BSc (Hons) Computing

Module Code: QH0305 Module Title: Problem Solving

Assessment Sheet 7

Instructions:

This is one of the eight assessment tasks which will contribute to the overall marks. You will need to complete the tasks as outlined below and then document them in a Word document. As a minimum, you should provide screenshots of the following:

- Your code
- The output that your code generates

In instances where your code could give different outputs (depending on what values it was given), you should provide multiple screenshots of the console screen, showing the different outputs to demonstrate that the code is working correctly.

This assessment will focus on functions.

You must attempt all tasks on this sheet to achieve a higher grade. For example, if you want to gain Grade A, you must complete all other grades first and add them to your portfolio with screenshots.

A zip folder with all Grade codes must be attached inside of the portfolio (MS Word file).

Task 7:

For this task, we will be revisiting the code that you wrote for **Assessment Sheet 4.**

Modify your code from **Assessment Sheet 4** so that:

When the user enters their menu choice, it will now call a function that will perform the required action for the user. For example, if the user enters 'b', then the program should call an appropriately named function that will then perform the necessary steps for updating a student's information. Or if the user enters 'd', then the program should call an appropriately named function that will then perform the necessary steps deleting a student's record. In short, you will be taking your existing code from **Assessment Sheet 4** and breaking it down into at least four functions.

To achieve a D grade

Complete all previous steps, then:

1. Ensure your functions have no return values and no parameters at this stage.

2. You need to provide screenshots of your code and the different outcomes it can give.

3. Your Word document should have appropriate headings to ensure that this task can be easily identified alongside the rest of your work.

To achieve a C grade

Complete all previous steps, then:

4. You will further modify the above program, so it makes use of parameters.

   a) Previously, you likely took the approach of taking all the code associated with each menu choice, putting it into a function and then calling that function when the user makes their menu choice. Now we are going to refine this a little so that our functions use parameters.

   b) You need to create functions so that they do not contain any scanf() statements (these can be done in the main function as normal). Instead, the functions should receive the values they need via parameters.

To achieve a B grade

Complete all previous steps, then:

5. Modify the above program (C grade section) so that it makes use of return values:

   a) The functions that manage the code to
      - Add a new student record
      - Update a student's information
      - Delete a student record

   should no longer contain any printf() statements. They should instead give their result as a return value. The main function should then use this return value to print the answer to the screen.

   b) The function that manages option d. ("Display student details") code, may continue to use a printf().

To achieve an A grade

Complete all previous steps, then:

6. In most assessment sheets, to attain a higher grade, tasks will require some independent research.

   a) First, you should research the concept of **global variables.** Explain this concept and provide an example.

   b) Now re-write the code you did for **Assessment Sheet 5**, but this time, break it down into functions as best as you can. You are likely to require global variables for this.

Assignment Preparation Guidelines

- All components of the assignment report must be Word-processed **(handwritten text or hand drawn diagrams are not acceptable)**, font size must be within the range of 11 point to 14 point including the headings, body text and any texts within diagrams.
- Standard and commonly used fonts such as Times New Roman, Arial or Calibri should be used.
- All figures, graphs and tables must be numbered and labelled with short explanations.
- Material from external sources must be properly acknowledged and cited within the text using the Harvard referencing system.
- All components of the assignment (text, diagrams. code etc.) must be submitted in one Word file.
- The report should be logically structured, the core of the report may start by defining the problem / requirements, followed by the proposed solution including a detailed discussion, analysis and evaluation, leading to the implementation and testing stage, finally a conclusion and a personal reflection on learning.
- Screenshots without description / discussion are not suitable as they do not express your understanding or support your work adequately.

Submission instructions

- This is a portfolio assignment with eight tasks in total. Each task will be completed and saved in the portfolio. Once the portfolio is completed, it should be submitted on Turnitin. The submission link to Turnitin can be found under the “Assessment Tab” in your module section in the SOL VLE.

- Please note file size limitation might apply. Your report must be under 250MB.

- The source code for each task should be **zipped** and **attached** to your Word document report submission in the appendix.

- The Assignment Brief can be found under the “Assessment Tab” in your module section in the SOL VLE.

- **Refer to the Assignment Brief** to find the links to Late Submissions, Extenuating Circumstances, Academic Misconduct, Ethics Policy, Grade marking and Guidance for online submission through Solent Online Learning (SOL).