TOI-OHOMAI
Institute of Technology

COMP.5202 Fundamentals of Programming & Problem Solving

Semester 2, 2017

Assessment	Type of Assessment	Due	Marks	Weighting
Test #1	Practical programming test	14 August 2017, 10:10am - 12:00pm	100 Marks	30%
Learning outcomes Assessed:				
1. Apply programming concepts and tools to system management tasks				
4. Demonstrate programming using core logic and mathematical concepts such as problem solving methods, critical thinking, abstract reasoning; and systems thinking.				

Instructions

You have 90 minutes to complete this test.

This test is an individual practical test to be completed in class using Microsoft Visual Studio Code.

Please clarify any aspect of the test of which you are unsure of with your lecturer.

You are required to create 4 repositories on Github and submit the links to those 4

repositories on Moodle.

For each problem you are required to create a flow diagram and add the relevant pseudocode.

> The names for the repositories should be in the follow format:
> `<student-id>-Task-Langauge`
>
> **For example:**
> `9980349-task01-csharp` or `9980349-task01-js`

NOTE: This assessment contributes to 30% to your overall grade in COMP.5202

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1. Write a C# program to convert from Celsius degrees to Fahrenheit and also Fahrenheit to Celcius

    - Ask the user what conversion they want to do. Input F for Fahrenheit or C for Celsius is sufficient.
    - The formula for the conversion of Celsius to Fahrenheit is: Fahrenheit = Celsius x 9 / 5 + 32
    - The formula for the conversion of Fahrenheit to Celsius is: Celsius = Fahrenheit – 32 * 5 + 9
    - Print the answer to the screen and end the program, no marks are given for using a loop.

Make sure that your answer is a double since divisions often have decimal places.

(45 marks)

Flow Diagram + pseudocode (15 Marks)

Create your flow diagram and hand it in at the end of your test. Write Pseudocode in your code by using the comment syntax where needed.

C# (15 Marks)

Example

```
 _____________________________________________________
|                                                     |
|  This program will convert Celsius to Fahrenheit:   |
|_____________________________________________________|
|                                                     |
| Enter the degrees in the Celcius: 180               |
| That in Fahrenheit is : 356                         |
|                                                     |
| Press any key to exit the program                   |
|_____________________________________________________|
```

Javascript (15 Marks)

Example

For the Javascript implementation, simply use the alert, prompt and/or confirm boxes to achieve the sequence of the questions. Note: You can use the console to test your output before you print it out to the alert box.

2. Write a C# program that takes ten numbers from the user as input (use a FOR loop to do this) and calculates and displays the average of those numbers.

   NOTE: An average is the sum of a list of numbers divided by the number of numbers in the list. **(60 marks)**

   Take care to ensure your program does not truncate any decimals in the answer.

Flow Diagram + pseudocode (20 Marks)

Create your flow diagram and hand it in at the end of your test. Write Pseudocode in your code by using the comment syntax where needed.

C# (15 Marks)

Example

```
 ____________________________________________________________
|                                                            |
|  This program will compute the average of 10 numbers:      |
|____________________________________________________________|
|                                                            |
| Enter Number 01: 2                                         |
| Enter Number 02: 65                                        |
| Enter Number 03: 41                                        |
| Enter Number 04: 32                                        |
| Enter Number 05: 19                                        |
| Enter Number 06: 2                                         |
| Enter Number 07: 35                                        |
| Enter Number 08: 32                                        |
| Enter Number 09: 65                                        |
| Enter Number 101: 19                                       |
|                                                            |
| The Average of those 10 numbers is: 31.20                  |
```

```
|                                                          |
| Press any key to exit the program                        |
|__________________________________________________________|
```

Javascript (15 Marks)

Example

For the Javascript implementation, simply use the alert, prompt and/or confirm boxes to achieve the sequence of the questions. Note: You can use the console to test your output before you print it out to the alert box.

END OF TEST