



A level Computer Science Extra Transition work



Congratulations on your A' level choice of 'Computer Science'. The exam board for this course is OCR (H046/H446) A Level Computer Science. Please access further resources via

<https://www.ocr.org.uk/qualifications/as-and-a-level/computer-science-h046-h446-from-2015/>

I have no doubt you will enjoy this course although at times the work will be challenging. The extra work outlined below will further enable you to be prepared for the course. However, do not forget to have a holiday! Please hand your transition work completed during the first week of the course.

Have a wonderful holiday, and we look forward in meeting you September 2021! **Mrs Nemaura & Mr Bicknell**

Task 1: Problem Solving Task

Consider the following scenario.

You have been employed to design a simple program that accepts 10 numbers from the user; and the user has the choice to sort the list into ascending order using a bubble sort algorithm **or** an alternative sort algorithm of the programmer's choice. Once the user selects, the program will output the sorted numbers on screen.

Create a flow chart that will design the outline of the program, including user inputs and outputs. (This can be hand drawn or you can use the flowchart shapes).

Task 2: Download Visual Studio

For this task, you will require a copy of Microsoft Visual Studio 2010 or later. You can download the most up to date copy of Visual Studio from (<https://visualstudio.microsoft.com/vs/features/net-development/>). Please note that we will be using Windows Console and Form mode (in vb.net)

This extra task will develop a new programming skills/language for most of you. Research shows that being a versatile developer and knowing **multiple programming languages** means your skills will never become outdated, and you can quickly adapt to industry trends. You can use your vast knowledge of software and web development to keep your job opportunities varied and fresh.

VB.net Tutorials

Use one of the VB.net online tutorials as enlisted below to help with the programming tasks and develop your wider programming skills in preparation for paper 1 and the NEA project. It is good practise to do at least 2 hours of programming per week.

<https://www.tutorialspoint.com/vb.net/index.htm>

<https://www.guru99.com/vb-net-tutorial.html>

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<https://www.vbtutor.net/index.php/visual-basic-net-tutorials/>

reference manual: <https://docs.microsoft.com/en-us/visualstudio/get-started/visual-basic/tutorial-console?view=vs-2019>

Task 3: Programming Task – String/File handling Task

In this programming task – you will understand basic network access restriction through username and passwords.

You will use VB.net, string handling commands to create a routine that allows:

- User input of personal details
- User input of Username
- Creation of password by selecting letters from user data eg.

```
Fred  
Smith  
8th Feb 1990  
12 High street  
Wigston  
Leicester  
LE18 3DS  
07949033212
```

Password Rdmh8901332

- Saving data to a text file using:

```
My.Computer.FileSystem.WriteAllText(filename, Surname & "," &  
Firstname & "," & Username & "," & Password & vbNewLine, True)
```

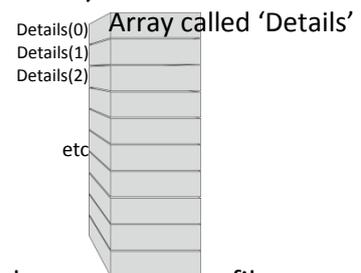
- Reading the data back in using:

```
Temp = My.Computer.FileSystem.ReadAllText(filename)
```

- Split the data into an array using:

```
Details = Split(Temp, ";")
```

- Split details(0) further into username and password
- Check if user entered username and password = username and password from file



Summary:

For this program, you should show evidence of:

- Include detailed explanations of how it works by showing comments within your code.
- Include screenshots of your code as evidence that it runs error free.
- Testing