**CMSC140 Project 2**

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**Instructor: Grigoriy A. Grinberg**

**Class: CMSC 140**

**Course CRN: 2300**

**Due Date: 10/11/2021**

**CMSC140 Project 2 Documentation**

Class: CMSC140 CRN 20433

 Program: Project 2

Instructor: Grigoriy A. Grinberg

 Summary of Description: Develop a program that showcases switch statement and displays temperature converter, distance converter, weight converter and quit choice.

 Due Date: 10/11/2021

 Integrity Pledge: I pledge that I have completed the programming assignment independently.

 I have not copied the code from a student or any source.

I have not given my code to any student.

 Print your Name here: Katya Alexandra Portillo Cabrera

**Part1: Pseudo Code:** Here is pseudo code for Project 2 program:

Get country name

Display menu converter toolkit

Get user choice from given menu (1-4)

If user inputs number <1 or >4

display error message

Else if user input = 1

Display temperature converter

Get temperature in Celsius

Convert Celsius to Fahrenheit

Else if f user input = 2

Display distance converter

Get distance in kilometer

If input <0

display error message

Else, Convert kilometer to miles

Else if user input = 3

Display weight converter

Get weight in kilogram

If input <0

Display error message

Else, Convert kilogram to pounds

Else if user input = 4

Display quit program

Else

Display << country\_name << “sounds fun” << ;

Display “Thank you for testing my program!!”

Display programmer name

Display project number

Display due date

End program

**Calculations:**

**The following formula will be used to convert Celsius to Fahrenheit**

fahrenheit = (9/5)\*C + 32

**The following formula will be used to convert kilometers to miles**

Const double MILE = 0.6;

distance = kilometer \* MILE;

**The following formula will be used to convert kilograms to pounds**

Const double Kilogram = 2.2;

pounds = weight \* KILOGRAM;

**Part2: Comprehensive Test Plan**

A good test plan should be comprehensive. This means you should have a few test cases that test when the input is in and out of range, division by 0, incorrect Data type, etc. (Provide valid and invalid input)

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Cases | Input | Expected Output | Actual Output | Did Test Pass? |
| Case 1 | Country name: United Kingdom  Menu choice: Temperature converter (1)  Input temperature (Celsius): 0 | Country name: United Kingdom  Menu choice displayed: Temperature converter (1)  Temperature Celsius converted to Fahrenheit: 32  Display “United Kingdom sounds fun” | Country name: United Kingdom  Menu choice displayed: Temperature converter (1)  Temperature Celsius converted to Fahrenheit: 32  Display “United Kingdom sounds fun” | Yes |
| Case 2 | Country name: USA  Menu choice: Distance converter (2)  Input distance (Kilometers) = 36.5 | Country name: USA  Menu choice displayed: Distance converter (2)  Distance Kilometer converted to Miles: 21.90  Display “USA sounds fun” | Country name: USA  Menu choice displayed: Distance converter (2)  Distance Kilometer converted to Miles: 21.90  Display “USA sounds fun” | Yes |
| Case 3 | Country name: Kazakhstan  Menu choice: Weight converter (3)  Input weight (Kilograms) = 67.89 | Country name: Kazakhstan  Menu choice displayed: Weight converter (3)  Weight Kilograms converted to Pounds: 149.4  Display “Kazakhstan sounds fun” | Country name: Kazakhstan  Menu choice displayed: Weight converter (3)  Weight Kilograms converted to Pounds: 149.4  Display “Kazakhstan sounds fun” | Yes |
| Case 4 | Country name: El Salvador  Menu choice: Quit program (4) | Country name: El Salvador  Quit program | Country name: El Salvador  Quit program | Yes |

**Part3: Screenshots related to the Test Plan:**

**Case 1:**

**Text

Description automatically generated**

**Case 2**

**Text

Description automatically generated**

**Case 3**

**Text

Description automatically generated**

**Case 4**

**Text

Description automatically generated**

**Lessons Learned** <Provide answers to the questions listed above>**:**

During Project 2, some lessons I learned was to use constant variables for menu choice, how to use switch statement and how use the if else statement. I learned the importance of using pseudocode to organize menu and to organized code. For project 2, using pseudocode helped me to organize my constant variables for menu choice and helped me to organize my switch statement. I also learned the importance of using brackets for switch statement to help organize code and so it is easier to understand what I have written. In addition, I also learned how the if/else statement can be helpful when catching input errors.

Some things I struggled with when writing project two was trying to display the decimal point after a number. At first when trying to convert a number it would display the calculated number in scientific notation and not with decimal points. At first my code read:

cout << "It is " << setprecision (1) << fixed << pounds << " Pounds\n";

Then after realizing that my code was not displaying output correctly I got help and fixed my code to read:

cout << "It is " << fixed << setprecision (1) << pounds << " Pounds\n";

After putting fixed before setprecision my number displayed correctly and I was able to fix my error.

What I would do differently on my next project is to always look at notes to help me with any problems I may have. In project 2 I was successful with using switch statement and in using the if/else statement. I was unsuccessful with displaying the calculation of my numbers correctly but I was able to learn and fix my error to correctly display my calculations. Some additional resources that I used while working on this project was Pearson Revel.

**Check List:** <Provide answers to the column Y/N or N/A >**:**

|  |  |  |  |
| --- | --- | --- | --- |
| **#** |  | **Y/N** | **Comments** |
|  | **Assignment files:** |  |  |
|  | * FirstInitialLastName\_ Assignment#\_Moss.zip | **Yes or No** |  |
|  | * FirstInitialLastName\_Assignment#.docx/.pdf | **Yes or No** |  |
|  |  |  |  |
|  | **Program compiles** | **Yes or No** |  |
|  | **Program runs with desired outputs related to a Test Plan** | **Yes or No** |  |
|  | **Documentation file:** |  |  |
|  | * Comprehensive Test Plan | **Yes or No** |  |
|  | * Screenshots related to the Test Plan | **Yes or No** |  |
|  | * Algorithms/Pseudocode (if required) | **Yes or No or N/A** |  |
|  | * Flowchart (if required) | **Yes or No or N/A** |  |
|  | * Lessons Learned | **Yes or No** |  |
|  | * Checklist is completed and included in the Documentation | **Yes or No** |  |