PROG1780 – Programming Fundamentals: Assignment 3

[Maximum points without bonus points: 25]

1. You are creating a console based math program. This program will be shown as a menu with several options. The menu should be created with a do loop.

   The first option is to display a list of even numbers beginning at 0. Once this option is selected, the program asks the user for the number of even numbers to display. After the user provides this input, all the values should be displayed at once. This option should be created using a for loop.

   The second option is to display a sequence of perfect squares. The program should begin by printing the square of 1, and ask the user if they to continue or stop and return to the original menu. If the user does not want to quit, the next square is printed. This continues until the user wishes to end the sequence. This option should be created using a while loop.

   The third option is to exit the program. Any invalid option entered by the user should prompt the menu to reappear and ask the same three options.

   Any numeric entry by the user should not crash if the user enters a string.

   Your program must:
   a. Use the appropriate loop for each segment. [3 points]
   b. Encapsulate the logic of options 1 and 2 each within their own method. [4 points]
   c. The functionality of the menu is correct as described. [3 points]
   d. Proper Error Handling [2 points]
   e. Adhere to coding standards as described by the course. Marks will be taken off wherever coding standards are not followed.

2. Write a C# program to create a GUI that acts as a simple two number calculator.

   a. Instead of a GUI keypad, this calculator will use textbox input to accept the two numbers to be used in the calculation. This calculator should consist of at least <u>eight</u> controls. Four buttons should be created, one for each simple math operator: plus, minus, multiply and divide. Three textboxes should be created. One textbox for the first input, one textbox for the second input, and a third textbox for the output. The output textbox should not be editable by the user. The eighth control will display error messages, and can be any control you deem appropriate. When the user presses an operator button, that operation is done using the numbers in the left and right input textboxes, and the result is shown in the output textbox.

      [6 points]

   b. This calculator will handle all errors using try/catch statements. The error message output should display at least 3 different types of error messages, depending on what the user has done incorrectly. Your program should be able to catch all possible errors the user may do, it should not crash.

      [6 points]

The format for submitting the assignment is as follows:

1. **Printouts Handed in Class**: Assignment Cover sheet properly filled, followed by the marking rubric, (Assignment 3 marking rubric) followed by the printout of C# source code.
2. **e-Conestoga Submission**: A single compressed (.zip format) archive file containing executable for each of the programs (1 & 2) submitted to e-Conestoga.
3. **Demonstration of the Programs in Class**: Please have both programs running on your desktop when you are ready to demonstrate your work.