

Computers and information processing

Technology



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There are two main methods of data input. The first method is keyboard entry and the second method is source data entry. Keyboard entry converts characters like numbers and letters to electrical signals to be used by the computer's processor. Keyboard entry devices include keyboards, touch tone devices, and set-top boxes. Source data entry devices refer to the many forms of data entry devices that are not keyboards, including pointing devices, scanning devices, magnetic stripes, smart cards, voice recognition devices, audio input, video input, and digital camera. Data source is usually on magnetic media or paper or fed directly into the processor. Pointing devices include mouse, trackball, touchpad, joystick, pen input, touch screen, light pen, and digitizer. Scanning devices include image scanners, optical readers, bar code readers, optical mark recognition, optical character recognition, magnetic ink character recognition, and fax machines (Williams, Sawyer, & Hutchinson, 1997).

If the printed questionnaires are multiple choice questions answered using pencil marks, optical mark recognition is the best method. Optical mark recognition technology scans the printed questionnaire, detects the presence of marks, and transfers this information to the processor (MB Imaging, 2006).

In the case of telephone surveys, audio boards work best because such devices recognize human voice and transform it into digital signals to be processed by the computer processor. An audio board is an add-on circuit board that converts analog sound to digital sound and stores it for further processing (Williams, Sawyer, & Hutchinson, 1997). To capture the check number at the bottom of the check, magnetic ink character recognition, a type of optical reader, is the best method because the check numbers on checks are printed with magnetic ink (Williams, Sawyer, & Hutchinson, <https://assignbuster.com/computers-and-information-processing/>

1997). As for retail tags, bar code readers capture data most accurately because most retail stores use bar codes on retail tags. A bar code consists of a set of vertical lines and spaces of different widths. The code can be translated into a 10-digit number that identifies the product manufacturer and the product number (Williams, Sawyer, & Hutchinson, 1997). Lastly, as for long documents, the best method of data input that would ensure accuracy is the image scanner. The image scanner converts the long document into digital format usable by the computer processor (Williams, Sawyer, & Hutchinson, 1997).

There are six main methods of data output. They are display screens, printers, audio-output devices, video-output devices, virtual reality devices, and microfilm (Carthy, n. d.). Display screens include monitors, cathode ray tubes, and flat panel displays. Printers could be either impact printers or non-impact printers (Williams, Sawyer, & Hutchinson, 1997).

The best method of output for handheld computers is flat panel displays because they are thin, light, and power saving (Williams, Sawyer, & Hutchinson, 1997). The best method of output for color photograph is thermal printers because they produce very high quality color printing. Alternatively, it is the trend to use softcopy output nowadays. Web sites for photo storage abound (see for example Flickr, 2006; Microsoft, 2006). A black and white inkjet printer will do for resumes since resumes do not contain colorful graphics and the quality, though lower than that of a thermal and laser printer, should suffice. As for memorandum, handwritten messages on post-it notes are convenient. Statistical reports contain graphs, tables, charts, and words. Hence, color laser printers are the best method of output. Lastly, company reports are often stored on microfilms to save space.

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However, for the convenience of the audience, that is, the investors, companies might publish them on the Internet in the form of soft copy. Primary storage is random access memory that the central processing unit can access directly without the use of input and output devices. Secondary storage is memory that the central processing unit cannot access directly and requires the use of input and output devices. Examples are diskettes, hard disks, optical disks, flash memory cards, and magnetic tapes. The difference between primary storage and secondary storage is that primary storage is volatile while secondary storage is relatively non-volatile and more permanent. Hard disk is appropriate for program and data files such as Microsoft office programs that require large storage space and fast access. Floppy disk is appropriate if there is a need to carry data around, such as files carried by businessmen on overseas trips. RAM is most suitable for temporary and most frequently used instructions and data, such as cache. CD ROM offers the large storage capacity of hard disk and the portability of floppy disk. It is suitable for entertainment such as music that takes up space and needs to be portable. Lastly, though tape offers a lower capacity than hard disk, at around 200 MB, the capacity is considered relatively huge. It is most appropriate for backup or for batch jobs (Williams, Sawyer, & Hutchinson, 1997).

RAM determines the total size of the programs and data files the computer can work on at any given moment. The higher the RAM, the larger the total size of the programs and data files that can be worked on, and the faster the speed (Williams, Sawyer, & Hutchinson, 1997). Clock speed is used by the control unit to execute and synchronize all computer operations. The higher the clock speed, the faster computer operations can be executed and

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synchronized (Williams, Sawyer, & Hutchinson, 1997). There are three ways in which data on hard disk determines the speed of a computer. They are maximum transfer rate of data, spindle rotation rate, and seek time (Panther Products, n. d.). These three elements determine the speed at which data on the hard disk can be transferred, written, and read respectively (Panther Products, n. d.). Data on a CD ROM can be transferred faster by increasing the speed at which the disk is spun (Wikipedia, 2006). Finally, for floppy disk, the drive access time, BIOS introduced delays, and sector: shift ratio determine the speed of the computer (Wikipedia, 2006).

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