

Harton 6th Form

**A Level Computer
Science**

Summer Task

hart6n

Name :

Computer Science is a practical subject which requires you to apply problem solving techniques to the real world.

We want you to be as prepared as you can be for your sixth-form studies at Harton 6th Form and recommend the following activities as part of that preparation. Some of you will have studied GCSE Computer Science, so this will also provide a good way to revise some of that content, hone your skills and brush up on your knowledge in preparation for a fresh start in September!

There are three tasks for you to complete (if you could put the evidence for these all in one document that would be good!):

- About you
- Programming
- Reading

About you

Please answer the following questions in a document:

1. Why have you chosen to study A Level Computer Science?
2. What other A Levels have you chosen and why?
3. Did you take GCSE Computer Science?
5. Have you done any programming?
6. If so, in which language(s)?

Programming

The main language you will be programming in for your A Level is Python. If you know the basics of Python before September, you will have an easier start to the course.

You can download Python for free and install this on your home computer. Use the link below to download

<https://www.python.org/downloads/>

There are lots of free online courses for beginners to programming, as well as those who have done some coding before.

<https://www.learnpython.org/>

<https://www.w3schools.com/python/>

<https://docs.python.org/3/tutorial/>

<https://www.codecademy.com/learn/learn-python-3>

Complete some of the tutorials above and then create the following programs, screenshotting evidence that you have completed this task.

Task 1:

Write a program to:

- Ask the user to input
 - Their first name
 - Their surname
 - A date, in the format DD/MM/YYYY
- The program should then output a customer ID as follows:
 - The date in the format YYYYMMDD, then the first three letters of the surname, then the first initial, then the length of their first name. All letters should be in capitals
 - For example, John Smith, 27/05/2017 would give 20170527SMITHJ4

- The program should validate any inputs and keep asking for inputs until the user enters correct details or types “quit” at any point

Task 2:

Write a program to:

- Ask the user to input
 - The name of a product
 - Its cost in pounds
 - The program should keep asking for inputs until the user types “None”
- The program should then output:
 - The name and price of the most expensive item
 - The name and price of the least expensive item
 - The average price of the items
 - The total cost of the items
- Items over £50 get a 5% discount
- VAT is added at the end at 20%
- The program should validate any inputs

Reading

Background reading, and reading around the subject is always a good thing to do! There's a lot there to keep you going and thinking about all things Computer Science!

Find a recent news story on one of the following topics:

- A legal issue in computing, such as a breach of the Data Protection Act
- An ethical issue in computing, such as the development of AI
- An environmental issue in computing, such as the disposal of waste equipment
- A technical development in computer science, such as the Internet of Things

Summarise the story, explaining any technical content for a student in year 10. Explain how the story affects you as a student of computer science.