Shenley Brook End Sixth Form

Summer transition tasks for Computer Science

Due date Monday 11 September 2023

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Computer Science A level
Summer Work

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Exam Board

      OCR – Computer Science A Level: H446

Objectives

      The summer work is to ensure that you focus on the elements of a computer system, considering the components of Input, Process and Output (IPO).

      You should be able to distinguish between <u>what</u> is required to be input and output (ie the input data and the output information), <u>how</u> it is collected and presented, and what <u>devices</u> can be used to create the system.

Tasks

      There are two tasks which are to be submitted in early September (preferably in the first computer science lesson). They are to be word processed and printed out to be handed in. The layout for task 1 is shown in the description, ie using tables. For task two you are to make sure that all bullet-pointed areas in the question are covered. Use the bullet points as sub headings to make sure they are all covered.

Resources

      Use the internet to search for suitable devices and how they are used, but do not simply cut and paste descriptions – use your own words.

      For task 2 think how a visit to a doctor's surgery operates. The question states that the computer system is in the surgery, it is not an online diagnosis system. The patient has gone to the surgery to see the doctor; think how a computer system could be used in this situation.

Wider Reading

      The A level course at Shenley Brook End School uses Pascal as the programming language to teach both the required theory and programming for the coursework. It is an excellent teaching language and uses the required data structures for the exams. It would be useful to familiarise yourself with the language using online material, eg:

      https://www.tutorialspoint.com/pascal/index.htm

      http://www.pascal-programming.info/index.php

      You can download a free pascal compiler to try and write a few simple programs. We will be using Virtual Pascal (VP21) and/or Lazarus in class and you will need a copy to use at home. These compilers can be downloaded from Softpedia.com:

      VP21: https://www.softpedia.com/get/Programming/Coding-languages-Compilers/Virtual-Pascal.shtml

      Lazarus: https://www.lazarus-ide.org/index.php?page=downloads

      (Free Pascal is another compiler similar to VP21: https://www.freepascal.org/download.html) as is Turbo Pascal.

Computer Science Summer Task

Task 1

A computer system is made up of three main components:
- Input Devices
- The processor/computer
- Output Devices

Research as many different devices as you can find and categorise them appropriately, stating one application for each that it could be used for.

Make sure that you identify the actual device, and not just the method. For example:
- Optical Character Recognition is a method; the input device is a(n optical character) scanner.
- Voice recognition is a method; the input device required is a microphone.

Lay out your results clearly. For example:

Input Devices

Device	An application
Keyboard	Typing in an essay for history homework using a word processor (Not just "entering data" or "typing a letter" it must be a specific use
Keypad	Entering a PIN and amount of money required when using a cashpoint (ATM)
etc	

Do this for all the input devices and output devices that you can find.

For the processor/computer, identify the different types there are (for example, personal desktop computer, laptop, etc. Do not list brand names.) For each type, again give an application when it might be appropriate to use.

There should be three tables submitted; one for input devices, one for output devices and one for processors/computers.

Make sure that the input and output tables are specifically entering or outputting data/information and not carrying out a process. (For example if you write for the input device mouse "controlling/moving the cursor on the screen" you are not stating the input. Control/move is a process and showing something on a monitor is output. Consider what the input is!)

Task 2

A doctor's surgery has installed a computer system to get information from a patient as they arrive at the waiting room before they go in and see the doctor. The output will be seen by the doctor as the patient goes into the consulting room.

For this situation identify the following, giving a clear explanation of each, with an example:
- What data are required
- How the data are captured (this means how the patient will get/collect the data that needs to be input)
- How the data are input
- What processing is required
- What outputs are required
- How they are output (consider the device/s needed and the format)
- What is done with the output