Coursework Task
C206 11

Intermediate 2 Computing

Valid for session 2010/2011 only

Publication code: BB3415

Coursework Task

Subject:	Computing
Level:	Intermediate 2

Publication date:	October 2010
Publication code:	BB3415

Published by the Scottish Qualifications Authority

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Section 1

Organisation and Conditions for Assessment

Organisation and Conditions for Assessment

The assessment is designed to test the candidates' ability to apply knowledge and understanding and practical skills, developed through study of the Computer Systems and Software Development Units.

The notional design length for the assessment is 8 – 10 hours. However, a candidate may be allowed longer than this if required. Sections 2 and 3 should be given to the candidates.

The assessment is to be undertaken under "open book" conditions, but under supervision to ensure that the work submitted is the candidate's own work. The tutor may give the candidate hints and/or help if requested. Any such help should be reflected in the marks awarded. Once the task has been completed and marked, it should not be returned to the candidate for further work.

The task is designed to discriminate between candidates and, therefore, would be expected to provide a wide range of marks. Stronger candidates should be able to complete the task successfully, and without tutor assistance, within the suggested time. Weaker candidates might not complete all aspects of the task within a reasonable time, or may require significant assistance, and so would achieve a lower total mark. Note that there is no requirement for a candidate to achieve a threshold to "pass" the assessment.

The mark obtained out of 30 should be submitted to the SQA unscaled. This will be combined with the Question Paper mark out of 70 to establish the candidate's overall grade of award. The Coursework mark should also be used in preparation of estimate grades.

Section 2

Coursework Task

Coursework Task

Intermediate 2 Computing Coursework Task 2010-2011

Part 1

Samantha is the leader of a youth orchestra. She plans to visit local secondary schools to audition musicians. A recording will be made of each audition and a photograph taken of each musician.

Samantha has been given a budget of £700 to purchase the following:

- a laptop computer with a built-in microphone
- a digital camera with a minimum resolution of 10 megapixels
- a portable backing storage device with a minimum capacity of 250Gb.

	Tasks	Evidence required
1	• Identify **two** laptop computers with built-in microphones that would be suitable for the task. • State the *speed of processor*, *main memory capacity* and *cost* of each laptop. • Recommend the laptop that should be purchased. Justify why the laptop you have chosen is preferred for this task.	Report and printouts/photocopies of source material (websites/magazine pages). Highlighting the relevant information on the printouts would be useful.
2	• Identify **two** digital cameras that could be purchased. • State the *resolution* and *cost* of each. • Recommend the digital camera that should be purchased. Justify why the digital camera you have chosen is preferred for this task.	
3	• Identify **two** portable backing storage devices that could be used. • State the *capacity*, *speed of data transfer* and *cost* of each. • Recommend the portable backing storage device that should be purchased. Justify why the portable backing storage device you have chosen is preferred for this task.	

Part 2

Each pupil auditioning for a place in the youth orchestra will perform two pieces of music. Each performance will be awarded a score out of 50. Pupils aged 12 to 14 who achieve a total score greater than 70 can join the junior orchestra; pupils aged 15 to 17 who achieve a total score greater than 70 can join the senior orchestra. Today Samantha is visiting Westwood Academy to audition four musicians. She requires software to help her with this task.

The system requires the following inputs:

- the name of each pupil
- the age of each pupil
- the score for the first performance
- the score for the second performance.

The output from the program should display each pupil's name, age, total score and a decision indicating whether the pupil is accepted to the junior or senior orchestra, or if the pupil is declined.

An example is provided below

Pupil Name	**Pupil Age**	**Total Score**	**Decision**
C Adkins	16	73	Accepted to senior orchestra
J Brown	13	47	Declined
I Shafiq	12	77	Accepted to junior orchestra

Your task is to create software for this system.

The top level algorithm is shown below. Step 5 and part of step 7 have been refined.

Pseudocode

MAIN STEPS

1. Loop for each pupil
2. Get pupil name
3. Get a valid age
4. Get two valid scores
5. Calculate total score
6. Loop until no more pupils
7. Display results and decision

REFINEMENTS

5. Calculate total score
5.1 Total score = first score + second score

7. Display results and decision
7.1 Display Headings
7.2 Loop
7.3 Display pupil name
7.4 Display pupil age
7.5 Display total score
7.6 Decide if pupil will be accepted or declined and display decision
7.7 End loop

<table>
<tr><th colspan="2">Tasks</th><th>Evidence required</th></tr>
<tr><td>1</td><td>Refine the following parts of the algorithm:
• Get valid age (step 3)
• Get two valid scores (step 4)
• Decide if pupil will be accepted or declined (step 7.6)
(NOTE: all refinements must include an algorithm and not simply use a feature of an event-driven language.)</td><td>Pseudocode for steps 3, 4 and 7.6</td></tr>
<tr><td>2</td><td>Create a program that matches the refined algorithm.</td><td>Listing of program</td></tr>
<tr><td>3</td><td>Copy and complete the test table below.
<table>
<tr><th>Pupil Name</th><th>Pupil Age</th><th>First score</th><th>Second Score</th><th>Total Score</th><th>Expected Decision</th><th>Actual Decision</th></tr>
<tr><td></td><td></td><td></td><td></td><td></td><td></td><td></td></tr>
<tr><td>C Adkins</td><td>16</td><td>32</td><td>41</td><td></td><td></td><td></td></tr>
<tr><td>J Brown</td><td>13</td><td>25</td><td>22</td><td></td><td></td><td></td></tr>
<tr><td>I Shafiq</td><td>12</td><td>31</td><td>46</td><td></td><td></td><td></td></tr>
<tr><td>G Kerr</td><td>15</td><td>32</td><td>38</td><td></td><td></td><td></td></tr>
</table></td><td>Set of test data</td></tr>
<tr><td>4</td><td>Test your program using the test data.</td><td>Printed output</td></tr>
</table>

Section 3

Marking Guidelines

Marking Guidelines

Name _____ **Date** _____

		Out of	Mark	Comment
Part 1				
Task 1	Identify two suitable laptop computers	1, 0		
	State characteristics (*speed of processor, main memory capacity and cost*)	1, 0		
	Recommend and justify your choice of laptop computer in terms of characteristics	2, 1, 0		
Task 2	Identify two suitable digital cameras	1, 0		
	State characteristics (*resolution and cost*)	1, 0		
	Recommend and justify your choice of digital camera based on the characteristics	2, 1, 0		
Task 3	Identify two suitable portable backing storage devices	1, 0		
	State characteristics (*capacity, speed of data transfer and cost*)	1, 0		
	Recommend and justify your choice of portable backing storage device in terms of characteristics	2, 1, 0		
Stays within budget	Total price of hardware is within £700	1, 0		
Report complete	All evidence is in place	2, 1, 0		

Part 2				
Refine the algorithm	Get valid age 12 to 17 inclusive (step 3)	1, 0		
	Get two valid scores 0 to 50 inclusive (step 4)	1, 0		
	Decide if pupil will be accepted or declined (step 7.6)	2, 1, 0		
Implementation	Use of loops	1, 0		
	Get valid age 12 to 17 inclusive	1, 0		
	Get valid score 0 to 50 inclusive	1, 0		
	Use of arrays	2, 1, 0		
	Decide if pupil accepted or declined	2, 1, 0		
	Formatted display	1, 0		
	Implementation matches refined algorithm	1, 0		
Testing	Completion of test results table	1, 0		
	Program tested using information in completed test data table	1, 0		
	Overall total	**30**		

Notes: where marks are allocated as 2,1,0:
2 = achieved without assistance
1= achieved partially without assistance, or completed with some assistance or hints
0= not achieved or completed only with significant assistance

Section 4

Advice on Recording and Retention of Evidence

Advice on Recording and Retention of Evidence

For each candidate, the following evidence should be retained for possible verification by SQA:

1 written reports, program designs, program listings, hard copies and other evidence as detailed in the Coursework Task

2 completed marking grid.

The summary form overleaf may be copied for each candidate undertaking the Intermediate 2 Computing Course.

Candidate assessment summary

Name _____ **Year of presentation** _____

Centre _____ **Candidate number** _____

Unit assessment

Unit title	**Software Development**			
	Mark		**Date passed**	**Initials**
	1st attempt	**2nd attempt**		
Assessment 1 (Outcome 1)				
Assessment 2 (Outcome 2)				

Unit title	**Computer Systems**			
	Mark		**Date passed**	**Initials**
	1st attempt	**2nd attempt**		
Assessment 1 (Outcome 1)				
Assessment 2 (Outcome 2)				

Unit title				
	Mark		**Date passed**	**Initials**
	1st attempt	**2nd attempt**		
Assessment 1 (Outcome 1)				
Assessment 2 (Outcome 2)				

Course assessment

	Mark	**Date completed**	**Initials**
Coursework Task (out of 30)			
Estimate examination mark (out of 70)			
Total (out of 100)		**Teacher/Lecturer signature**	
Estimate grade			