A computer system and devices essay sample

Technology, Computer

A system is a collection of elements that work together to archive a common objective. A computer system consists of hardware, software, firmware and liveware elements that support information processing.\n

Computer

\n• A programmable machine that inputs, process, and outputs data.\n• A computer is an electronic device that can store and process data, converting it into information that is useful to people.\n

Data

\nRaw data are numbers, characters, images or other outputs from device to convert physical quantities into symbols, in a very board sense. Such data are typically further processed by a human or input a computer, stored and processed there, or a transmitted (output) to another human or computer.\ nRaw data is a relative term; data processing commonly occurs by stages, and the “ processed data” from one stage may be considered the “ raw data” of the next.\n

Information

\nWhen you input data to the computer, the computer will process those data, and the information will be output from the computer. To output information, you will able to use many types of devices.\n

Structure Chart of a computer system

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2. 2 Hierarchical chart of the computer system.

\nThe computer system is divided into five items.\n1. Internal\n2. Hardware\n3. Software\n4. Firmware\n5. Peripheral\n

2. 3 Internal Devices

\nAll the devices that are installed on the computer can be called as ” internal devices”.\n1. Processor\n2. Motherboard\n3. RAM\n4. Sound Card\n5. Network Card\n6. Video Card\n\n1. Processor\n\nThe first processor released by Intel was the 4004 processor. The processor is often thought as the “ Engine” of the computer. It can also be called as CPU (Central Processing Unit). CPU handles all instructions it receives from hardware and software running on the computer. Processors produce heat, so they are covered with a heat sink or cooling fan to keep them cool and running smoothly. All computers require some type of CPU. Without CPU the computer does not work. Processors are available in three types.\n• Socket Type (PGA)\n• Slot Type\n• Socket Type (LGA)\nThe major two types of processors brand available in the market and the latest processors of them.\n• Intel processors\nDual core\nCore 2 Duo\nCore i3\nCore i5\nCore i7\n\n• AMD processors\nAthlon II\nE2 series\nA4 series\nA6 series\nA8 series\nA10 series\n\n2. Motherboard\nThe motherboard also called mainboard of the computer. The motherboard is a printed circuit board that is the foundation of a computer. All the hardware devices of the computer will connect to the motherboard directly or indirectly. This motherboard will support the communication between all the hardware devices on the computer. Most of the newer motherboards come with the “ onboard device” concepts which integrate a lot of interface cards to the motherboard itself.\nLatest

motherboards are having newer and faster interfaces for connecting devices. IDE interfaces are replaced by SATA. AGP slots replaced by PCI express slots,\n\nOverview of the motherboard,\n\n3. Sound Card\nA sound card is an expansion card or IC for producing sound on a computer that can be heard through speakers or headphones. Most of newer motherboards we can get the sound card as an onboard device. Separate interface cards are mostly in PCI slot.\n\n4. Video Card (VGA)\nVGA (Video Graphics Array) used to connect the monitor to the motherboard using the VGA card. A video card is used to process images so they can be displayed on the monitor. A good video card can make a big difference in the quality of the graphics, so this is particularly important if you play games or work with photography and video.\n\n2. 4 Hardware\nAll the devices on your computer system that we can touch can be called as " hardware devices". Without any hardware, the computer system does not exist and software could not be used. We can classify hardware into following devices\n1) Input Devices\n2) Output Devices\n3) Central Processing Unit\n4) Storage/Memory\n5) Communication Devices\n\n2. 4. 1 Input Devices\nThe devices that we use to input data to the computer system called as " input devices". Input devices are,\n• Keyboard\n• Mouse/Touchpad\n• Webcam\n• Microphone\n• Scanner\n• Optical character reader (OCR)\n• Optical mark reader (OMR)\n• Magnetic ink character reader (MICR)\n• Barcode reader\n\n Keyboard\nThe keyboard will be one of the main input devices of the computer. Using this keyboard we can input letters, numbers, and symbols. Also, some of the main commands can be input by this keyboard.\n\n Mouse\nThe mouse can be called as one of the main input devices on the computer. Without this

mouse, the activities on the computer will be so difficult, because most of the computer activities involve the mouse. On a standard mouse, we can see two buttons named, “ left mouse button” and “ right mouse button”. The mouse is placed on a flat surface like the mouse pad or a desk and is placed in front of your computer\n\n Microphone\nThe Microphone can be called a device that translates sound vibrations in the air into electronic signals or transmits them to a recording medium.\n\n2. 4. 2 Output Devices\nThe devices that we use to output information called “ output devices”. Output devices are,\n\n• The visual display unit (VDU)\n• Speakers\n• Printers\n• Plotters\n• Multimedia projector\n\n The visual display unit (VDU)\nThe visual display unit is main output device on the computer. Without this device, you will not able to work with the computer, because to see the activities on the computer we should have a visual display unit. Traditional computer monitors are based on the same sort of technology that is used within television screen. Today, it is common for computers to come with VDUs that are 20” to 30” in size. Because of the current development in LCD, plasma, and LED innovation, manufacturing large screens is much more cost effective than before.\n\n Speakers\nSpeaker is an output device that connects to a computer to generate sound. The signal used to produce the sound that comes from a computer speaker is created by the computer’s sound card. Most computers are sold with the capability to add a pair of speakers to the system.\n\n Printers\nThe device that converts softcopy information into hard copy information can be called as “ printer”. The printer is one of the main output devices on the computer, by using printing method we can classify printers into two main types.\n• Impact printers\n•

Non-Impact printers\n\n2. 4. 3 Central Processing Unit\nThe central processing unit can be called as the “ working brain” of the computer system. There are four main sections in CPU.\n• Control unit(CU)\nAll the devices on the computer including ALU, Register, and Cache memory will control and handle by the control unit.\n• Arithmetic and logic unit (ALU)\nAll mathematical and logical tasks will be handled by this unit.\n• Register\ nDuring the processing tasks of the computer, the processor may create temporary data, to store those temporary data processor use this register.\ n• Cache memory\nTo do processing tasks, the processor needs instruction. Most useful instruction will keep on this cache memory.\n\n2. 4. 4 Storage/ Memory Devices\nOn your computer you should store data, information or instruction to store these items computer use storage/ memory devices on a computer system. You will able to see 2 main types of storage/ memory devices.\n1. Primary/ Internal devices\n2. Secondary/ External devices\n\n1. Primary/ Internal storage devices\nThe memory or storage devices that connect to computer motherboard directly called as internal storage devices. These memories content temporary, but very fast, low amount of memory. There are two main types of internal storage devices.\n\n1. Random Access Memory (RAM)\nRandom access memory will be one of main memory device on the computer. When the computer starts all the instruction will copy in to the RAM, then processor able to access those instructions very fast, but if processor get his instruction directly from the hard disk the processing task will be very slow because of the very slow speed of the hard disk. The RAM can be called as one of the main devices that effect on computer speed.\ nDifferent Types of RAM\n• RDRAM\n• SIMM\n• SDRAM\n• DDR\n• DDR2\n•

DDR3\n• DDR4\n\n2. Read Only Memory (ROM)\nRead Only Memory (ROM) as the name suggests is a special type of memory chip that holds software that can be read but not written to. A good example is the ROM –BIOS chip which contains read-only software that starts up your computer.\n2. Secondary/ External storage devices\nThe devices that connect to computer motherboard through a third party called external storage devices. These devices content fixed the very large amount of data capacity, but the speed of these devices will be very low.\n• Hard disk\n• Compact disk(CD)\n• Digital versatile disk(DVD)\n• Flash drive\n\n Hard disk(HDD)\nA hard disk is a piece of a unit, regularly called as ” disk drive, hard drive or hard disk drive”, that stores and gives generally quick access to a lot of information on an electromagnetically charged surface or set of surfaces. The hard disk is a very fast storage device. The speed of a hard disk is often quoted as ” average access time” speed, measured in milliseconds.\nThere are two hard disk types called, SCSI and EIDE. EIDE drives are often better for desktop computers and SCSI drives are better for large network servers.\n\n2. 4. 5 Communication Devices\nTo share data, information or instructions between the computer and electronic devices we can use communication devices on a computer system.\n• Network interface card(NIC)\n• Modem\n• Bluetooth\n• Infrared\n\n Network interface card(NIC)\n\nNetwork Interface Card is also called as an Ethernet card and network adapter. The network card is used to connect the computer to another computer or the internet using an Ethernet cable with an RJ-45 connector. It is available in PCI interface standard or USB versions.\n\n Modem\nA Modem is a hardware device that connects a computer or router to a broadband network. For example, a Cable

Modem and DSL Modem are two examples of these types of Modems.\n\n2. 5 Software\nThe software is a collection of programs or application, which contain the instructions that make the computer work. To do any kind of processing tasks the processor should use instructions software on your computer provide each and every instruction that needs to the processor to do processing task. Without software, your computer will not able to at least start. There are two main types of software.\n1. System software/ operating software\n2. Application software\n\n2. 5. 1 System software/ operating software\nSystem software provides all the instructions to the processor to handle or operate hardware devices on your computer. System software can be categorized as operating software and utility software.\n• Microsoft Disk Operating system (MS-DOS)\n• Windows 1. 0\n• Windows 95\n• Windows 98\n• Windows Me\n• Windows XP\n• Windows 7\n• Windows 8\n• Windows 8. 1\n• Windows 10\n• Linux\n• Ubuntu\n\n2. 5. 2 Application software\nApplication software is a set of computer programs designed to permit the user to perform a group of coordinated functions, tasks or activities. Application software cannot run itself but is dependent on system software to execute.\n• Microsoft Word\n• Microsoft Excel\n• Microsoft PowerPoint\n• Microsoft Visual Studio\n• Microsoft Outlook\n• Adobe Flash\n• Adobe Photoshop\n\n2. 6 Firmware\nThe main memory of a computer consists of two parts. The Random Access Memory (RAM) and Read Only Memory (ROM). The RAM is used to load the software when you need to run them, while ROM contains some programs written by the computer manufacturer which can only be read but not written. These programs are called as firmware. Firmware is a software called Basic Input Output System (BIOS).

This software located on reading-only memory (ROM) of the computer. When you press the power button on the computer this firmware will start and check basic hardware devices of the computer, then if hardware devices in a suitable situation to start the operating system, then the operating system will starts. If hardware devices not suitable to start the operating system, then it will notify the error using the monitor or beep sounds.\n\n2. 7 Peripheral Devices\nPeripheral devices mean the devices like monitor, keyboard, mouse, printer, scanner etc. Any devices connected to the system box from outside are a peripheral device.\nThere are many different peripheral devices, we can categorize them into three types,\n1. Input devises examples: mouse, keyboard, scanner, microphone\n2. Output devices examples: monitor, printer, projector, speakers\n3. Storage devises examples: external hard drive, flash drive