Assignment brief and submission document

AQA Level 3 Technical Level IT: Programming
Unit name: Object oriented programming

Tutor/assessor name	
Learner name	
Assignment title	**Booking the trend with Object oriented programming**

Context of the assignment

Object Oriented Programming (OOP) is a software development method used to design and program robust modular solutions to real-world problems. It is an efficient approach, which differs from traditional procedural programming, as it is organised around objects and data rather than actions and logic and its purpose is to simplify the development and management of complicated applications.

Evidence and/or format of evidence required for this assignment:

- Introductory textbook page draft focusing on issues with procedural programming, a definition of OOP, differences/similarities and advantages/disadvantages of OOP, commercial applications of OOP.
- Textbook page draft looking at modelling a real world object and deriving a new class from an existing class.
- Textbook page draft focusing on OOP syntax.
- Final textbook page draft looking at analysing problems with a view to identifying OOP solutions.

These could be written in a word-processing or a desktop publishing application.

This assignment provides an opportunity to begin assessment for Problem solving.

Date assignment issued	To be completed by	Actual submission date

Grading criteria

The grade is calculated based on the evidence provided against each of the grading criteria below. Evidence must be provided in the format agreed.

	Pass	Merit	Distinction
Performance outcome	P1 P2 P3 P4 P5 P6	M1 M2 M3	D1 D2
	Evidence PO1, PO2	**Evidence** PO1, PO2	**Evidence** PO1, PO2

Assessment criteria to be evidenced in the tasks provided *(eg Task 1)*	Criteria *(eg P1, M1, D1)*
Task 1	P1, P4
Task 2	P2, M1
Task 3	P3, M2, D1
Task 4	P5, P6, M3, D2 (plus Problem Solving PS1 and PS2)

Learner authentication

I confirm that the work and/or the evidence I have submitted for this assignment is my own. I have referenced any sources in my evidence (such as websites, text books). I understand that if I don't do this, it will be considered as a deliberate deception and action will be taken.

Learner signature **Date**

Tutor/assessor signature **Date**

Scenario (all assignments are based on real-work practice in a related job role):

Learners within schools and colleges use textbooks all the time for their research and study. These books can be very useful if they explain concepts effectively using clear and concise language and the descriptions are accompanied by helpful diagrams or other visual media, which complements the written text.

Hodder Education® Publishing is a company specialising in the publishing of educational textbooks for students and has gained a reputation for clear, understandable textbooks that can be used both within the classroom and for independent study.

As an author, you have been tasked to write a textbook focusing on the subject of Object Oriented Programming (OOP) and specifically the material that appears within the specification of a new IT course.

Having had an initial project meeting with your editor, it has been decided that chapter one of the textbook should focus on the following areas:

- A general introduction to object oriented programming
- The modelling of real world objects and the derivation of new classes from existing classes
- Descriptions of a range of different syntax features of OOP languages
- The description of how a problem is explored in order to design an object oriented approach.

During the meeting one of your colleagues reiterated that the chapter must contain clear, concise, 'plain English' language with a reasonable use of technical jargon (with maybe a small accompanying glossary of technical terms). If at all possible any code or pseudo-code used should include relevant informative annotations.

Tasks

1 Your editor has a belief that the beginning of the first chapter 'makes' or 'breaks' a textbook so is looking for a number of strong introductory pages to chapter one of the textbook. You are required to write the first pages of this chapter and you need to include the following areas that were agreed for inclusion at the initial project meeting:

- An exploration of the issues regarding procedural programming
- A definition of object oriented programming,
- The differences and similarities between OOP and procedural programming and the advantages/disadvantages of using object oriented applications,
- An exploration of at least three different commercial applications of OOP languages.

2 During the meeting it was decided that, following the introductory pages, it might be useful for you to move onto describing clearly the concepts of objects, their constituents and how they can be used to model real world objects (physical or logical). It was suggested that this section could also include step-by-step guides to:

- Modelling a real world object as a class with methods and properties.
- Deriving a new class from an existing class in order to model real world objects.

3 In the next section of the chapter, it was proposed that the focus shift to talking about OOP syntax such as variables, instances and class methods. Specifically, the inclusion of the following was thought necessary:

- Describe the three main types of variables using examples to illuminate the descriptions.
- A comparison/contrast of instance and class variables.
- An evaluation of the use of instance and class methods with descriptions of their limitations within object oriented applications.

4 It was thought that the chapter would be concluded nicely with a section describing how a particular problem or issue is explored in order to design an object oriented solution, with the design investigation and design itself walked through. This should include records of the analysis, design documentation and evidence of using at least two diagramming techniques, plus a description of the techniques used in design and a justification of the choices of design techniques used.

P5 and P6, which are assessed in this task, also contribute to the Problem solving transferable skill assessment (with the remainder of the activity for this skill assessed in P7, P8, P9, P10, P11).

You should use clear and concise language for all of these sections and, where possible, use diagrams, illustrations, code snippets and annotations to assist in explanations.

Submission checklist (please insert the items the learner should hand in)	Confirm submission
Introductory textbook page draft focusing on issues with procedural programming, a definition of OOP, differences/similarities and advantages/disadvantages of OOP, commercial applications of OOP	
Textbook page draft looking at modelling a real world object and deriving a new class from an existing class	
Textbook page draft focusing on OOP syntax	
Final textbook page draft (using relevant design techniques and including two diagramming techniques) looking at exploring problems with a view to designing OOP solutions	
Description and justification of design techniques used in the design process	
Learner - please confirm that you have proofread your submission	