AQA

General Certificate of Education
January 2012
Advanced Award
12 Unit Award

Applied Information and Communication Technology   IT09/PM

Unit 9   Software Development

1 November 2011 to 21 January 2012

AQA-set Assignment – Candidate Booklet

To be given to candidates on or after 1 November 2011

Time allowed

- Investigation time
- 20 hours under controlled conditions

Instructions

- Ensure all printouts that you hand in are clear enough for an examiner to read.

IT09/PM

Unit 9: Software Development (IT09)
The Assignment – Candidate Booklet

Introduction

You should read this booklet together with the unit specification for *Unit 9: Software Development*.

To complete this assignment you must produce a software system to meet the needs of a client as specified in the task, and produce documentation of the work you have done to meet the requirements of this unit.

The work will be completed in two stages:

- investigation time, during which you will carry out preparatory work
- 20 hours of controlled conditions, during which you will complete and evaluate your work.

There are 70 marks available for this assignment. This is the only form of assessment for this unit. This assignment will be marked externally.

You will be awarded marks according to the quality of the work you complete and of the quality of written communication you use. The quality of written communication will be assessed within item (k). In this item you will be marked in part on your ability to use good English, to organise information clearly and to use specialist vocabulary where appropriate.

There are details of what you are required to produce in the *What you should hand in* section of this booklet.

1 The task

A small, independent dealer sells single items and groups of items. She has a national and international trade.

She wants you to create a software system that will allow her to add, amend and delete customer records and to record, search for and amend orders that come in. She also wants to be able to perform statistical analysis on her sales and her buyers.

The system may be created using one or both of the following methods:

- an object-oriented programming language
- a database using SQL or other database programming language and incorporating programmed routines to manipulate your data structure.

You must **not** use a spreadsheet package to produce your solution.

You should choose a client who will offer you sufficient scope to meet all of the requirements outlined in the specification for this unit. You must also consider the time available to you to implement, test and document the system.

You should discuss your choice of client with your teacher/tutor. He/she will help you to choose a suitable client. It is important that you choose a client who is accessible to you.

You may need to contact more than one person or organisation to see whether they would be willing to act as the client for your assignment. You are advised to show the letters or e-mails to your teacher/tutor before sending them in order to make sure that they are appropriate.

If you have difficulty contacting a suitable client, you should discuss this with your teacher/tutor as soon as possible. You must **not** act as your own client or use another student as the client for your assignment.

2 **What you should hand in**

You must ensure that all of the work that you produce for this assignment clearly relates to the task described on page 2 of this booklet. When you have completed the assignment, you should hand in the following.

Completed during the investigation time:

(a) A time plan to show how you initially intended to complete the work for this assignment (for both the investigation time and the 20 hours of controlled conditions). Your plan should indicate the amount of time allocated to each task. *(2 marks)*

(b) Background information about the client and why the software system in the task is needed. *(2 marks)*

(c) A description of the intended user(s) of the system and their skill levels, explaining how their skill levels will affect your designs. *(2 marks)*

(d) A software specification, agreed with the client. This must include a list of client needs, input, processing and output requirements. The specification should clearly relate to the task that has been set, and should be sufficiently detailed such that a competent third party could develop appropriate designs for a solution from it. You should explain how the proposed system will meet the client needs. *(9 marks)*

(e) Appropriate qualitative and quantitative evaluation criteria to be used to test that the software system meets the client needs. You must state why these are appropriate to assess if client needs have been met. *(4 marks)*

(f) A detailed design for a modular software system, using standard design methods, showing where modular programming techniques have been used. Your design should be sufficient for use by a competent third party to implement your system and should be annotated to explain the key features of the design. You should indicate how the modular structure and design choices you have made meet the needs of the user(s) and client. You should also specify how you will manage your files as you work on this unit. *(7 marks)*

(g) A testing strategy for your software system. This should include a full test plan, and appropriate sets of test data, for modular and system tests. *(4 marks)*

Completed during the controlled conditions:

(h) Evidence that the implementation of the completed software system has been fully tested using the tests described in (g), including evidence of the results produced and any changes that may need to be made as a result. The evidence of testing must show that the system produced performs the functions specified in the task and meets the client needs (d). *(8 marks)*

Turn over ▶

(i)   Documentation to show how the software system you have designed has been implemented, including annotated listings of the program code and an explanation of the data structures and key features used in the software system. The annotation should indicate where you have defined and used your own modules, program control structures, data types, variables, objects and procedures. Where necessary you should justify your choice of program control structures and data types.   *(15 marks)*

(j)   Sufficient instructions to allow your identified user(s) to install your software system on their computer, access it and use its main features.   *(2 marks)*

(k)   An evaluation of your software system based on your evaluation criteria (e), the client needs (d), the user skills (c) and conclusions drawn from your testing (h).
The quality of written communication will be assessed in this item.
(11 marks)

(l)   Your initial time plan (a), updated by hand to show how you actually used your time during the investigation time and the controlled conditions.   *(2 marks)*

(m)   An evaluation of your own performance in completing the work, including your use of the time available.   *(2 marks)*

Total = 70 marks

Your documentation should provide evidence of planning and managing work effectively, such as using version numbering, and appropriate file and folder names.

The work that you hand in should be organised in an appropriate order and page numbered.

You should put your name, centre number and candidate number on each page. The work should be kept securely together eg using treasury tags. Plastic wallets and ring binders must **not** be used. Each of the items (a)–(m) should be clearly identified.

Make sure that printouts of screenshots are clear for an examiner to read.

3   The investigation time

The investigation time begins when you are handed this booklet. During the investigation time, you should carry out all the research, planning, designing and testing of designs needed to create your software system in the controlled sessions

The work must be in hard copy format (ie printed or handwritten on paper) and placed in your preparatory folder. The folder must be handed to your teacher before the start of the controlled conditions.

4   Preparatory folder

This folder should contain, in hard copy format, all of the items (a)–(g) which you should have completed before you start your work under controlled conditions and this *Candidate Booklet.*

You must **not** include any material in your preparatory folder that attempts items (h)–(m).

All material in your preparatory folder must be checked by your teacher before you can use it in the controlled sessions. At the end of each controlled session, your teacher will collect in your preparatory folder and return it to you at the start of the next session.

After the start of the first controlled session you will **not** be allowed to bring in, or submit to your teacher, any further materials.

5 The controlled conditions

'Controlled conditions' means 'examination conditions'. You **must** work independently and in silence.

During the 20 hours of controlled conditions, you will be using your preparatory folder to produce the items listed in (h)–(m) of *What you should hand in*. Your teacher will tell you in advance when the 20 hours have been timetabled.

During the controlled conditions, you must **not**:

- communicate in any way with anyone except the invigilator
- access the Internet or any intranet
- have access to any material except your preparatory folder
- take in textbooks or photocopies of parts of textbooks
- copy type
- have access to removable media such as CD-ROMS or USB memory sticks.

The work must be completed by the end of the 20 hours of controlled conditions. The work must be submitted on paper as the examiner will **not** look at work submitted on electronic media such as CD-ROMs or USB memory sticks.

Your final work for submission should consist of hard copy evidence of the items in (a)–(m) of *What you should hand in*.

6 Points to consider

- There is no requirement for you to submit work that has been printed in colour. However, you should annotate (where appropriate) any black and white printouts to indicate to the examiner the colours that you have used in your software system.

- This unit is assessed by an external examiner who will not have seen your software system working, and who must rely on your documentation to award marks. It is, therefore, essential that your documentation is complete, accurate, readable and logically organised.

- Planning and monitoring should not be neglected. They are an important aspect of any project work. It is very unlikely that anyone could produce a piece of work of this complexity without having to modify their plans several times. These changes should be fully documented. If a test fails, for instance, you will need to correct the problem and this should be reflected not only in your test results, but also in your time plan.

- Make sure that you include printouts that are annotated, so that it is clear to the examiner what you are trying to show. Do not be afraid to write on printouts; you will not be penalised for handwritten annotation. In fact, where particularly relevant, this may help the examiner to award marks.

- Make sure that printouts of screenshots are large enough and clear enough to be read by the examiner.

END OF CANDIDATE BOOKLET

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