CMPE1300 – Exercise12

You will write a program that will use methods to create a units convertor. The program will input US measurements for length, weight and volume, and convert the measurements to metric. The program will perform the following conversions, which will be selected using a switch statement:

* Input feet and inches, and convert the length to meters.
* Input pounds and ounces, and convert the weight to kilograms.
* Input cups and ounces, and convert the volume to liters.

**Main Program**

The main program will run in a loop, so that the user may perform multiple calculations until they decide to quit. The main program will call the method **Menu()** to display the main menu to the user. The main menu will consist of the following selections:

1. Length Calculation
2. Weight Calculation
3. Volume Calculation
4. Quit

A switch statement will be used to perform the action that has been selected by the user. Each case of the switch will use the methods outlined below to input the necessary values and perform the calculations. The results for the calculation will be displayed. Limit the input integer values from 0 to 1000, and the double values to 12 inches, 16 ounces of weight, and 8 ounces of volume.

**Menu()**

The Menu() method will display the menu to the user, then obtain the user’s selection using a loop. Trap the user in a loop until a valid menu selection has been made, and return the selection to the main program. Be sure to use appropriate error messages.

**GetInt()**

Method GetInt() will have three parameters:

* A string to be used to prompt the user for a value to be input.
* An integer value representing the lowest value that will be accepted by the method.
* An integer value representing the highest value that will be accepted by the method.

This method will use a loop to force the user to enter an integer value that is valid and within the range specified. If the value is out of range display an error message indicating that condition. After a valid integer has been accepted use the return statement to return that value.

**GetDouble()**

This method is similar to GetInt(), but it returns a double to the calling code. It will have a string argument for the prompt to be displayed, a double for the minimum value and a double for the maximum value. This method will trap the user in a loop until a valid double has been entered, and return the double to the calling code.

**Length()**

This method will be passed from the main program an integer number of feet, and a double number of inches. It will return the length in meters as a double to the main. This method will only perform the desired calculation, and will **not** display the result.

**Weight()**

This method will be passed from the main program an integer number of pounds, and a double number of ounces. It will return the weight in kilograms as a double. This method will only perform the desired calculation, and will **not** display the result.

**Volume()**

This method will be passed from the main program an integer number of cups, and a double number of ounces. It will return the volume in liters as a double. This method will only perform the desired calculation, and will **not** display the result.

**Requirements**

* All input will take place using methods, have error handling, and handle all exceptions.
* The main program will repeat in the loop (clear the screen each time the menu is displayed) until the user selects quit.
* Use meaningful variable names. For example, use “min” and “max” instead of “x1” and “x2”.
* You may create more methods than the ones outlined above.