Coursework Task
C206 11

Intermediate 2 Computing

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Coursework Task

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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 2012-2013

Part 1

Pupils from the Drumrunie Academy Enterprise Club will be selling calendars to raise funds for charity. They will set up stalls at various school events where they will display their sample calendars on a laptop computer and take orders. Each calendar will be A3 size, have a page for each month and have good quality images.

The club has been given a budget of £800 to purchase the following:

- a laptop computer with a minimum 15" screen for viewing sample calendars
- a portable storage device suitable for storing their sample calendars and saving order information
- a high resolution coloured printer suitable for producing the A3 size calendars.

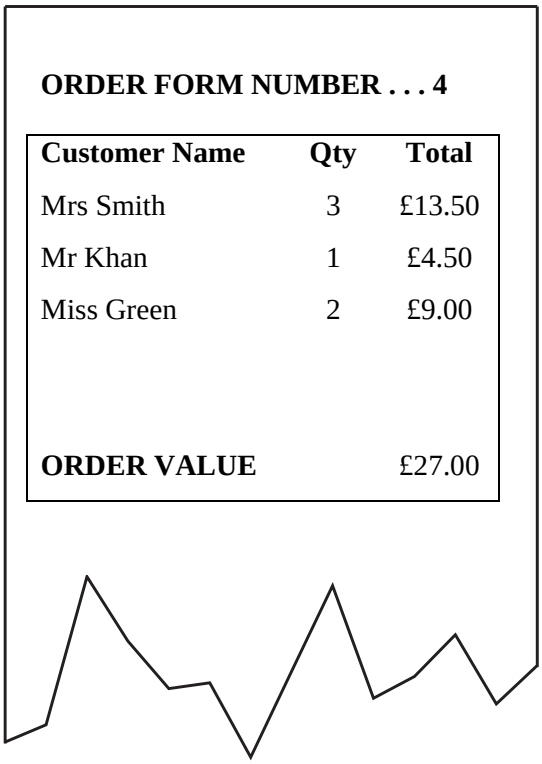
	Tasks	Evidence required
1	• Identify **two** laptop computers that would be suitable for the task. • State the *speed of processor*, *main memory capacity* and *cost* of each laptop. Use a table to present this information. • Recommend the laptop that should be purchased. Justify why the laptop you have 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** portable storage devices that could be used with the laptop chosen. • State the *capacity*, *data transfer rate* and *cost* of each. Use a table to present this information. • Recommend the portable storage device that should be purchased. Justify why the portable storage device you have chosen is preferred for this task.	
3	• Identify **two** printers that would be suitable for the task. • State the *resolution*, *ppm* and *cost* of each printer. Use a table to present this information. • Recommend the printer that should be purchased. Justify why the printer you have chosen is preferred for this task.	
4	Calculate and display the overall cost showing it is within budget.	

Part 2

Pupils from the Drumrunie Academy Enterprise Club have been selling calendars. They distributed order forms numbered 1 to 90 to the three groups below who have been taking orders from customers.

Group Number	Order Form Numbers
1	1 – 30
2	31 – 60
3	61 – 90

An example of an order form is shown below.



ORDER FORM NUMBER . . . 4

Customer Name	Qty	Total
Mrs Smith	3	£13.50
Mr Khan	1	£4.50
Miss Green	2	£9.00
ORDER VALUE		£27.00

The Enterprise Club would like to calculate their total earnings from the fundraising event. Your task is to write a program that will take in the order form number and the order value using the following data:

Order Form Number	Order Value (£)
1	40.50
43	90.00
78	13.50
27	49.50
4	27.00
90	31.50

The program will then calculate the individual group totals and the overall total raised by the Enterprise Club.

The program requires the following inputs:

- How many order forms have been received and are ready to process
- A valid order form number
- The value of each order

The output from the program should display each group number and the total raised by each group. It should also display the overall total. All totals should be displayed to two decimal places. An example of the output is provided below:

Group Number	**Order Value (£)**
1	£117.00
2	£90.00
3	£45.00

The total raised for the project is £252.00

Your task is to create software for the project.

- The top level algorithm is shown below. Steps 5, 7 and 8 have been refined for you.

Pseudocode

MAIN STEPS

1. Initialise arrays to set 3 group totals
2. Get the quantity of orders to be processed
3. Loop for quantity of orders
4. Get a valid order form number
5. Process orders
6. End loop
7. Display group number and amount raised by group
8. Calculate and display overall total raised

REFINEMENTS

5. Process Orders
5.1 Get order value
5.2 Increment the total for the appropriate group

7. Display group number and amount raised by group
7.1 Loop for number of groups
7.2 Display group number and group total
7.3 End loop

8. Calculate and display the overall total raised
8.1 Overall total = group 1 total + group 2 total + group 3 total
8.2 Display overall total

<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 a valid order form number (step 4)
• Increment the total for the appropriate group (step 5.2)
(NOTE: all refinements must include an algorithm and not simply use a feature of an event-driven language.)</td><td>Pseudocode for steps 4 and 5.2</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>Test your program using the data for the six orders detailed below.
<table><tr><th>Order Number</th><th>Order Value (£)</th></tr><tr><td>1</td><td>40.50</td></tr><tr><td>43</td><td>90.00</td></tr><tr><td>78</td><td>13.50</td></tr><tr><td>27</td><td>49.50</td></tr><tr><td>4</td><td>27.00</td></tr><tr><td>90</td><td>31.50</td></tr></table></td><td>Printed output</td></tr>
<tr><td>4</td><td>Create another set of test data that will demonstrate how your program will respond to an invalid order number being entered.</td><td>Printed output
Screenshots</td></tr>
<tr><td>5</td><td>Evaluate the test data from Task 3 and Task 4 in terms of fitness for purpose.</td><td>Report</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*) in a table.	1, 0		
	Recommend the laptop that should be purchased. Justify why the laptop you have chosen is preferred for this task.	2, 1, 0		
Task 2	Identify two suitable portable storage devices.	1, 0		
	State characteristics (*capacity, data transfer rate and cost*) in a table.	1, 0		
	Recommend the portable storage device that should be purchased. Justify why the portable storage device you have chosen is preferred for this task.	2, 1, 0		
Task 3	Identify two suitable printers.	1, 0		
	State characteristics (*resolution, ppm and cost*) in a table.	1, 0		
	Recommend the printer that should be purchased. Justify why the printer you have chosen is preferred for this task.	2, 1, 0		
Task 4	Total price of hardware is evidenced to be within £800	1, 0		
Report complete	All evidence is in place	2, 1, 0		

Part 2				
Refine the algorithm	Get a valid order form number (step 4)	2, 1, 0		
	Increment the total for the appropriate group (step 5.2)	2, 1, 0		
Implementation	Use of array(s) in main program	1, 0		
	Use of loop(s) in main program	1, 0		
	Get a valid order form number	2, 1, 0		
	Calculate the total for each group	1, 0		
	Calculate the total for the project	1, 0		
	All totals formatted to 2 decimal places	1, 0		
	Implementation matches refined algorithm	1, 0		
Testing	Program tested using test data provided	1, 0		
	Program tested with exceptional data	1, 0		
	Evaluate test data	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

Further Guidelines for Teachers/Lecturers
(Not to be distributed to candidates)

- Teachers/lecturers should read previous years' SQA Internal Assessment Reports for guidance on delivering and marking Coursework Tasks.
- Part 2 of the Coursework Task must be implemented using the algorithm provided.
- If assistance is given, this should be reflected in the marks allocated and noted in the comments column.
- Where 2 marks are allocated in the implementation of Part 2 Step 4 for **"Get a valid order form number"**: 1 mark for use of a conditional loop with appropriate conditions; 1 mark for displaying suitable message.
- Where 2 marks are allocated in the implementation of Part 2 step 5.2 for **"Increment the total for the appropriate group"**: 2 marks if all correct, 1 mark for 1 mistake, 0 marks if more than 1 mistake.

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			