AQA

General Certificate of Education

Applied Information and Communication Technology 8751, 8753, 8756, 8759

IT09   Software Development

Report on the Examination

2009 examination – June series

Unit 9: Software Development (IT09)

This unit builds on the skills, knowledge and understanding acquired during the study of Unit 5 (Fundamentals of Programming).

This was the sixth series for the examination of this unit. The format of the examination is an AQA-set assignment, for which candidates are allowed time for research and design work (the investigation time), then a period of Controlled Conditions during which candidates are expected to produce their software system and an evaluation of the product and their own performance.

Centres are reminded that in addition to this report, there is a range of sources of support and guidance available for this unit, including a Teachers Guide and the Specification. Commentaries on exemplar work may be accessed through the relevant Subject Manager.

General Comments

Centres are reminded that the task set for this unit is provided by AQA in the Candidate Booklet, and is changed for each examination series. A significant number of candidates appeared to have used tasks from previous series, or to have devised their own. Candidates should be reminded that marks are awarded for producing a software system that meets the requirements of the task set for the current series, and that deviating from the task is likely to restrict the number of marks available to them. Credit will only be given for work that meets the requirements of these items.

The task set by AQA is intended to form the assessment for this unit. It is essential that candidates have studied the items listed in the Specification for this unit and have had adequate experience of the software to be used, prior to attempting the assessment task. All parts of the task set in the Candidate Booklet form the assessment for this unit, and only work produced independently by candidates should be submitted.

Some Centres appeared to have misinterpreted the requirements of the Controlled Conditions sessions for this unit. The Teacher's Notes for each examination series provide guidance relating to the organisation of Controlled Conditions sessions. Where Centres are in any doubt regarding the provision of computer facilities for the Controlled Conditions sessions, they should contact the ICT subject support team at AQA.

The Task

The task given for this examination series was to design and produce a system for a specified client to store and analyse responses from a marketing campaign. The system should allow the user to store new responses, and to derive some form of statistical information from the data stored.

A significant number of candidates did not attempt, either in the design work or implementation, to include a feature to analyse the data collected in their software systems. Candidates are expected to include all of the features listed in the assignment in their designs, even if they go on to only partially implement the software system.

Items (a) to (f) of the task are produced during the Investigation Time, whilst items (g) to (l) are produced during the Controlled Conditions.

Items (a) to (f) produced during Investigation Time

Most candidates produced some form of outline list of tasks to be undertaken, although a significant number merely listed the items given in the Candidate Booklet. Candidates who only did this achieved no marks. It is important that candidates break down the tasks set to show how they will attempt them, and to show that they understand what they will need to produce.

Candidates are expected to consider the amount of time required to complete each of the tasks that they have identified. This should be reflected in their time plans, which should refer to hours to be spent on tasks, rather than a list of start and end dates. They should produce a single time plan that covers both Investigation Time and Controlled Conditions time (as stated in item (a) of the task), and annotate it by hand where necessary. This method provides a much fuller account of the changes that a candidate makes to their time planning, and provides them with useful reference material when attempting item (l).

A worrying number of candidates did not produce a description of the client's background or of the intended user(s) of the new software system. Relatively few candidates attempted to clearly identify the skill levels of the user(s). It is essential that candidates describe the skill level of users in relation to the software system that is to be produced. Many candidates limited their description to a single, general comment about the ICT qualifications achieved by the users, rather than describing their level of practical skill or their characteristics that would influence the design of an appropriate interface for the system.

To gain full marks for their evaluation criteria, candidates should clearly explain how the criteria are related to the requirements of their client (as described in item (c)). The evaluation criteria should be sufficient to allow candidates to make good critical judgments of the software system that they produce. It is not appropriate for candidates to use evaluation criteria as a checklist of tasks and features, or as a "to do" list.

The current version of the Specification (available on the AQA website) gives a description of appropriate content for a software specification. Candidates must not include any evidence of the implementation of their software system in any part of their software specification.

A significant number of candidates did not include the items described in the task in their client needs, or in the designs for their software system and therefore achieved few, if any, marks on this section.

There is little evidence of candidates using modular programming techniques in their software systems. Please refer to the section on modular programming in the Specification.

The majority of marks available for design work come from clearly annotating and explaining the work done. The majority of candidates failed to make any reference to their chosen client or intended user(s) in their design work. A significant number of candidates did not include designs of their data structures in the work submitted.

Candidates should produce a testing strategy for their work, describing what elements of their software system are to be tested, how, and when. It should include testing of discrete modules using individual tests or short test plans, as well as testing of the completed (integrated) system. Test plans should be restricted to items that are required to test the functionality of the system, and any features described in the evaluation criteria produced for item (d).

Many candidates produced a single test plan with limited sets of test data. Test plans often referred to only one module of the system to be produced. Very few candidates provided any

indication of when modules were to be tested, and how testing would be used to prove that modules were processing data correctly after being integrated in to the software system.

Items (g) to (l) produced during Controlled Conditions

Candidates may only take printed or hand-written material in to Controlled Conditions, and additional material may not be brought in after the start of the first session of Controlled Conditions. Implementation of the planned software system must only be attempted under Controlled Conditions.

Centres should ensure that candidates have access to the current Candidate Booklet throughout the Controlled Conditions sessions. Some candidates indicated that they were not allowed access to the Candidate Booklet during the Controlled Conditions, which may have disadvantaged them.

The majority of candidates in this examination series used Microsoft Access to produce their software system. Most candidates provided no evidence of using any programming techniques to produce their system, although some good examples were seen. Where candidates did provide evidence of program code, it was generally in the form of automatically (i.e. "Wizard") generated code with little or no annotation by the candidate to demonstrate understanding of programming techniques and constructs.

The purpose of documenting the implementation (including code) is to allow a third party to adapt and maintain the software system produced by the candidate. It should include information about how the software was produced, and appropriate comments within the program code to explain its purpose and function.

Many candidates produced step-by-step guides showing how they created their software system, focussing on the mechanics of using their chosen development tool(s) rather than the features of their own software system. These often gained few, if any, marks.

The focus of this unit is Software Development, and thus the software systems produced should demonstrate the understanding and use of programming techniques. It is not sufficient to use solely automated methods to generate the software system. Where candidates do use such methods, it is essential that they annotate the code produced to demonstrate an understanding of its meaning. To gain credit for using a range of program control structures or data structures, the majority should be user-defined, or include sufficient annotation to clearly show that the student has a good understanding of what the structure is for, and how it works.

Candidates will not be able to achieve the higher marks where they create a software system that does not meet the requirements outlined in the task for the current examination series.

User documentation provided by the majority of candidates was not of a high standard. To gain marks, candidates needed to describe how to install their system, how to access it, and how to use its main features.

Some candidates produced good evidence of how to access the key features of their software system, but did not provide instructions sufficient to allow their user to install the system. The term "install" was widely misinterpreted as "run", or in some cases "compile". This is not correct – the term refers to the process of transferring the completed (compiled) software system to the client's computer.

Whilst many candidates attempted to evaluate their software system, very few related their comments to the needs of their client. It is recognised that the user will not be able to provide any feedback to candidates relating to the work produced during Controlled Conditions. However, candidates are expected to refer back to the client needs, user skills, and evaluation criteria that they defined during the Investigation Time, as well as any client comments on their designs whilst carrying out the evaluation.

A large number of the evaluations seen indicated that candidates did not feel that they had been prepared sufficiently for the Controlled Conditions – something that was often reflected in the marks awarded.

Mark Ranges and Award of Grades
Grade boundaries and cumulative percentage grades are available on the **Results statistics** page of the AQA Website.