

Assessment Sheet 3

This is the third of eight assessment sheets that you will be given over the duration of this unit. You will need to complete the tasks as outlined below and then document them in a word document. At minimum, you should provide screen shots of:

- Your code
- The output that your code generates

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

This assessment sheet will focus around all the concepts you have learnt up until now

To achieve a D grade

Successful completion of this task (documented in your portfolio) will allow you to achieve up to a D1 grade.

Please follow all instructions:

For this task you will need to create a program that displays a 'menu' to the user. The user will then enter a character that will indicate their menu choice and the program will take the appropriate action.

- Make the program output the following to the console screen, this will act as a menu:

"Please enter the letter which corresponds with your choice:

a – Calculate the area of a rectangle

b - Calculate the area of a circle

c – Display a multiplication table

d – Add two numbers"

- The program should then make the user enter a letter
- Depending on what letter the user entered, the program should perform the appropriate action. If the program requires any information in order to perform said action, it should get this information from the user.
For example, if the user entered 'a' (calculate the area of a rectangle), the program should ask the user for a width and height (which they will enter in to the console screen). Then the program will display the answer

Here is an example of what this program should output:

Please enter the letter which corresponds with your choice:

a – Calculate the area of a rectangle

b - Calculate the area of a circle

c – Display a multiplication table

d – Add two numbers

a

You have selected "a - Calculate the area of a rectangle"

Please enter the width:

5

Please enter the height:

2

The area is: 10

Complete the above task and then document it in your portfolio.

Note, to achieve a D

- The write up must demonstrate that the code works
- For a D grade, you only need to provide screen shots of your code and some of the different outcomes it can give - At this stage you do not need to do any writing
- Your word document should have appropriate headings to ensure that this task can easily be identified alongside your work from other assessment sheets.

To achieve a C grade

Modify the above program so it now behaves as follows:

- The program should inform the user if they entered an invalid menu choice. For example, if the user entered 'e' then the program should say *"Sorry, your input was not recognised, please enter either a, b, c or d"*
- In all instances, the program should behave in a user-friendly manner. All outputs should be accompanied by text and all inputs (scanf) should be accompanied by a printf letting the user know what they must do.
- The program should accept both upper-case and lower-case letters.

Add the modifications to your portfolio

Furthermore, to achieve a C

- The above task should be completed and documented in the portfolio. The portfolio should demonstrate that the code works
- ALL tasks must be accompanied by written descriptions or annotations. These must show some basic understanding of what the code is doing

To achieve a B grade

Modify the above program (C grade section) so it now behaves as follows:

Note, this task is similar to a recent class task, but it will still require a bit of thought.

- Currently the program will end once the user has performed their chosen action. If they wanted to select another action, they would have to run the program again. You will need to modify the above program so that once the user has completed their chosen action, instead of ending, the program will display the menu again and thus allow the user to select another option. This will require a while loop.
- You should also add the following option to the menu:
"x – *Exit program*"
If the user enters x (either upper-case or lower-case) then the program should stop looping and end
- As always, with chars, the program may behave erratically, this should be fixed.

To achieve a B:

- The above task should be completed and documented in the portfolio. The portfolio should demonstrate that the code works
- All tasks must be accompanied by written **explanations** - All new concepts, as they are encountered should be explained. It is acknowledged that, for this week, there are no new concepts - however, you may have looked up how to do certain things (i.e. how to use the value of PI without manually typing it) and these should be explained. This is in addition to the C grade tasks where you describe what your code is doing
- Any concepts that have been explained in work covered by previous task sheets do **not** need to be explained again (i.e. variables)

To achieve an A grade

- Your written explanations from the B task should be very detailed

As before, the A grade task will require some independent research:

- There is yet another loop that would be more appropriate for this program. Look up loops and see if you can find which loop is more appropriate for this task. You should duplicate the B grade task (from the previous section) using this new loop instead.

Please note - DUPLICATE the task from the B grade section, do not overwrite it. Both versions should be documented in your portfolio.

- Document this in your portfolio and provide a detailed explanation of this new loop
- Please give this section an appropriate heading to ensure it is easy to find.