

Chapter 3A

Using the Keyboard And Mouse

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The Keyboard

- The most common input device
 - Must be proficient with keyboard
 - Skill is called keyboarding

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The Keyboard

- How keyboard works
 - Keyboard controller detects a key press
 - Controller sends a code to the CPU
 - Code represents the key pressed
 - Controller notifies the operating system
 - Operating system responds
 - Controller repeats the letter if held

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The Mouse

- All modern computers have a variant
- Allows users to select objects
 - Pointer moved by the mouse
- Mechanical mouse
 - Rubber ball determines direction and speed
 - The ball often requires cleaning

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The Mouse

- Optical mouse
 - Light shown onto mouse pad
 - Reflection determines speed and direction
 - Requires little maintenance

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The Mouse

- Interacting with a mouse
 - Actions involve pointing to an object
 - Clicking selects the object
 - Clicking and holding drags the object
 - Releasing an object is a drop
 - Right clicking activates the shortcut menu
 - Modern mice include a scroll wheel

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The Mouse

- Benefits
 - Pointer positioning is fast
 - Menu interaction is easy
 - Users can draw electronically

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The Mouse

- Mouse button configuration
 - Configured for a right-handed user
 - Can be reconfigured
 - Between 1 and 6 buttons
 - Extra buttons are configurable

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Variants of the Mouse

- Trackballs
 - Upside down mouse
 - Hand rests on the ball
 - User moves the ball
 - Uses little desk space



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Variants of the Mouse

- Track pads
 - Stationary pointing device
 - Small plastic rectangle
 - Finger moves across the pad
 - Pointer moves with the pointer
 - Popular on laptops



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Variants of the Mouse

- Track point
 - Little joystick on the keyboard
 - Move pointer by moving the joystick



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Ergonomics and Input Devices

- Ergonomics
 - Study of human and tool interaction
 - Concerned with physical interaction
 - Attempts to improve safety and comfort

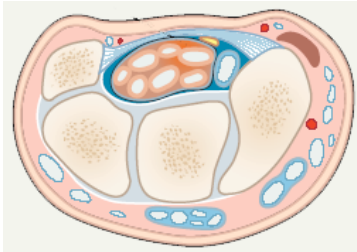
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Ergonomics and Input Devices

- Repetitive Strain Injury (RSI)
 - Caused by continuous misuse of the body
 - Many professions suffer from RSI
- Carpal Tunnel Syndrome
 - Carpal tunnel is a passage in the wrist
 - Holds nerves and tendons
 - Prolonged keyboarding swells tendons

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Carpal Tunnel Syndrome



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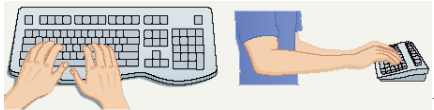
Ergonomics and Input Devices

- Office hardware suggestions
 - Office chairs should have
 - Adjustable armrests and height
 - Armrests
 - Lower back support
 - Desks should have
 - Have a keyboard tray
 - Keep hands at keyboard height
 - Place the monitor at eye level

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Ergonomics and Input Devices

- Techniques to avoid RSI
 - Sit up straight
 - Have a padded wrist support
 - Keep your arms straight
 - Keyboard properly
 - Take frequent breaks



Chapter 3B

Inputting Data In Other Ways

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Devices for the Hand

- Pen based input
 - Tablet PCs, PDA
 - Pen used to write data
 - Pen used as a pointer
 - Handwriting recognition
 - On screen keyboard



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Devices for the hand

- Touch screens
 - Sensors determine where finger points
 - Sensors create an X,Y coordinate
 - Usually presents a menu to users
 - Found in cramped or dirty environments



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Devices for the hand

- Game controllers
 - Enhances gaming experience
 - Provide custom input to the game
 - Modern controllers offer feedback
 - Joystick
 - Game pad



Optical Input Devices

- Allows the computer to see input
- Bar code readers
 - Converts bar codes to numbers
 - UPC code
 - Computer find number in a database
 - Works by reflecting light
 - Amount of reflected light indicates number

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Optical Input Devices

- Image scanners
 - Converts printed media into electronic
 - Reflects light off of the image
 - Sensors read the intensity
 - Filters determine color depths

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Optical input devices

- Optical character recognition (OCR)
 - Converts scanned text into editable text
 - Each letter is scanned
 - Letters are compared to known letters
 - Best match is entered into document
 - Rarely 100% accurate

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The FLY Pentop

- A pen that can read software right off the page as it moves
- Contains an AAA battery, a computer chip, a speaker and, mounted half an inch from the ballpoint tip, a tiny camera.



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RFID

- Radio Frequency Identification Technology
- RFID allows data to be transmitted by a product containing an RFID tag microchip, which is read by an RFID reader
- Useful for inventory, loss prevention, item tracking

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Audiovisual Input Devices

- Microphones
 - Used to record speech
 - Speech recognition
 - “Understands” human speech
 - Allows dictation or control of computer
 - Matches spoken sound to known phonemes
 - Enters best match into document

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Audiovisual Input Devices

- Musical Instrument Digital Interface
 - MIDI
 - Connects musical instruments to computer
 - Digital recording or playback of music
 - Musicians can produce professional results



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Audiovisual Input Devices

- Digital cameras
 - Captures images electronically
 - No film is needed
 - Image is stored as a JPG file
 - Memory cards store the images
 - Used in a variety of professions