SIT102 Introduction to Programming

Pass Task 4.1P and 4.2P: Test 1

For this task you need to complete all questions distributed from Unit Site - Assessment > Quizzes > Test 1. This Test 1 will focus on materials from weeks 1 to 3 of the unit, and will be available during weeks 4 and 5 (now extended to week 6).

Submission Details

1. According to the Unit Site - Assessment > Quizzes > Test 1 each question's instructions, submit the required answer to the system.

2. Submit the following files to OnTrack Pass Task 4.2P Test 1 - Code and Hand Execution Upload.
   - One picture with all of your Hand Executions
   - Your code from the code writing question
   - An audio comment explaining your code

Please note that Unit Site - Assessment > Quizzes > Test 1 is only available during weeks 4-6 , so make sure to complete this during that time.

Instructions

Test 1 (questions distributed via Unit Site - Assessment > Quizzes > Test 1) will have three separate sections:

1. Questions related to programming terminology, associated artefacts and actions.
2. Hand execution questions, where you demonstrate what changes in memory as some code runs.
3. One code writing question, where you build a small program

Do the following to prepare for this test:

- Complete the 1.x, 2.x, and 3.x pass tasks
- Revise the following programming terminology, artefacts, and actions
    - Identifier, Statement, Expression, Local Variable, Global Variable, Parameter
    - Procedure, Function, Variable, Constant
    - Procedure Call, Assignment Statement, If Statement, Switch/Case Statement, While Loop, Do White Loop

- Review your Hand Execution tasks from weeks 2 and 3
- Try coding up the Sample Code Writing Question that follows.

When you are ready, connect to the Unit Site - Assessment > Quizzes > Test 1. Once you start the online Test 1, you will have 90 minutes to complete it. At the end of this time you will still be able to submit your answers, but they will be marked as late.

Once you submit your online Test 1 and upload your submission to OnTrack Pass Task 4.2P Test 1 - Code and Hand Execution, it will be checked by your tutor. You will get an opportunity to *fix and resubmit* if there are any issues, otherwise the task will be marked as Complete as normal.

Sample Code Writing Question

Write code for a program that will allow the user to convert between feet and metres.

- Show the user a menu: 1: Feet to Metres 2: Metres to Feet 3: Quit
- Ask the user to choose an option.
- Based on their selection perform the necessary conversion and output the result to the terminal
- Repeat this until they choose to quit

Metres to Feet is calculated as Feet = Metres * 3.28 Feet to Metres is calculated as Metres = Feet / 3.28

Make sure to demonstrate the use of custom procedures and functions in your code. For example display_menu can be used to output the menu each time within the loop, and metres_to_feet can be used to perform one of the calculations.

Note: There are multiple ways to structure this solution. However, in each case things like names of identifiers, sequences of instructions, and indentation will be important.

Please use VS Code to write and test your solution.

Remember you can use your functions to read values from the user. No need to recreate these.

During Test 1

- Try to relax and do your best, with this Test 1 you will have an opportunity to fix any issues and resubmit.
- Remember to keep your hand execution - you will need to capture and submit this to OnTrack after you complete Test 1.
- With the code question:
  - Feel free to use VS Code to help write and test your program.
  - You can use your user input function - if you have these in their own header+cpp files then just `#include` the header as we can look at the other task for the implementation of these functions.
  - Put the code in the text area on the online Test 1, and upload to OnTrack Pass Task 4.2P Test 1 - Code and Hand Execution once you have finished it.

- After submitting the online Test 1, login to OnTrack and:
  - Submit this task to Pass Task 4.2P Test 1 - Code and Hand Execution for feedback

  - Upload an image of your hand execution (combine into one image)

  - Upload your code from the code writing question

  - Present an explanation of your code using audio comments (in around 3 - 5minutes).

    - Explain each artefact (function/procedure/variable) you created, what it does, and why you created it.
    - Talk through the program execution - explaining the sequence of actions and how you use these to achieve the required features.

  This can be presented in a casual tone, as if you are having a conversation between yourself and someone you know who wants to understand the program you have created. You can assume that the person has some knowledge of programming, but wants to know specifically about how you have structured your solution.

  Assume you are talking with your tutor, and are explaining how the code works to them. This means you can focus on what you have done, and don't need to introduce programming ideas in general.