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5 Input

Quizzes and Learning Games

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1 What Is Input?

Input is any data or instructions entered into the memory of a computer. Instructions can be in the form of programs, commands, and user responses. A program tells a computer what to do and how to do it. A command causes a program to perform a specific action. A user issues a user response by replying to a question displayed by a program. An input device is any hardware component that allows users to enter data and instructions.

2 What Are the Characteristics of a Keyboard?

A keyboard is an input device that contains keys users press to enter data 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, usually a blinking vertical bar, on the screen. A gaming keyboard is a keyboard designed specifically for users that enjoy playing games on the computer.

3 What Are Different Mouse Types, and How Do They Work?

A pointing device is an input device that allows users to control a small graphical symbol, called a pointer, on the screen. A mouse is a pointing device that fits under the palm of your hand. As you move a mouse, the pointer on the screen also moves. A mechanical mouse translates

the movement of a ball on its underside into signals the computer can process. An optical mouse uses devices that emit and sense light to detect the mouse's movement. A newer type of mouse, called an air mouse, allows you to control objects, media players and slide shows by moving the mouse in predetermined directions through the air. A laser mouse uses a laser to detect movement. A wireless mouse, or cordless mouse, transmits data using wireless technology.

4 How Do Pointing Devices and Controllers for Gaming and Media Players Work?

A trackball is a stationary pointing device with a ball that you rotate to move the pointer. A touchpad is a flat, pressure-sensitive device that you slide your finger across to move the pointer. A pointing stick is a device positioned on the keyboard that you push to move the pointer. A light pen is a light-sensitive device that you press against or point at the screen to select objects. A touch screen is a touch-sensitive display device that you interact with by touching areas of the screen. A stylus and a digital pen use pressure to write or draw. 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 through the air. A Click Wheel is used to browse through songs, pictures, or movie lists on a portable media player.

5 How Does Voice Recognition Work?

Voice recognition, also called speech recognition, is the computer's capability of distinguishing spoken words. Voice recognition programs recognize a vocabulary of preprogrammed words. Most voice recognition programs are a combination of speaker-dependent software, which makes a profile of your voice, and speaker-independent software, which has a built-in set of word patterns.

6 What Are Input Devices for PDAs, Smart Phones, and Tablet PCs?

Smart phones use a variety of input devices, including a stylus and a portable keyboard. You can send typed messages using text messaging. Some smart phones can use IM to communicate over the Internet, and many have a camera so that users can use picture messaging and video messaging. A primary input device for a PDA is a basic stylus. Some PDAs have a built-in keyboard or support voice input. The primary input device for a Tablet PC is a digital pen, with which you can write on the device's screen. If you slide a Tablet PC into a docking station, you can use a full-sized keyboard, mouse, and

other desktop peripherals.

7 How Does a Digital Camera Work?

A digital camera allows users to take pictures and store the photographed images digitally. When you take a picture, light passes into the camera lens, which focuses the image on a charge-coupled device (CCD). The CCD generates an analog signal that represents the image. An analog-to-digital converter (ADC) converts the analog signal to a digital signal. A processor in the camera adjusts the image's quality and then stores the digital image on the camera's storage media. The image then is downloaded to a computer's hard disk via cable or copied from the camera's storage media.

8 How Are Web Cams and Video Conferencing Used?

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.

9 What Are Various Types of Scanners and Reading Devices, and How Do They Work?

A scanner, also called an 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. 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. A magnetic stripe 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.

10 What Are Types of Terminals?

A terminal consists of a keyboard, a monitor, a video card, and memory. A dumb terminal has no processing power and relies on a host computer for processing. A smart terminal has a processor and can perform some functions independent of the host computer. POS terminals and ATMs 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. To access a bank account, you insert a bankcard into the ATM's card reader and enter a personal identification number (PIN).

11 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. 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.

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.