

Memory (most RAM)   FASTEST

SSDs

Hard Disks

USB Flash Drives

Memory Cards

Optical Discs   SLOWEST

HDD – Hard Disk Drive

Contain one or more inflexible, circular platters that use magnetic particles to store data, instructions and information.

Storage capacity of HDD

Determined by:

The number of platters the hard disk contains

The composition of the magnetic coating on the platters

Whether the disk uses longitudinal or perpendicular recording

Density

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Formatting

The process of dividing the disk into tracks and sectors

Tracks

Form circles on the surface of a hard disk.

Sectors

Break the tracks into small arcs.

Cluster

Form by several sectors.

Head crash

Occurs when a read/write head touches the surface of a platter.

Space between a hard disk read/write head and the platter is clearance.

SSD – Solid State Drive

A flash memory storage device that contains its own processor to manage its storage.

Advantages over traditional magnetic hard disks.

Faster access times	Faster transfer rates
Quieter operation	More durable
Lighter weight	Less power consumption
Less heat generation	Longer life

Defragmentation not required

External hard drive

A separate freestanding storage device that connects with a cable to a port on a computer or mobile device.

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Memory card

A removable flash memory storage device that you insert and remove from a slot in a computer, mobile device or card reader and writer.

SDHC SDXC miniSD microSDHC microSDXC

CF xD Picture Card Memory Stick PRO Duo

M2

USB flash drives

Plug into a USB port on a computer or mobile device.

Cloud storage

An Internet service that provides storage to computer or mobile device users.

Optical disc

Consists of a flat, round, portable disc made of metal, plastic and lacquer that is written and read by a laser.

Commonly store items in a single track that spirals from the center of the disc to the edge of the disc

ROM – Read only

R – write once and can't erase

RW – erasable

Tape

A magnetically coated ribbon of plastic capable of storing large amounts of data and information.

Magnetic stripe card

A magnetic stripe that contains information.

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Smart card

Stores data on an integrated circuit embedded in the card.

RFID / NFC

Need a tag.

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Chapter 9   Managing, Coordinating and Monitoring Resources

OS - Operating System

A set of programs that coordinate all the activities among computer or mobile device hardware.

Sleep mode

Saves any open documents and running programs or apps to RAM, turns off all unneeded functions and then places then computer in a low-power state.

Hibernate mode

Saves any open documents and running programs or apps to an internal hard drive before removing power from the computer or device.

UI - User Interface

Controls how you enter data and instructions and how information is displayed on the screen.

GUI - Graphical User Interface

Interact with menus and visual images.

Memory management

Optimizes the use of the computer or device's internal memory.

Virtual memory

A portion of a storage medium functioning as additional RAM.

Driver

A small program that tells the operating system how to communicate with a specific device.

Plug and Play

Automatically configures new devices as you install or connect them.

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Performance monitor

A program that assesses and reports information about various computer resources and devices.

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Chapter 10 Wired and Wireless Networks and Devices

Network

A collection of computers and devices connected together via communications devices and transmission media

Advantages:

Facilitating communications   Sharing hardware

Sharing data and information   Sharing software

Transferring funds

LAN – Local Area Network

A network that connects computers and devices in a limited geographical area.

WLAN – Wireless LAN

A LAN that uses no physical wires.

MAN – Metropolitan Area Network

Connects LANs in a metropolitan area.

WAN – Wide Area Network

A network that covers a large geographic area.

PAN – Personal Area Network

A network that connects computers and devices in an individual's workspace using wired and wireless technology

Ethernet

A network standard that specifies no central computer or device on the network nodes should control when data can be transmitted.

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Token ring

Standard specifies that computers and devices on the network share or pass a special signal (token).

TCP/IP

A network protocol that defines how messages data are routed from one end of a network to another.

Wi-Fi

Identify any network based on the 802.11 standard that specifies how two wireless devices communicate over the air with each other.

LTE

A network standard that defines how high-speed cellular transmissions use broadcast radio to transmit data for mobile communications.

Bluetooth

A network protocol that defines how two Bluetooth devices use short-range radio waves to transmit data.

UWB – Ultra-Wideband

A network standard that specifies how two UWB devices use short-range radio waves to communicate at high speeds with each other.

IrDA

Transmits data wirelessly via infrared (IR) light waves.

RFID

A protocol that defines how a network uses radio signals to communicate with a tag placed to an object.

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NFC – Near Field Communication

A protocol based on RFID, that defines how a network uses close-range radio signals to communicate between two devices or objects equipped with NFC technology.

Speed of various dedicated digital lines

Cable   SLOWEST

DSL

FTTP

Fractional T1

T1

T3

ATM   FASTEST

ADSL – Asymmetric Digital Subscriber Line

A type of DSL that supports faster downstream rates than upstream rates.

Communications device

Any type of hardware capable of transmitting data and other information between sending device and receiving device.

WAP – Wireless Access Point

A central communications device that allows computers and devices to transfer data wirelessly among themselves or to a wired network.

Communications

Internet -> Cable / DSL modem -> Router -> devices

Hub or switch

A device that provides a central point for cables in a network.

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Latency

The time it takes a signal to travel from one location to another on a network.

Twisted-pair cable

Consists of one or more twisted-pair wires.

Coaxial cable

Data travels through a copper wire.

Fiber-optic cable

Carry data as pulses of light.

Broadcast ratio

A wireless transmission medium that distributes radio signals through the air over long distances.

Cellular ratio

A form of broadcast radio that is in wide use for mobile communications.

Microwaves

Radio waves that provide a high-speed signal transmission

Communications satellite

A space station that receives microwave signals from an earth-based station, amplifies it and broadcasts the signal over a wide area to any number of earth-based stations.

GPS – Global Positioning System

A navigation system that consists of one or more earth-based receivers that accept and analyse signals sent by satellites in order to determine the receiver's geographical location.

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Chapter 11 Database, system and application development tools

DBMS – Database Management System

Allows users to:

Create a computerized database

Add, modify and delete data

Sort and retrieve data

Create form and reports from the data

Information

Processed data

Organized   Meaningful   Useful

Data

Collection of unprocessed items

Text Numbers   Images   Audio   Video

Database

Collection of data organized in a manner that allows access, retrieval and use of that data.

Character

1 byte

Numbers, letters, blank space etc.

Field

A combination of one or more related characters.

Record

A group of related fields.

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Primary key

A field that uniquely identifies each record.

Data file

A collection of related records.

File maintenance

Procedures that keep data current

Adding records   Modifying records   Deleting records

Validation

Compares data with a set of rules or values to determine if the data meets certain criteria

Alphabetic/Numeric check

Range check

Consistency check

Completeness check

Check digit etc.

File processing system

Each department has its own set of files

Redundant data

Isolated data

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Database approach

Advantage:

Programs and users share data

Reduced data redundancy

Improved data integrity

Shared data

Easier access

Reduced development time

Disadvantage:

Can be more complex than a file processing system

Require more memory and processing power

Data can be more vulnerable

Data dictionary

Contains data about each file in the database and each field in those files.

Query

A request for specific data from the database

Query language

Consists of simple, English-like statements that allow users to specify that data to display, print, store, update or delete.

SQL – Structured Query Language

A popular query language that allows users to manage, update and retrieve data.

Form

A window on the screen that provides areas for entering or modifying data in a database.

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Report writer

Allows users to design a report on the screen, retrieve data into the report design, and then display or print the report.

Different techniques to restore the database

Backup   Log   Recovery utility   Continuous backup

Information system

A collection of hardware, software, data, people and procedures that work together to produce information.

System development

A set of activities used to build an information system.