Project <2>

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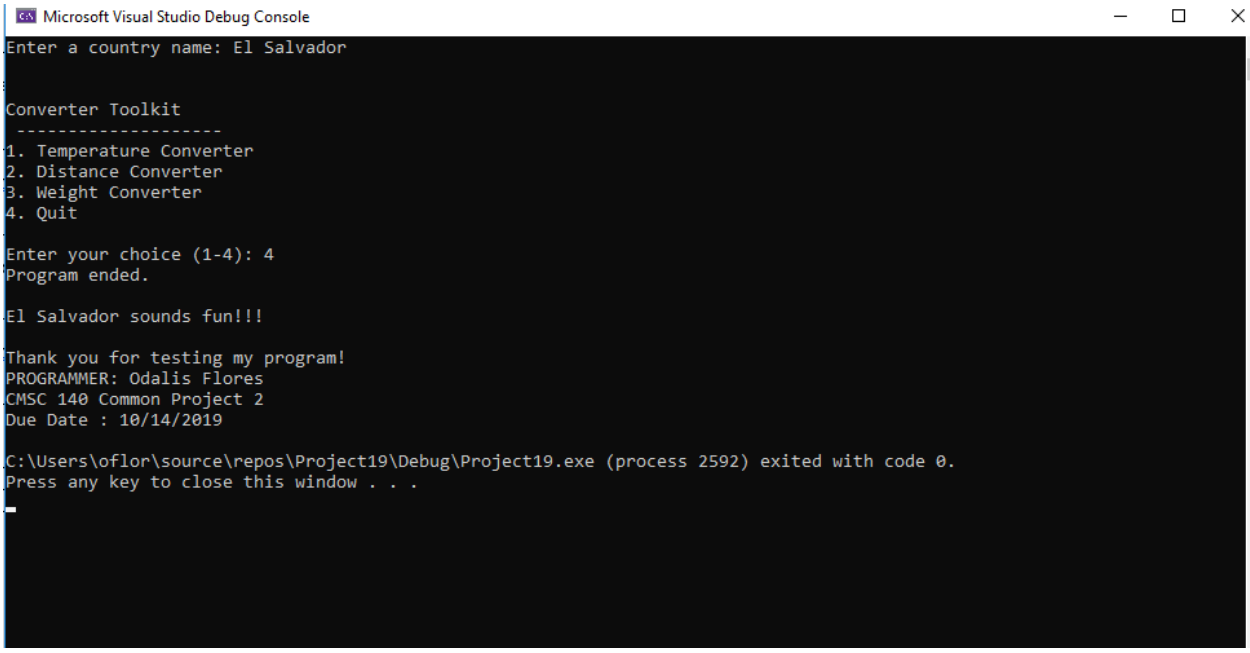
Class: CMSC 140, CRN:21714
Due Date: 10/14/2019

Test Page

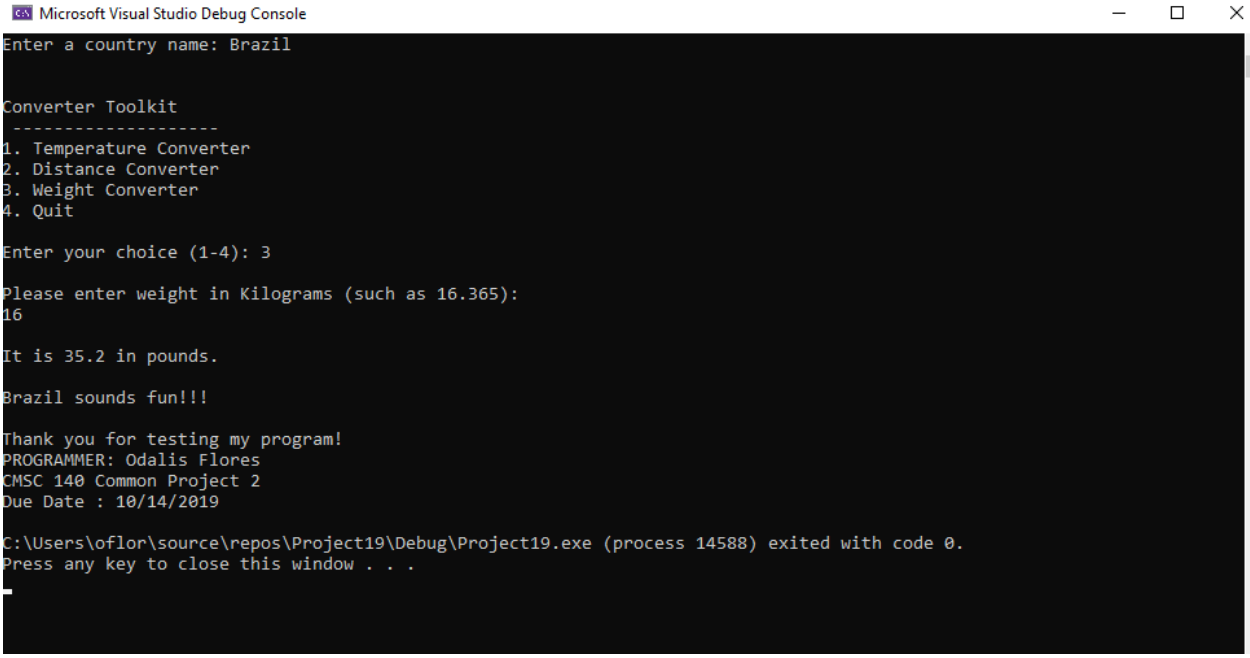
Test Case #	Input	Actual Input	Expected Output	Actual Output	Did the test pass?
1	United Kingdom Choice 1 Temp 20	20	68	68 United Kingdom sounds fun!!	y
2	Russia Choice 2 Distance -8	-8	Error message	!!! Program does not convert negative distance!!! Russia sounds fun!!	y
3	United states of America Choice 2 Distance 6.8	6.8	4.08	4.08 United States of America sounds fun!!	y
4	USA Choice 3 Weight -2	-2	Error message	!!! Program does not convert negative distance!!! USA sounds fun!!	y
5	Brazil Choice 3 Weight 16	16	35.2	35.2 Brazil sounds fun!!	y
6	El Salvador Choice 4	4	Program ended	Program ended El Salvador sounds fun!!	y
7	China Unknown choice number	5	Error message	You have entered an invalid input. Please close the window and run the program again. China sounds fun!!	y

Screenshots

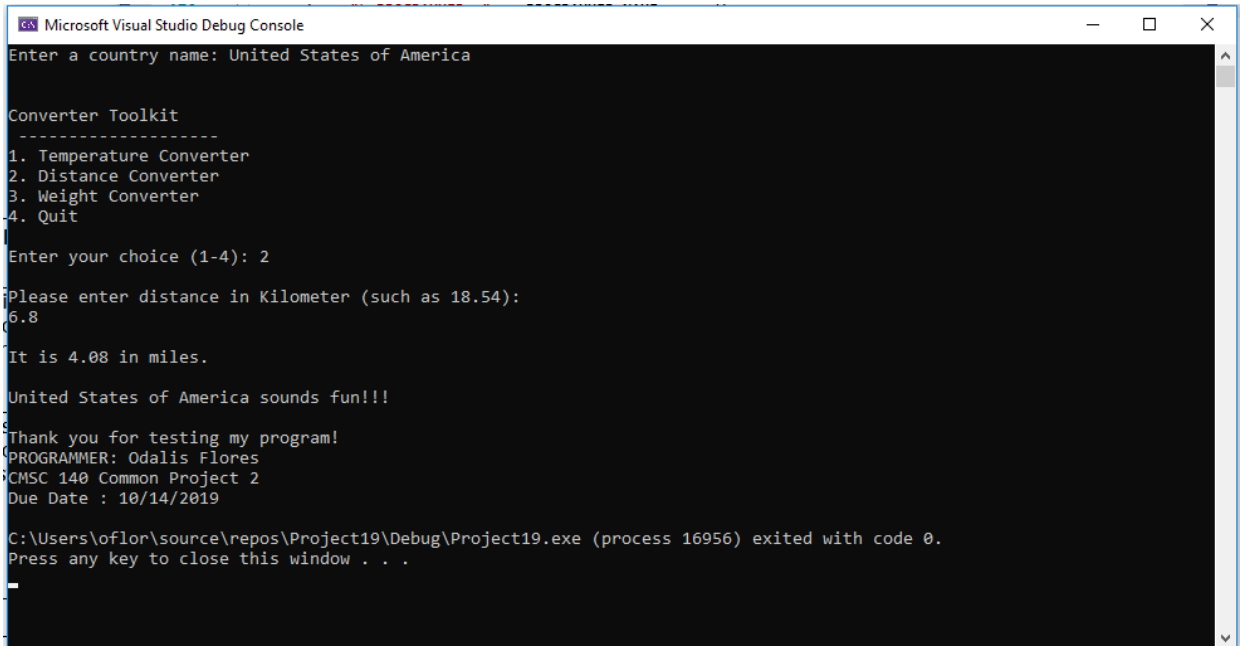
Case 1



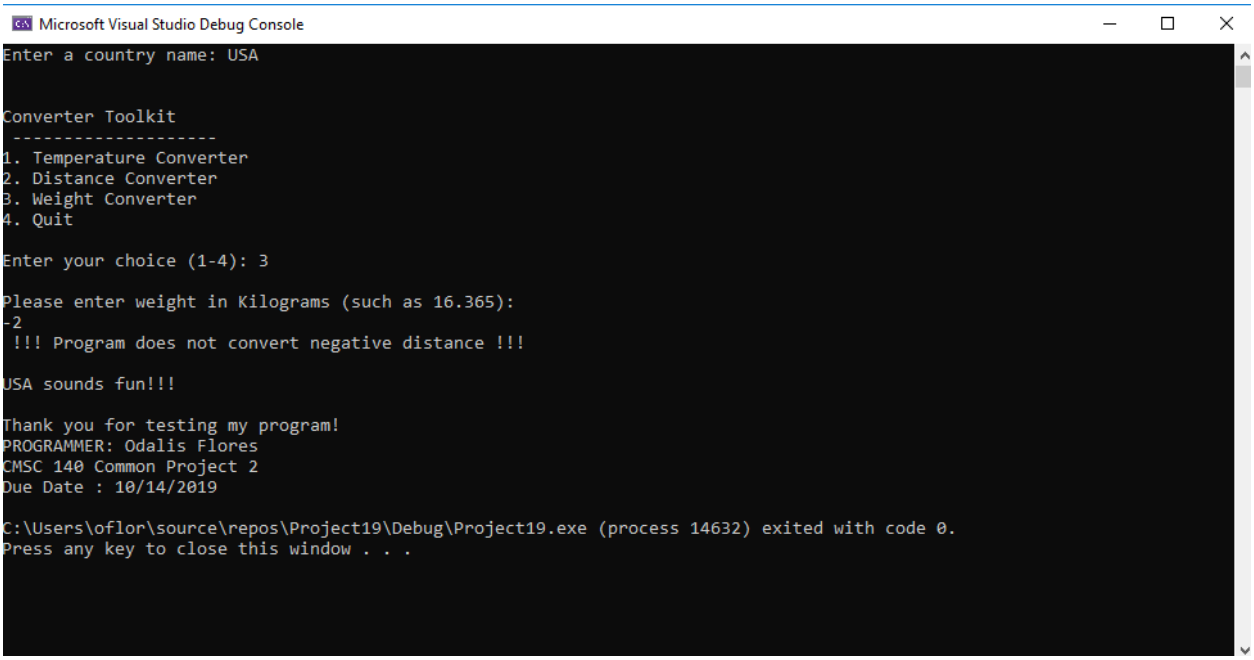
Case 2



Case 3


Microsoft Visual Studio Debug Console
Enter a country name: United States of America
Converter Toolkit
1. Temperature Converter
2. Distance Converter
3. Weight Converter
4. Quit
Enter your choice (1-4): 2
Please enter distance in Kilometer (such as 18.54):
6.8
It is 4.08 in miles.
United States of America sounds fun!!!
Thank you for testing my program!
PROGRAMMER: Odalis Flores
CMSC 140 Common Project 2
Due Date : 10/14/2019
C:\Users\oflor\source\repos\Project19\Debug\Project19.exe (process 16956) exited with code 0.
Press any key to close this window . . .

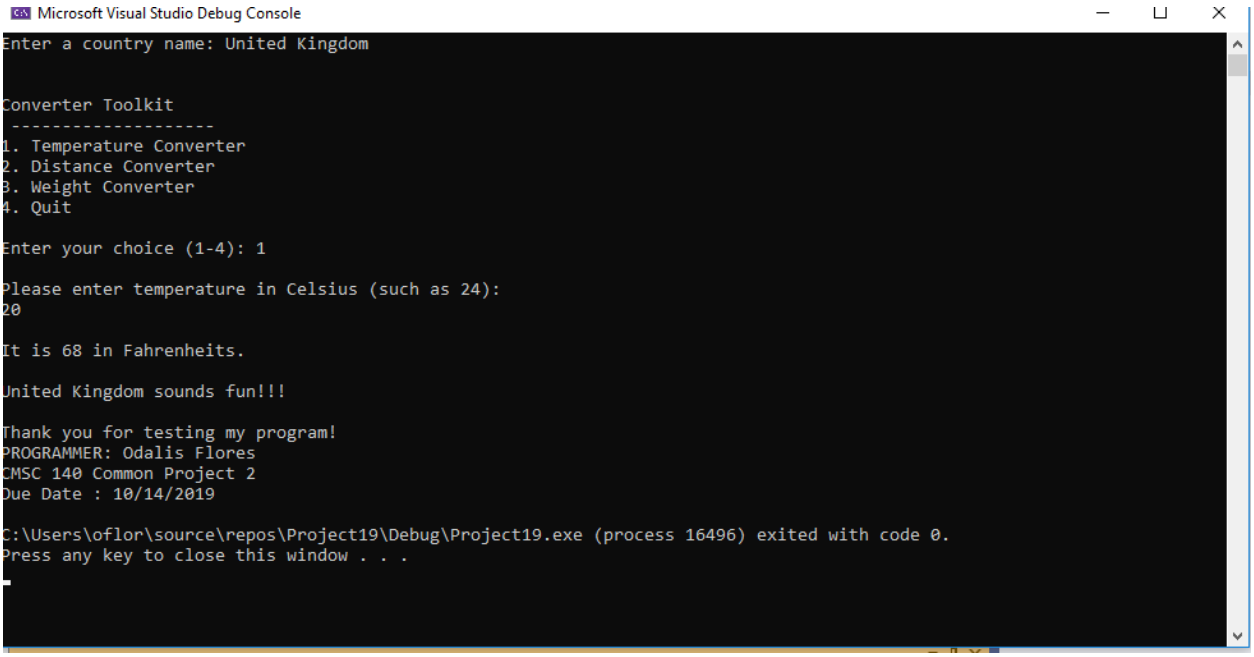
Case 4


Microsoft Visual Studio Debug Console
Enter a country name: USA
Converter Toolkit
1. Temperature Converter
2. Distance Converter
3. Weight Converter
4. Quit
Enter your choice (1-4): 3
Please enter weight in Kilograms (such as 16.365):
-2
!!! Program does not convert negative distance !!!
USA sounds fun!!!
Thank you for testing my program!
PROGRAMMER: Odalis Flores
CMSC 140 Common Project 2
Due Date : 10/14/2019
C:\Users\oflor\source\repos\Project19\Debug\Project19.exe (process 14632) exited with code 0.
Press any key to close this window . . .

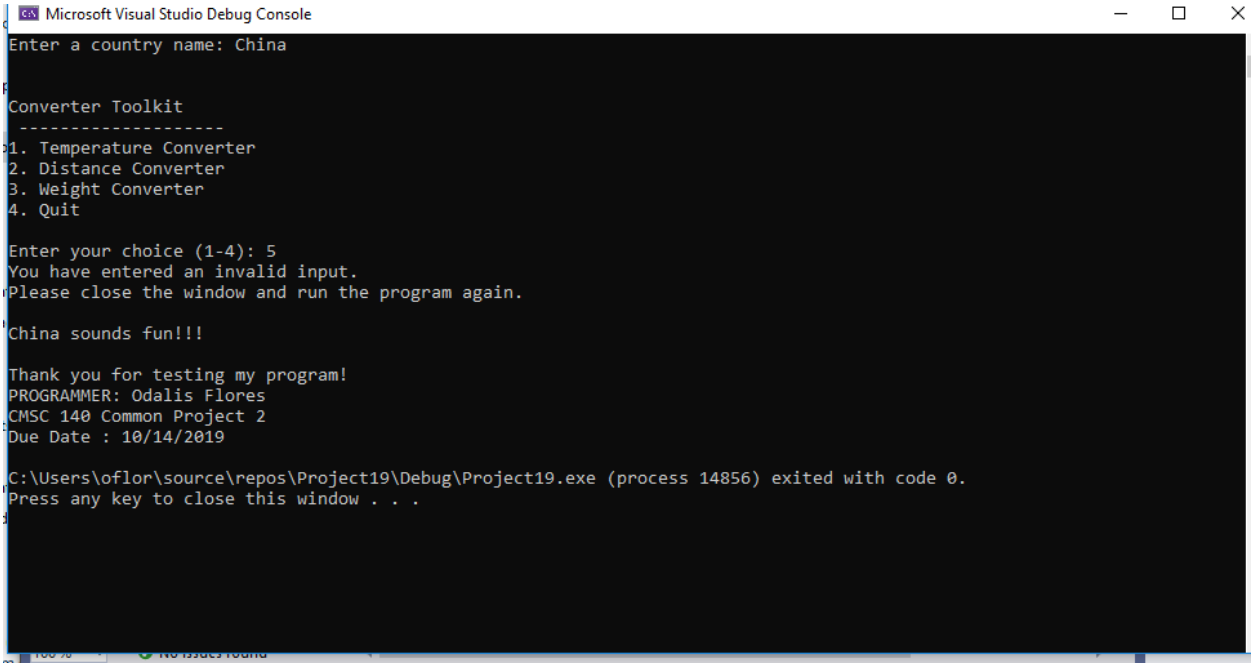
Case 5


Microsoft Visual Studio Debug Console
Enter a country name: Russia
Converter Toolkit
1. Temperature Converter
2. Distance Converter
3. Weight Converter
4. Quit
Enter your choice (1-4): 2
Please enter distance in Kilometer (such as 18.54):
-8
!!! Program does not convert negative distance !!!
Russia sounds fun!!!
Thank you for testing my program!
PROGRAMMER: Odalis Flores
CMSC 140 Common Project 2
Due Date : 10/14/2019
C:\Users\oflor\source\repos\Project19\Debug\Project19.exe (process 10416) exited with code 0.
Press any key to close this window . . .

Case 6


Microsoft Visual Studio Debug Console
Enter a country name: United Kingdom
Converter Toolkit
1. Temperature Converter
2. Distance Converter
3. Weight Converter
4. Quit
Enter your choice (1-4): 1
Please enter temperature in Celsius (such as 24):
20
It is 68 in Fahrenheits.
United Kingdom sounds fun!!!
Thank you for testing my program!
PROGRAMMER: Odalis Flores
CMSC 140 Common Project 2
Due Date : 10/14/2019
C:\Users\oflor\source\repos\Project19\Debug\Project19.exe (process 16496) exited with code 0.
Press any key to close this window . . .

Case 7


Microsoft Visual Studio Debug Console
Enter a country name: China
Converter Toolkit
1. Temperature Converter
2. Distance Converter
3. Weight Converter
4. Quit
Enter your choice (1-4): 5
You have entered an invalid input.
Please close the window and run the program again.
China sounds fun!!!
Thank you for testing my program!
PROGRAMMER: Odalis Flores
CMSC 140 Common Project 2
Due Date : 10/14/2019
C:\Users\oflor\source\repos\Project19\Debug\Project19.exe (process 14856) exited with code 0.
Press any key to close this window . . .

Pseudocode Pr <2>

1. Declare and initialize constant integer variables
    a. Temperature converter = 1
    b. Distance converter = 2
    c. Weight converter =3
    d. Quit = 4
    e. Assignment number = 2
2. Declare and initialize constant string variables
    a. Programmer name = Odalis Flores
    b. Due date = 10/14/2019
3. Declare integer variable
    a. number
4. Declare double variables
    a. fahrenheit
    b. celsius
    c. kilometer
    d. miles
    e. kilograms
    f. pounds
5. Declare string variable
    a. country name
6. Display "Enter a country name:"
7. Get country name from user
8. Display Converter tool kit Menu

```
"Converter Toolkit
--------------------
1. Temperature Converter
2. Distance Converter
3. Weight Converter
4. Quit"
```

9. Display message to user "Enter your choice (1-4):"
10. Get number from user
11. Switch statement begins, switch (number)
    a. Case temperature converter:
        i. Prompt user "Please enter temperature in Celsius (such as 24):
        ii. Get Celsius from user
        iii. Convert Celsius to Fahrenheit using expression Fahrenheit = (9/5)* Celsius +32
        iv. Display "It is (display Fahrenheit as a whole number) in Fahrenheit"
        v. break
    b. Case distance converter:
        i. prompt user "Please enter distance in Kilometer (such as 18.54):"
        ii. get kilometer from user
            1. if kilometer is greater than or equal to 0

a. then convert kilometer to miles, using expression miles = kilometer * 0.6
b. display “It is (miles displayed in two decimal places) in miles.

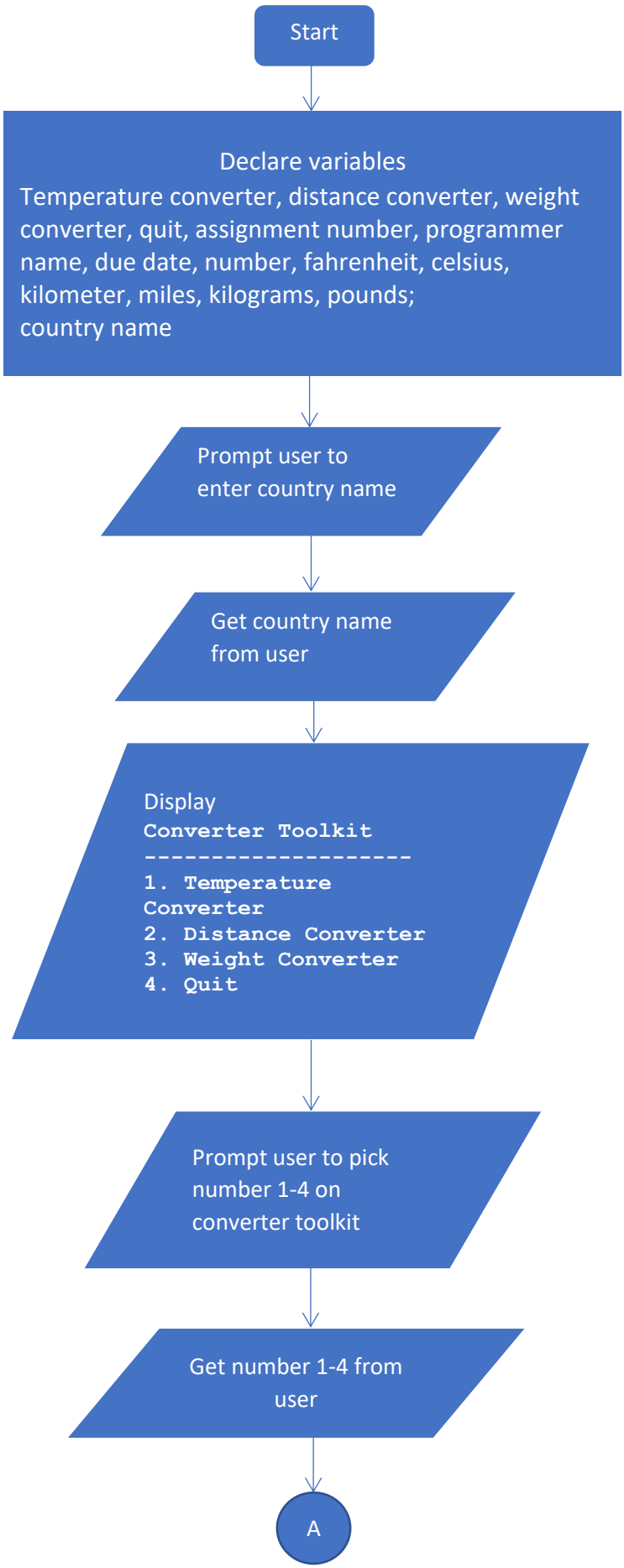
2. Else
    a. Display “!!! Program does not convert negative distance !!!”

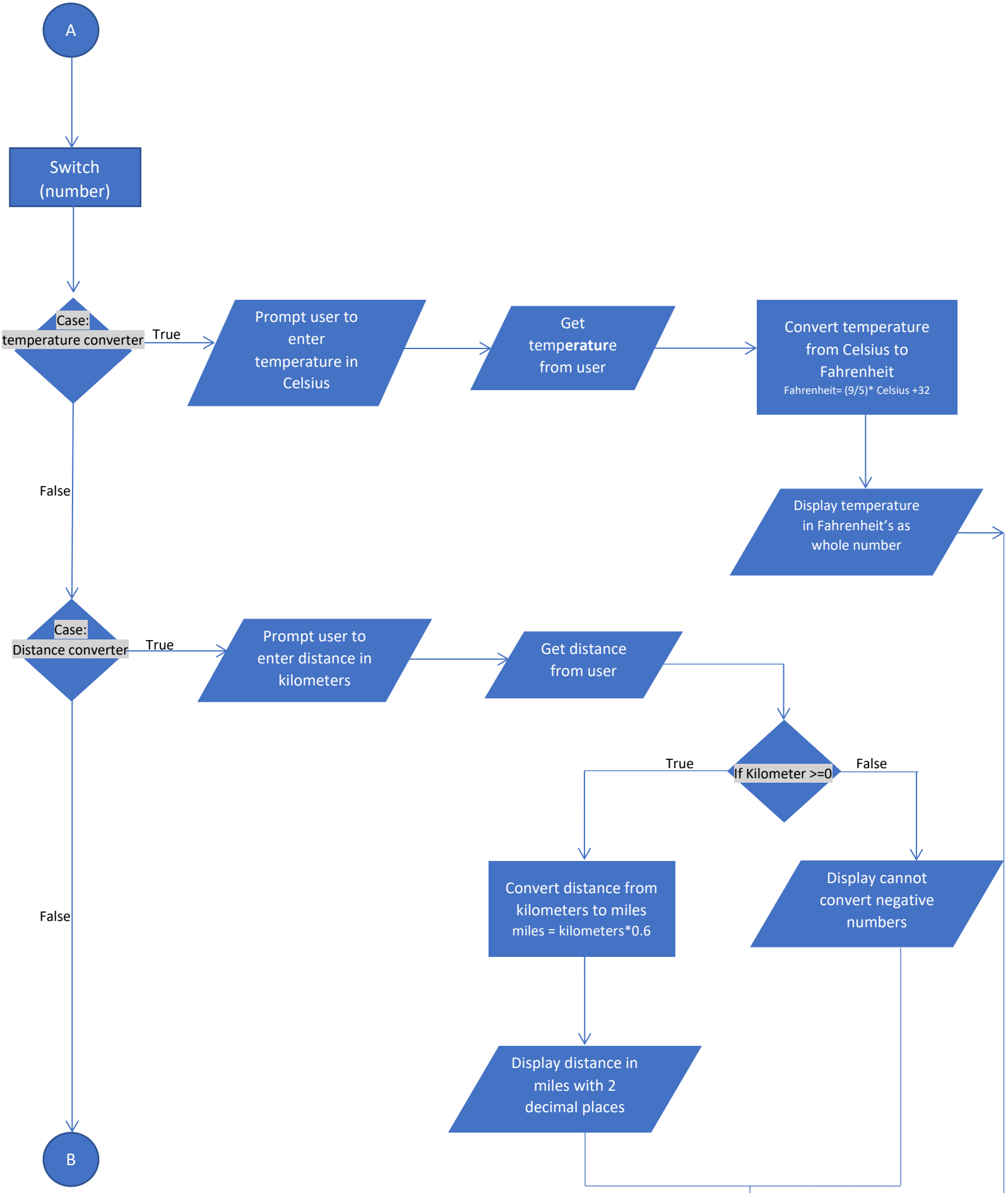
iii. break

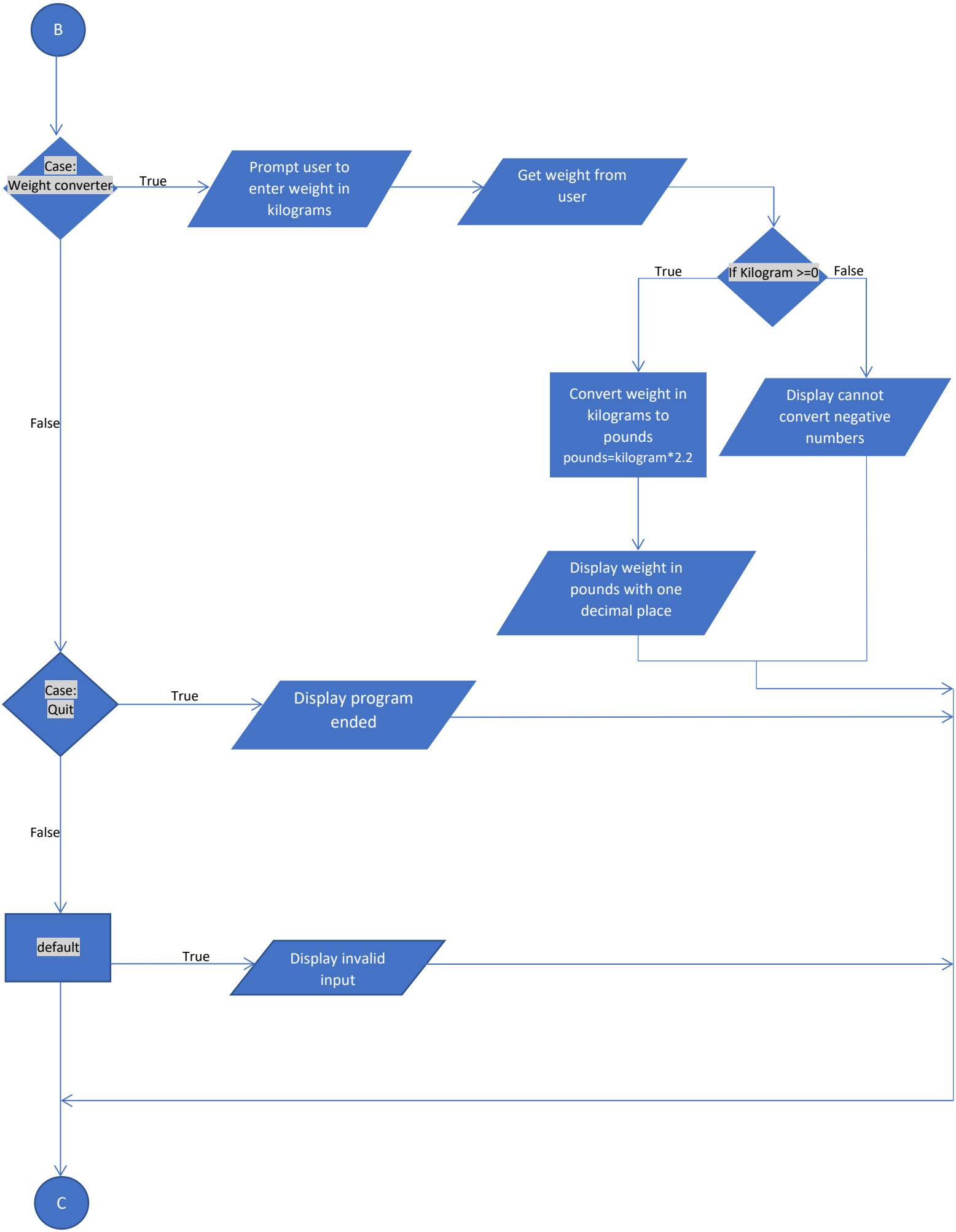
c. Case weight converter:
    i. Prompt user “Please enter weight in Kilograms (such as 16.365):”
    ii. Get kilograms from user
        1. If kilogram is greater than or equal to 0
            a. Convert kilogram to pounds, using expression pounds = kilograms * 2.2
            b. Display “It is (pounds shown to one decimal place) in pounds”
        2. Else
            a. Display “!!! Program does not convert negative distance !!!”
    iii. break
d. Case quit:
    i. Display “Program ended.”
    ii. Break
e. Default:
    i. Display “You have entered an invalid number, please close the window and run the program again”

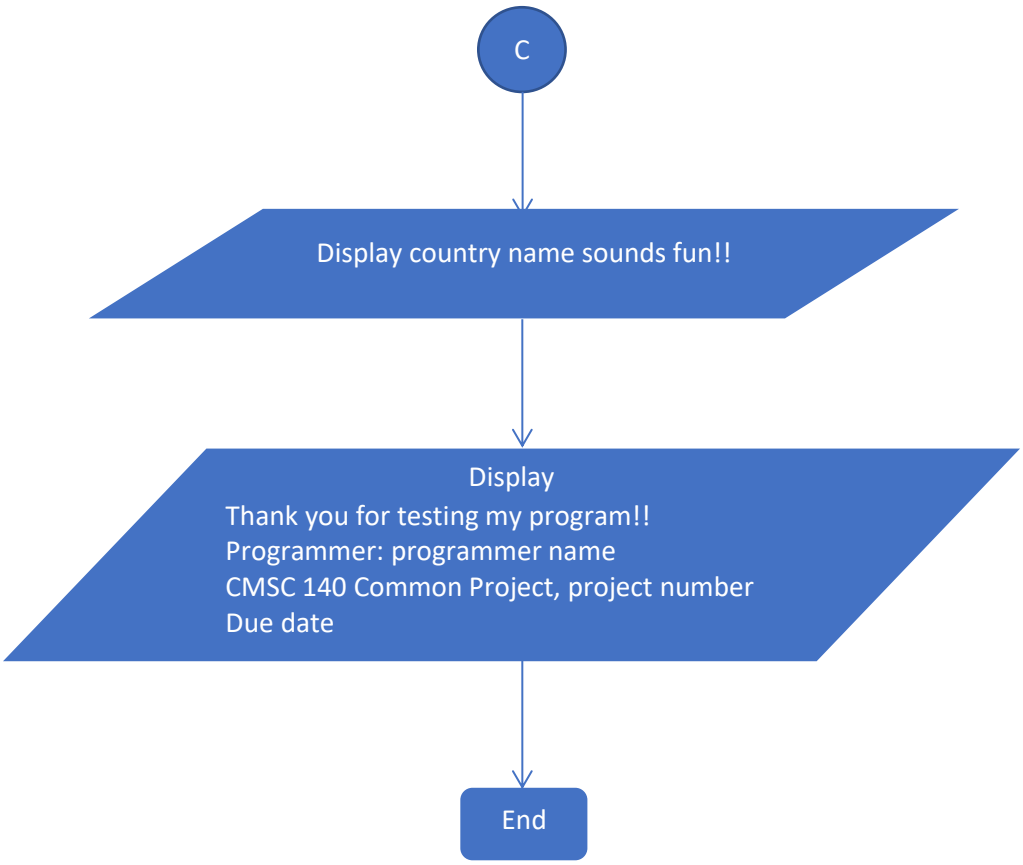
12. Display “(country name) sounds fun!!’
13. Display “Thank you for testing my program!
    PROGRAMMER: (programmer name)
    CMSC 140 Common Project (assignment number)
    Due date: (due date)

Flowchart


Start
Declare variables
Temperature converter, distance converter, weight converter, quit, assignment number, programmer name, due date, number, fahrenheit, celsius, kilometer, miles, kilograms, pounds;
country name
Prompt user to enter country name
Get country name from user
Display
Converter Toolkit
1. Temperature Converter
2. Distance Converter
3. Weight Converter
4. Quit
Prompt user to pick number 1-4 on converter toolkit
Get number 1-4 from user
A


A
Switch (number)
Case: temperature converter
True
Prompt user to enter temperature in Celsius
Get temperature from user
Convert temperature from Celsius to Fahrenheit
Fahrenheit= (9/5)* Celsius +32
Display temperature in Fahrenheit's as whole number
False
Case: Distance converter
True
Prompt user to enter distance in kilometers
Get distance from user
If Kilometer >=0
True
False
Convert distance from kilometers to miles
miles = kilometers*0.6
Display cannot convert negative numbers
Display distance in miles with 2 decimal places
False
B


B
Case:
Weight converter
True
Prompt user to enter weight in kilograms
Get weight from user
If Kilogram >=0
True
False
Convert weight in kilograms to pounds
pounds=kilogram*2.2
Display cannot convert negative numbers
Display weight in pounds with one decimal place
False
Case:
Quit
True
Display program ended
False
default
True
Display invalid input
C


C
Display country name sounds fun!!
Display
Thank you for testing my program!!
Programmer: programmer name
CMSC 140 Common Project, project number
Due date
End

Lessons Learned

Project 2 involved declaring variables, constant variable, using the switch statement and if else statements that was covered in chapter 4. This project also consisted of flowchart and pseudocode which is different from project one. I started working on my flowchart about 2 weeks ago. Since I started my flowchart before I was able to finish reading chapter 4, I was unaware of the switch statement. Initially I thought using if else if statement was my best option. After reading the chapter I then realized it would be much more efficient to use the switch statement. I learned that the switch statement is preferable for its simplicity and cleanliness. When I had started writing my code out with the if else if statement things looked a bit messy and confusing. Although the indentions help a lot, because I had to use nested if else statements it made the code harder to track. When I modified my code using the switch statement things became easier to follow and fix.

The only issue I ran into was getting started before being able to finish reading Chapter 4. Since I changed my code from if else if statement to the switch statement, I had to go back and edit my flowchart. The flowchart feels time consuming since I use a word document to add shapes with description and then I add arrows and if I make changes, I must make sure the flow chart and its shape are aligned. I felt that the easiest part was creating the pseudocode because I am saying what I must do for my code without having to make much attention to my diction.

I found it difficult to edit my flowchart using the switch statement. When I read Chapter 4, it showed examples of how-to flowchart if, if else, if else if statements. When it came down to the switch statement, the book did not offer a visual to represent the switch statement in a flowchart. I did use the internet to find examples of switch statements in a flowchart. Once I was able to see a visual then I could start to edit my flowchart.

I also learned that I could name a different variable to get the user input and use that variable to compare it to my switch statement cases. I knew I had to name a constant variable for the numbers in the converter tool kit. At first, I wrote that I would name the variables 1-4, soon enough I figured I am supposed to use letters to name these variables. After naming the constant variable according to converting method, I was stuck on how I would get the number from the user if the user does not know the constant variable I am using in my code. That is when I learned that I had to declare a variable, in my case I declared number, that would allow the user to enter an integer value. The integer expression in my switch statement would compare the integer value to the cases in which I would add my constant variables. I learned that the expression used in the beginning of my switch statement would compare it to the cases, if it matched the case then those statements would run otherwise the default statement would display an error message. Overall, I felt that I learned how to correctly use the if, if else, if else if, and switch statement very well. Project <2> also reminded me how to declare constant variables.