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Chapter   3

Input/output and Storage

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Input Devices

Mouse

Keyboard

Graphics tablet

Microphone

Webcam

Touch screen

Biometric device

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Magnetic stripe reader

Touch-sensitive pad

Magnetic ink character recognition

Function keys
The purpose of these keys changes depending on the program in use

Esc
Used to cancel or interrupt an operation

Tab
Used to indent text or navigate forms or tables

Caps lock
Switches the keyboard between all-caps and normal mode

Window key
Displays the Start menu on a Microsoft-based PC

Ctrl and Alt
Pressed with other keys to issue commands to the program in use

Internet controls
Usually open e-mail, a browser or search window

Media controls
Volume, pause, forward, and reverse options

Toggle keys
Turn on and off features

Num lock
Switches the keypad between number entry and cursor movement

Status indicators
Lights that indicate whether a toggle key's function is on or off

Numeric keypad
Used for numeric data entry or cursor movement

Cursor movement keys
Move the cursor up, down, left, or right on the screen

Shift
Allows the entry of a capital letter or punctuation mark

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A character map is a comparison chart or lookup table that tells the processor what key is being pressed.

Wireless keyboards are increasing in popularity. They connect to the computer through infrared (IR), radio frequency (RF), or Bluetooth connections instead of physical cables.

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Key Name	Typical Function
Alt	In combination with another key, enters a command (example: Alt + F displays the File tab options in Office 2010).
Caps Lock	Toggles Caps Lock mode on or off.
Ctrl	In combination with another key, enters a command (example: Ctrl + S executes the instruction to save the current file).
End	Moves the cursor to the end of the current line.
F1	Displays on-screen help.
Home	Moves the cursor to the beginning of the current line.
Insert	Toggles between insert and overwrite mode, if these modes are available in the program you're using.
Print Screen	Captures the screen image and places it in memory.
Windows key	Displays the Start menu in Microsoft Windows.

File Management		Text Editing	
Ctrl + N	Opens a new blank document	Ctrl + C	Copies selected text
Ctrl + S	Saves the active document	Ctrl + X	Cuts the selected text
Ctrl + O	Opens the Open File dialog box	Ctrl + V	Pastes text that was copied or cut
Ctrl + P	Opens the Print dialog box	Ctrl + H	Locates and replaces text

On-screen intelligent keyboard

Keypad

Mini-keyboard

Pointing Device

Mouse
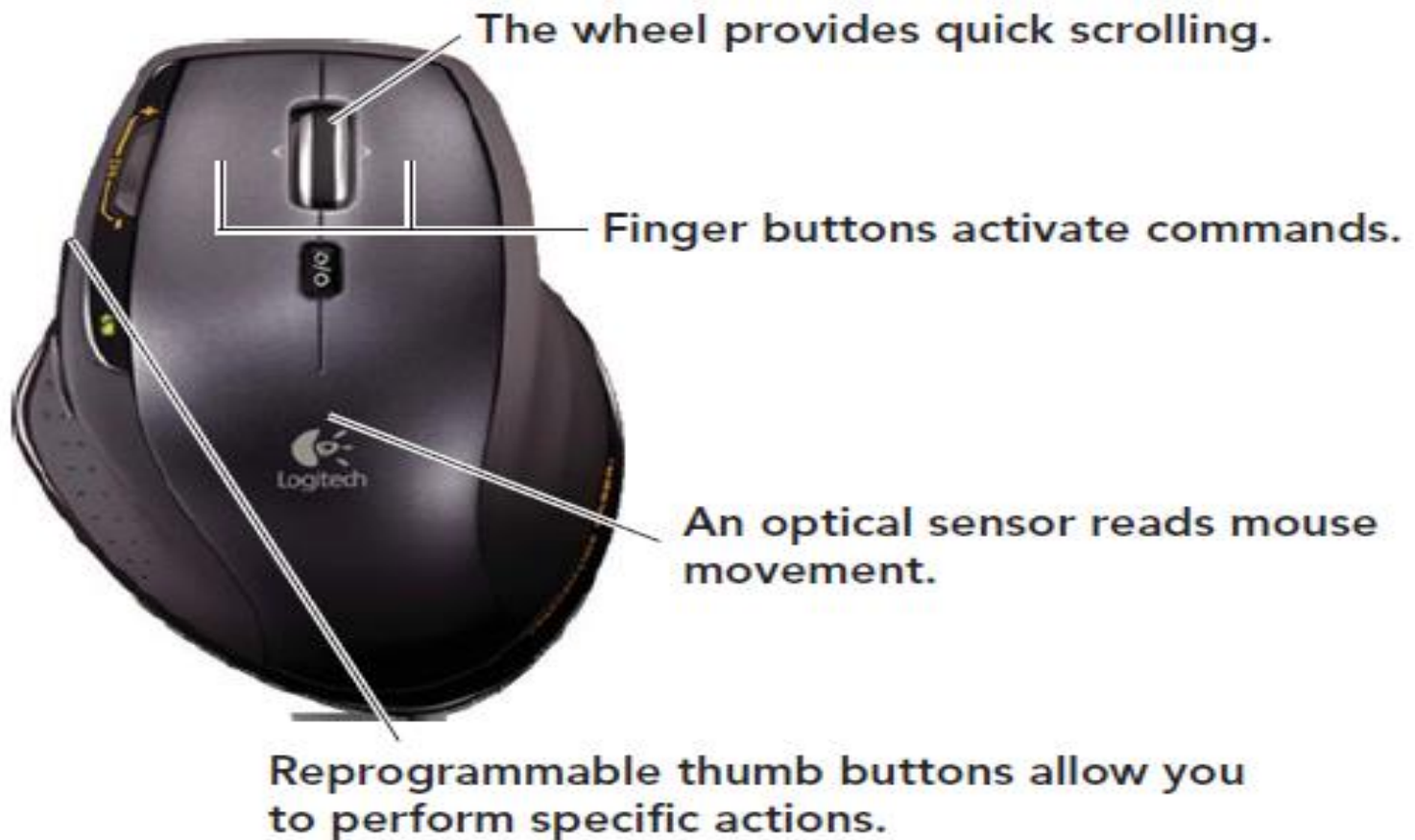
Trackball

Pointing stick

Touchpad

Joystick

Touch
screen

Stylus

The wheel provides quick scrolling.

Finger buttons activate commands.

An optical sensor reads mouse movement.

Reprogrammable thumb buttons allow you to perform specific actions.

Speech recognition **also called voice recognition, is the conversion of spoken words into computer text.**

Optical Character Recognition (OCR) software to automatically convert scanned text into a text file instead of a bitmapped image.

Optical Mark Reader (OMR) scans grid-like test form and senses the magnetized marks from pencil. It compares your answer against a form with the correct answers submitted by the instructor.

Output Devices

Monitors

1- Cathode-Ray Tube (CRT)

2- Liquid Crystal Displays (LCD)

3- OLED (Organic Light Emitting Diode)

Printers

1- Inkjet Printer

2- Laser Printer

3- Dot matrix Printer

4- Thermal Transfer Printer

Plotter

Storage Devices

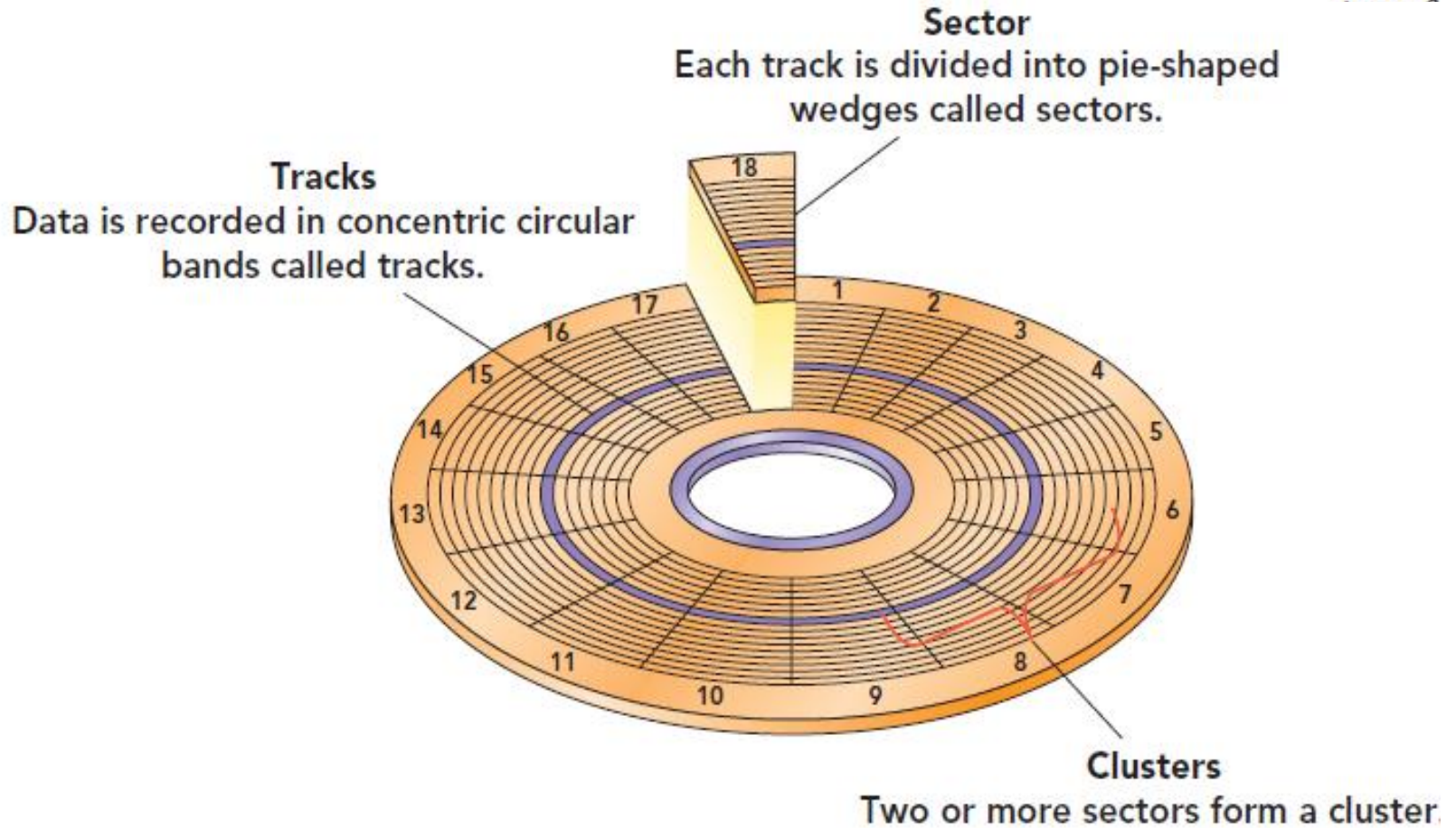Hard drive with enclosure opened

Flash memory card in reader

USB drive

DVD

		Access Speed	Cost per MB	Storage Capacity
Memory	Cache memory	Fastest	Highest	2 MB
	RAM	Fast	High	4 GB
Storage	Hard disk	Medium	Medium	1 TB
	CD-R disc	Slow	Low	700 MB

Hard Disk Drive

Sector
Each track is divided into pie-shaped wedges called sectors.

Tracks
Data is recorded in concentric circular bands called tracks.

Clusters
Two or more sectors form a cluster.

New Technology File System (NTFS) :

table contains the name of each file and the file's exact location on the disk improved security and encryption ability provide another layer of protection for stored data.

Factors Affecting Hard Disk Performance

1- Speed retrieves desired data.

2- Access time: The amount of time it takes a device from the request for the information to the delivery of that information.

3- Transfer refers to how quickly the read/write head transfers data from the disk to random access memory.

4- Disk cash (read cash-write cash).

Network Attached Storage (NAS) : devices are comprised primarily of hard drives or other media used for data storage and are attached directly to a network.

Remote Storage: A storage space on a server that is accessible from the Internet.

External Storage Devices

1- Flash memory

2- Compact Disk (CD):

CD-R : writes once and read many times.

CD-RW: full read and write capabilities.

3- Digital Video Disks (DVD):

DVD+R : writes once and read many times.

DVD+RW: rewritten many times.

External Storage Devices

4- Blu Ray Disk (BD): enable recording, rewriting, and playing back of high-definition video (HD).

1- BD-R : writes once and read many times.
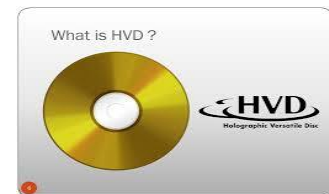
2-BD-RE: read and write capabilities.
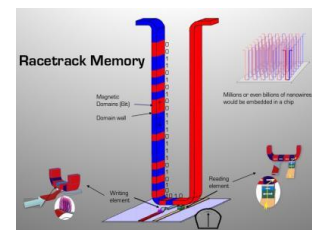
Solid-State Storage Device

1- Smart card

2- Holographic storage

3- Wireless memory card

4- Racetrack memory

A backup is a copy of programs, data, and information created in one secondary storage medium that is duplicated to another.