

**GENERAL CERTIFICATE OF SECONDARY
EDUCATION
INFORMATION AND COMMUNICATION
TECHNOLOGY**

B065CA

Unit B065: Coding a solution

Specimen Controlled Assessment Material

INSTRUCTIONS TO TEACHERS

- Please refer to Section 4 of the Information and Communication Technology specification for instructions on completing controlled assessment tasks.
- Candidates should have access to the marking criteria for this unit whilst completing the task
- Any programming language with the appropriate features may be used to complete this task.
- Each task can be contextualised appropriately to suit facilities available in your centre.
- Quality of written communication will be assessed in the evaluation section.
- The total number of marks for this unit is **60**.
- This document consists of **4** pages.

Task

A teacher at a local primary school wants to help some students improve their spelling. These students will take time away from the class and work by themselves with a computer program that will help them to spell simple words from the class spelling lists for that week. The teacher wants to be able to specify the words for each student by entering them or by selecting them individually from a list.

The interface must be colourful and easy to use for the student; it needs to report back to the student on their success. The teacher also needs to know how well the student has done after each test by identifying words that caused problems and a score. The teacher interface needs to be simple to use.

Your task is to create a suitable solution with the basic functionality as a priority.

You will need to:

- identify the teacher's requirements for this system
- identify existing programs suited to this audience
- identify existing programs which provide similar facilities required by the teacher and assess their value
- explain why you think these programs will appeal to the target audience
- recommend a solution based on this research
- produce a list of success criteria you feel your solution will need to meet
- produce a plan with recommended timescales for your solution
- produce designs of your solution including the modules which will make up your solution and the algorithms to describe your solution
- describe how the solution will be tested
- create a suitable program
- show how you have followed your original plan
- test your solution using a variety of tests and test data
- evaluate your own and others' work
- evaluate your solution.

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TECHNOLOGY**

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Specimen Controlled Assessment Mark Scheme

The maximum mark for this unit is **60**.

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Unit B065: Coding a solution

<p>Analysis</p> <p>AO2 – 4</p> <p>AO3 – 6</p>	<ul style="list-style-type: none"> • Basic information covering the system requirements and about existing solutions will have been identified and collected • There will be some evidence of planning • A simple design specification with information requirements identified • Some hardware and/or software will be specified <p style="text-align: right;">0-3 marks</p>	<ul style="list-style-type: none"> • There will be planning and a design specification explaining how the proposed solution matches the requirements of the problem including some reference to suitable hardware and/or software • There will be some mention of success criteria • Existing solutions will have been identified and analysed <p style="text-align: right;">4-7 marks</p>	<ul style="list-style-type: none"> • There will be a justified design specification including justification for the recommended hardware and software • The design specification will include user requirements with a detailed plan of the proposed solution • There will be detailed measurable success criteria • Existing solutions will have been identified and analysed <p style="text-align: right;">8-10 marks</p>
<p>Design</p> <p>AO1 – 4</p> <p>AO2 – 8</p>	<p>A few brief comments on some of the elements of:</p> <ul style="list-style-type: none"> • the solution • the proposed overall solution and how it solves the problem • There will be evidence of design for at least some of the elements • There will be some mention of how the solution will be tested <p style="text-align: right;">0-4 marks</p>	<ul style="list-style-type: none"> • A description of how the proposed solution solves the problem but with incomplete or faulty algorithms • There will be some evidence of design, eg screen layouts or user interaction • There will be a description of how the solution will be tested to be fit for purpose <p style="text-align: right;">5-8 marks</p>	<ul style="list-style-type: none"> • There will be an explanation of how the solution solves the problem including detailed algorithms • There will be detailed designs for a range of elements as well as screen layouts • There will be a clear test plan explaining how the solution will be tested against the success criteria <p style="text-align: right;">9-12 marks</p>

<p>Use of coding Features</p> <p>AO1 – 2</p> <p>AO2 – 9</p>	<ul style="list-style-type: none"> Some evidence that some of the standard structures and variables have been used to produce a limited attempt at a solution to the problem The code will not form a working solution to the problem; there may be a functional solution to a small part of the problem <p style="text-align: right;">0-4 marks</p>	<ul style="list-style-type: none"> There will be evidence of standard constructs being used but these may not be used efficiently and not always the most appropriate choice A range of variable types will be used but not always the most appropriate choice. Loop conditions may not be appropriate leading to inefficient or partially functional solutions <p style="text-align: right;">5-8 marks</p>	<ul style="list-style-type: none"> Standard programming constructs will be used effectively, with evidence of suitable select statements and loop structures used appropriately Variables will be given meaningful names and the type will be appropriate to the use Suitably typed and named arrays will be used appropriately in the solution <p style="text-align: right;">9-11 marks</p>
<p>Development of overall solution</p> <p>AO1 – 2</p> <p>AO2 – 5</p>	<ul style="list-style-type: none"> Some evidence of development of a partial solution related to the design <p style="text-align: right;">0-3 marks</p>	<ul style="list-style-type: none"> Evidence to show the development of a solution They will have commented on how successful, or otherwise, they were in following their plan including sufficient detail to demonstrate the process The code will provide a partially functional solution to the whole problem, but with significant inefficiencies or minor errors <p style="text-align: right;">4-5 marks</p>	<ul style="list-style-type: none"> There will be fully detailed evidence of development for a fully functional solution There will be a full and critical discussion of how successful they were in following the plan and any modifications, improvements or other changes deemed necessary to this plan They will provide a clear and detailed commentary on the process The code will produce an efficient solution to the problem <p style="text-align: right;">6-7 marks</p>

<p>Testing</p> <p>AO2 – 10</p>	<ul style="list-style-type: none"> • Some evidence of testing in the form of output from the system but with no real structure • Limited evidence of testing by others • Testing will be limited to a single situation <p style="text-align: right;">0-3 marks</p>	<ul style="list-style-type: none"> • There is evidence of testing covering aspects of the design specification • There is some evidence of testing by others • The system will have been tested on more than one computer system <p style="text-align: right;">4-7 marks</p>	<ul style="list-style-type: none"> • The testing covers as many different paths through the system as is feasible, including normal, abnormal and extreme cases • The testing covers all aspects of the design • There is clear evidence of testing by others • The system will have been tested in various situations and evaluated for use in the target situation <p style="text-align: right;">8-10 marks</p>
<p>Evaluation</p> <p>AO3 – 10</p>	<ul style="list-style-type: none"> • Some description of what the system can do with limited reference to test evidence • There will be some comments on others' and their own input into group work • The evaluation may be simplistic with little or no relevance • There will be little or no use of specialist terms • Errors of grammar, punctuation and spelling may be intrusive <p style="text-align: right;">0-3 marks</p>	<ul style="list-style-type: none"> • There is some description of what the system can do and the limitations of the system supported by test evidence • This description will be related back to the design specification • They will have commented on their own and others' contribution to any group work and how it was useful • For the most part the information will be relevant and presented in a structured and coherent format • Specialist terms will be used appropriately and for the most part correctly • There may be occasional errors in grammar, punctuation and spelling <p style="text-align: right;">4-7 marks</p>	<ul style="list-style-type: none"> • There is a full description of what the system can do covering all aspects of the design specification • Limitations of the system will be identified and there will be evidence to show how these have been, or could be, dealt with following the testing stage • They will provide an evaluation on their own and others' contribution to any group activities • The evaluation will be relevant, clear, organised and presented in a structured and coherent format • Specialist terms will be used correctly and appropriately • There will be few, if any, errors in grammar, punctuation and spelling <p style="text-align: right;">8-10 marks</p>