

Unit A/618/4173 Introduction to Computer Programming

Level 3 10 Credits

Related Qualifications

ATHE Level 3 Diploma in Information and Digital Technologies (603/6569/9) 2020 version

Sample Assignment

You work as a computer programmer for a software development company. Your company has been commissioned to write a bespoke programme for a home furniture retail store. The programme must be able to allow the store to manage all aspects of their stock. This includes entering new stock, allocating existing stock and the ability to run reports based on these elements.

You must consider the range of programming languages available and decide on the most appropriate to use for this project. Once you have decided you will need to develop and test the program to ensure it meet the requirements of the store.

Before starting to develop the program, you will produce an information document for the development company to use when training new apprentices. This guide will focus on the use of computer languages, the structure of languages and the characteristics.

Task 1 – Produce an information document

You must consider the range of programming languages available and decide on the most appropriate to use for this project.

You must **produce an information document** in which you will detail the key areas of computer programming which need to be considered before the development of the program will begin.

This document should:

- Describe how computer programming languages are used to meet business needs
- Explain how computer programming languages are used in different industries
- Explain the characteristics of different programming languages and the common similarities between them
- Explain the requirements that are needed to develop this computer programming code
- Explain the features of a programme environment which could be used to develop this programme
- Explain the range of functions and methods used in computer programming
- Identify the most appropriate language to use for this programme

Extension activities:

To gain a merit grade you must also include in your information document:

- An analysis of the sources of assistance to use when developing the computer programming code
- An explanation of the advantages and disadvantages of programming languages

To gain a distinction grade you must also include in your information document:

- An evaluation on the importance of programming languages in the manufacturing industry that may be used to manufacture the products for the retail store
- An assessment of programming code and the problem the code is solving

LO1 AC 1.1, 1.2, 1.3, 1M1, 1D1

LO2 AC 2.1, 2.5

LO3 AC 3.1, 3.2, 3.3, 3M1, 3D1

Task 2 – Write a computer programme

You must now **write a computer programme** which will be able to allow the store to manage all aspects of their stock. This includes entering new stock, allocating existing stock and the ability to run reports based on these elements.

You must

- Identify a problem to solve for the store, using a computer programme
- Develop a computer programme using an appropriate Object Orientated Programming language (OOP) that can be used by the retail store to solve the problem
- Ensure all code within the programme is explained using comments

Extension activities:

To gain a merit grade you must also include in your computer programme:

- a range of programming functions

To gain a distinction grade you must also include in your computer programme:

- a range of functions which provide additional functionality in a computer programme

LO5 AC 5.1, 5.2, 5.3, 5M1, 5D1

Task 3 – Test the programme

As the computer programme is now developed you must fully **test the programme** before it can be provided to the retail store for review.

You must complete the following activities:

1. Create a test plan detailing the tests to be completed
2. Carry out testing on the computer programme using a test plan
3. Review and evaluate the programme based on the end results

LO5 AC 5.4, 5.5

Task 4 – Record a demonstration of the programme

Now that the programme has been developed you have been asked to **record a narrated video demonstration** talking through the computer programme.

In your discussion, you must:

- Explain the specifics of the code developed including any numbers, characters, arrays, variables, keywords, operators, loops, data types, commands
- Explain input and output operators
- Explain the characteristics of Object Oriented Programming (OOP)
- Explain how encapsulation, inheritance and polymorphism have been used in the Object Oriented Programming (OOP)
- Describe the advantages of using Object Oriented Programming (OOP) to develop this programme for the store

LO2 AC 2.2, 2.3, 2.4, 2.6

LO4 AC 4.1, 4.2, 4.3, 4.4, 4.5