**Coursework Task
C206 11**

**Intermediate 2 Computing**

*Valid for session 2009/2010 only*

# Coursework Task

Subject:             Computing

Level:               Intermediate 2

Publication date:    October 2009

Publication code:    BB3415

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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  2009-2010

### Part 1

Greg hosts a radio show for his school radio station.  He records local bands playing and stores the recordings as MP3 files on the school computer.  He then burns a selection of tracks onto a CD-R to play on his radio show.

He has been given £600 by the head teacher to buy:

- a new computer system
- an external hard drive to store the music files
- an external DVD/CD-RW drive with a disk labelling facility to physically label any CDs or DVDs he burns.

| | Tasks | Evidence required |
|---|---|---|
| 1 | • Identify **two** suitable similarly priced desktop computers that could be purchased.<br>• State the *speed of processor, backing storage capacity, main memory capacity* and *cost* of each desktop computer.<br>• Recommend the system that should be chosen, justifying your choice. | Report and printouts/photocopies of source material (websites/magazine pages, highlighting the relevant information on the printouts would be useful). |
| 2 | • Identify **two** suitable external hard drives that could be purchased.<br>• State the *capacity, speed of data transfer* and *cost* of each external hard drive.<br>• Recommend the external hard drive that should be chosen, justifying your choice. | |
| 3 | • Identify **two** suitable external DVD/CD-RW drives with disk labelling facilities.<br>• State the *speed of data transfer* and *cost* of each drive.<br>• Recommend the DVD/CD-RW drive that should be chosen, justifying your choice. | |
| 4 | • State the costs of each individual item and the total cost of the recommended hardware. | |

**Part 2**

Greg wants a piece of software to display the tracks he has burned onto the CD-R along with the duration in seconds of each track. He also wants to display the total time of all the tracks on the CD-R.

The program should initially ask the user for the number of tracks to be listed. This should be validated. At least one track and no more than twenty can be burned onto a CD-R.

The program requires the following inputs:

- the number of tracks to be burned
- the title of each track
- the length in seconds of each track.

An example of the required output is shown below.

| | |
|---|---|
| Supernatural Superserious | 204 seconds |
| Another Way to Die | 263 seconds |
| Jealous Guy | 234 seconds |
| | |
| CD-R running time | 701 seconds |

Your task is to create software to solve this problem.

The top level algorithm is shown below.  Steps 4 and 7 have been refined.

**Pseudocode**

MAIN STEPS

    1.        Initialise total running time
    2.        Get valid number of tracks
    3.        FOR counter = 1 TO number of tracks
    4.          Get required data
    5.          Calculate total running time
    6.        NEXT counter
    7.        display track titles and track lengths
    8.        display total running time


REFINEMENTS

    4.        Get required data
    4.1        Get track title
    4.2        Get track length


    7.        display track titles and track lengths
    7.1        FOR counter = 1 TO number of tracks
    7.2        Print track title and track length
    7.3        NEXT counter

| | Tasks | Evidence required |
|---|---|---|
| 1 | Refine the following parts of the algorithm:<br>• Get valid number of tracks (step 2)<br>• Calculate total running time (step 5)<br>(NOTE: *all refinements must include an algorithm and not simply use a feature of an event-driven language.*) | Pseudocode for steps 2 and 5 |
| 2 | Create a program that matches the design given in the specification. | Listing of program |
| 3 | • Complete the test data table shown below, adding a third set of test data that will test your validation.<br>• Test your program using your test data and complete the test results table below. | Completed version of test data table<br>Printed output |

| Test Data Table | Name: | | | | |
|---|---|---|---|---|---|
| | No of Tracks | Titles | Lengths | Expected Total Time | Actual Total Time |
| Run 1 Normal data | 4 | Human<br>After Hours<br>Run<br>Starlight | 250<br>233<br>355<br>241 | 1079 | |
| Run 2 Extreme data | 1 | | | | |
| Run 3 Exceptional data | | | | | |

# Section 3

# Marking Guidelines

## Marking Guidelines

**Name** _____    **Date** _____

|  |  | Out of | Mark | Comment |
|---|---|---|---|---|
| **Part 1** |  |  |  |  |
| **Task 1** | Identify two suitable desktop computer systems | 1, 0 |  |  |
|  | State characteristics (*speed of processor, backing storage capacity, main memory capacity and cost*) | 1, 0 |  |  |
|  | Recommend and justify your choice of computer system in terms of the characteristics (comparison cannot be based on cost) | 2, 1, 0 |  |  |
|  |  |  |  |  |
| **Task 2** | Identify two suitable external hard drives | 1, 0 |  |  |
|  | State characteristics (*capacity, speed of data transfer and cost*) | 1, 0 |  |  |
|  | Recommend and justify your choice of external hard drive in terms of the characteristics | 2, 1, 0 |  |  |
|  |  |  |  |  |
| **Task 3** | Identify two suitable DVD/CD-RW drives with disk labelling facilities | 1, 0 |  |  |
|  | State characteristics (*Speed of access and cost*) | 1, 0 |  |  |
|  | Recommend and justify your choice of DVD/CD-RW drive in terms of the characteristics | 2, 1, 0 |  |  |
|  |  |  |  |  |
| **Stays within budget** | Total price of hardware is within £600 | 1, 0 |  |  |
|  |  |  |  |  |
| **Report complete** | All evidence is in place | 2, 1, 0 |  |  |
|  |  |  |  |  |

| Part 2 | | | | |
|---|---|---|---|---|
| **Refine the algorithm** | Get valid number of tracks (step 2) | 2, 1, 0 | | |
| | Calculate total running time (step 5) | 1, 0 | | |
| | | | | |
| **Implementation** | Initialise total time | 1, 0 | | |
| | Get valid number of tracks | 2, 1, 0 | | |
| | Use of arrays to store track title and length | 1, 0 | | |
| | Calculation of total running time | 1, 0 | | |
| | Formatted display | 2, 1, 0 | | |
| | Appropriate variable types | 1, 0 | | |
| | Implementation matches given algorithm | 1, 0 | | |
| | | | | |
| **Testing** | Suitable test data for third test | 1, 0 | | |
| | Program tested using information in completed test data table | 2, 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** | | | |