Higher
Coursework
Assessment Task

SQA

Higher Computing Science
Assignment
Assessment task
Task 1: software design and development (part A)

This document provides information for teachers and lecturers about the coursework component of this course in terms of the skills, knowledge and understanding that are assessed. It must be read in conjunction with the course specification.

Valid for session 2022-23 only.

This assessment is given to centres in strictest confidence. You must keep it in a secure place until it is used.

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Task 1: software design and development

Problem description

The manager of a theme park would like a program to provide him with data on the park's 26 attractions.

Purpose

The program is required to read the attraction data from a CSV file into parallel arrays. The file contains the attraction name, category of attraction, total number of visitors, number of days open and the height restriction.

The program will find the names of the least visited attraction(s) and the most visited attraction(s).

Attractions in the category 'Roller Coaster' are serviced every 90 days. The program is required to calculate the number of days until the next service. It will use this information to produce an output that identifies all roller coasters that need to be serviced within the next 7 days.

Assumptions

♦ the CSV data file is formatted correctly, is error-free and is updated every day

An example of the data in the file is shown below:

```
Aftershock,Roller Coaster,510324,695,1.2m
Aqua Loop,Water,157288,542,0.9m
Asteroid Belt,Roller Coaster,551218,623,1.4m
Attack of the Smartphones,Simulation,548630,663,1.0m
Beaver Falls,Water,95970,695,1.2m
Bug Blaster,Simulation,293033,542,0.9m
Bumblebee Flyer,Kids,104010,715,0.9m
Candyfloss Carousel,Kids,95970,663,0.9m
...
```

Task 1: software design and development (part A)

1a   One process for the program is stated below.

Using the problem description and purpose, identify the remaining processes for the program.

(3 marks)

Find the name(s) of the attraction(s) with the lowest number of visitors.

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1b The top level design for the program is shown below.

Complete the design to show the missing data flow for each step.

(2 marks)

Top level design		
Read data from file into parallel arrays	IN	
	OUT	attraction(), category(), visitors(), daysOpen(), height()
Find and display the names of the least visited and most visited attractions	IN	
	OUT	
Write to file the names of roller coasters that need a service within 7 days	IN	
	OUT	

♦ Check your answers carefully, as you cannot return to part A after you hand it in.
♦ When you are ready, hand part A to your teacher or lecturer and collect part B.

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