Length Conversion Calculator

Assignment 1

Due date: Tuesday, 1 Oct (11:59 pm)

1 Overview

In this assignment, students will develop and implement a program that allows the user to convert a length entered in terms of inches to centimeters or vice-versa. For the purposes of this assignment, 1 inch is equal to 2.54 centimeters and 1 centimeter is equal to 0.3937 inches.

The primary objective of this assignment is for students to demonstrate use of the selection construct (in other words, the \texttt{if-else} statement).

2 The Program

The program begins by displaying a list of two options presented to the user. The options are “convert inches to centimeters” and “convert centimeters to inches”. The program then displays a prompt asking the user to make a choice. What happens next \texttt{depends} on the user’s choice.

1. If the user chooses “convert inches to centimeters”, the user is prompted to enter the length in terms of inches. This length may very well contain a decimal point, and/or be 0 or negative. The program then computes the equivalent length in terms of centimeters and prints a final line of output containing both lengths (both the entered and the computed).

2. If the user chooses “convert centimeters to inches”, the program proceeds along similar lines as case 1, except that the user enters a length in terms of centimeters, and the program converts it to inches.
3 Sample Output

The following output was produced by running the program on four separate occasions. The last two executions illustrate some of the acceptable limitations of the program.

OPTIONS
(1) Convert inches to centimeters
(2) Convert centimeters to inches

Enter your choice: 1
Enter the length in terms of inches: 2.5
2.5 inches is equal to 6.35 centimeters

OPTIONS
(1) Convert inches to centimeters
(2) Convert centimeters to inches

Enter your choice: 2
Enter the length in terms of centimeters: 17.2
17.2 centimeters is equal to 6.77164 inches

OPTIONS
(1) Convert inches to centimeters
(2) Convert centimeters to inches

Enter your choice: 1
Enter the length in terms of inches: 1
1 inches is equal to 2.54 centimeters

OPTIONS
(1) Convert inches to centimeters
(2) Convert centimeters to inches

Enter your choice: 3
Enter the length in terms of centimeters: -6.81
-6.81 centimeters is equal to -2.6811 inches

4 The Trap

This is a fairly simple assignment. The most common error that one could make is to use the wrong format control specifier when scanning in either one of the lengths. Remember: when using scanf to scan a number into a variable of type double, the %lf format control specifier must be used.