

**1 What Is Input, and What Are the Differences Among a Program, a Command, and a User Response?**

Input is any data or instructions entered into the memory of a computer. A program is a series of related instructions that tells a computer what tasks to perform and how to perform them. A command is an instruction that causes a program to perform a specific action. A user issues a user response by replying to a question displayed by a program to perform certain actions.

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**2 What Keys Are Commonly Found on Desktop Computer Keyboards, and How Do Keyboards for Mobile Computers and Devices Differ from Desktop Computer Keyboards?**

A keyboard is an input device that contains keys users press to enter data and instructions into a computer. Computer keyboards have a typing area that includes letters of the alphabet, numbers, punctuation marks, and other basic keys. Most keyboards also have function keys programmed to issue commands; toggle keys that switch between two states when pressed; and keys used to move the insertion point, or cursor, on the screen. A gaming keyboard is a keyboard designed specifically for users that enjoy playing games on the computer. On notebook computers and some other mobile devices, the keyboard is built into the top of the system unit. To fit in these mobile computers and devices, the keyboards usually are smaller and have fewer keys than desktop computer keyboards.

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**3 What Are Different Mouse Types, and How Do You Use a Mouse?**

A mouse is a pointing device that fits under the palm of your hand. An optical mouse uses devices that emit and sense light to detect the mouse's movement. A laser mouse uses a laser and is more expensive than an optical mouse. An air mouse allows you to control objects, media players, and slide shows by moving the mouse in predetermined directions through the air. A wireless mouse, or cordless mouse, transmits data using wireless technology. As you move a mouse, the mouse pointer moves on the screen. You then press a mouse button (usually the left) to click objects. Some programs support mouse gestures, where users can perform certain actions by holding a mouse button while moving the mouse in a particular pattern.

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**4 What Are the Various Types of Touch Screens, and How Does a Touch-Sensitive Pad Work?**

A touch screen is a touch-sensitive display device. Touch screens that recognize multiple points of contact at the same time are known as multi-touch. Users interact with touch screens by touching areas of the screen such as pictures, numbers, letters, or locations identified on the screen. A kiosk is a freestanding computer that usually includes a touch screen. Microsoft Surface is a 30-inch tabletop display that allows one or more people to interact with the screen using their fingers or hands. A touch-sensitive pad is an input device that enables users to scroll through and play music, view pictures, watch videos or movies, adjust volume, and/or customize settings on a portable media player or other mobile device.

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**5 What Are the Various Types of Pen Input, and What Are Other Types of Input for Smart Phones?**

With pen input, you touch a stylus or digital pen on a flat surface, such as a screen on a monitor or mobile device, a signature capture pad, or a graphics tablet, to write, draw, or make selections. A stylus is a small metal or plastic device that looks like a tiny ink pen but uses pressure instead of ink. A digital pen, which is slightly larger than a stylus, features electronic erasers and programmable buttons. Handwriting recognition software is a program that translates handwritten letters and symbols into characters a computer or mobile device can process. A signature capture pad captures signatures written with a stylus or pen attached to a device. Some smart phones have digital cameras that have touch-sensitive pads. Others have a portable keyboard or optical keyboard built in.

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**6 What Are the Purposes of Gamepads, Joysticks and Wheels, Light Guns, Dance Pads, and Motion-Sensing Game Controllers?**

A gamepad controls the movement and actions of players or objects in video games or computer games. A joystick is a handheld vertical lever that you move to control a simulated vehicle or player. A wheel is a steering-wheel-type device that you turn to simulate driving a vehicle. A light gun is used to shoot targets as you pull the trigger on the weapon. A dance pad is an electronic device, divided into panels, that users press with their feet. Motion-sensing game controllers, such as the Wii Remote, guide on-screen elements by moving a handheld input device in predetermined directions through the air.

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### **7 How Does Resolution Affect the Quality of a Picture Captured on a Digital Camera?**

A digital camera allows users to take pictures and store the photographed images digitally. Resolution is the number of horizontal and vertical pixels in a display device. The greater the number of pixels the camera uses to capture a picture, the better the quality of the picture. Thus, the higher the resolution, the better the picture quality, but the more expensive the camera.

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### **8 How Are Voice Recognition, Web Cams, and Video Conferencing Used?**

Voice recognition, also called speech recognition, is the computer's capability of distinguishing spoken words. A Web cam, also called a PC video camera, is a digital video camera that enables users to capture video and still images and then send or broadcast the images over the Internet. A video conference is a meeting between two or more geographically separated people who use a network or the Internet to transmit audio and video data.

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### **9 How Do the Various Types of Scanners and Reading Devices Work?**

A scanner, or optical scanner, is a light-sensing input device that reads printed text and graphics and translates the results into a form the computer can process. A flatbed scanner works in a manner similar to a copy machine except it creates a file of the document. An optical reader uses a light source to read characters, marks, and codes and converts them into digital data that a computer can process. Optical character recognition (OCR) reads characters from ordinary documents. Optical mark recognition (OMR) reads hand-drawn marks such as small circles or rectangles. A bar code reader, or bar code scanner, is an optical reader that uses laser beams to read a bar code, or identification code. RFID (radio frequency identification) uses radio signals to communicate with an embedded tag placed in or attached to an object, an animal, or a person. A magnetic stripe card reader, also called a magstripe reader, reads the magnetic stripe on the back of credit cards and other similar cards. MICR (magnetic-ink character recognition) reads text printed with magnetized ink.

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### **10 What Are Various Biometric Devices?**

A biometric device translates a personal characteristic into digital code that is compared with a digital code stored in the computer to identify an individual. A fingerprint reader captures curves and indentations of a fingerprint. A face recognition system captures a live face image and compares it with a stored image. A hand geometry system measures the shape and size of a hand. A voice verification system compares live speech with a stored voice pattern. A signature verification system recognizes the shape of a signature. An iris recognition system reads patterns in the iris of the eye. Retinal scanners scan patterns of blood vessels in the back of the retina.

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### **11 How Do POS Terminals, Automated Teller Machines, and DVD Kiosks Work?**

A terminal is a computer, usually with limited processing power, that enables users to send data to and/or receive information from a host computer. POS terminals, ATMs, and DVD kiosks are special-purpose terminals. A POS (point-of-sale) terminal records purchases, processes credit or debit cards, and updates inventory. An automated teller machine (ATM) is a self-service banking machine that connects to a host computer through a network. A DVD kiosk is a self-service DVD rental machine that connects to a host computer through a network.

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### **12 What Are Alternative Input Devices for Physically Challenged Users?**

Voice recognition is ideal for visually impaired users. A keyguard is a plate placed over the keyboard that allows users with limited hand mobility to rest their hands and press only one key at a time. Keyboards with larger keys or an on-screen keyboard displayed on a user's screen also are available. A small trackball or a head-mounted pointer helps users with limited hand movement to control the pointer or insertion point. Two developments in the prototype stage are gesture recognition and computerized implant devices.

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