Note: This is the same as Assignment 5 except it must be done as GUI instead of a console application and it allows for a computer or a human opponent.

For this assignment you will write a C# program which will play the game of Flaunt. Flaunt takes two players who take turns guessing numbers from 1 to 5. At each turn each player gets the number that she guesses added to her score unless her number is exactly one less than her opponent's. If you guess exactly one less than your opponent then you get both numbers added to your score and your opponent gets nothing. For example, if I guess 3 and you guess 5 then I get 3 points and you get 5 for that turn. On the other hand if I guess 3 and you guess 4 then I get 7 points and you get none. There is one more complication in the rules. If one player uses the number k then she gets $k^n$ points where n is number of successive turns in which k is repeated. For example, if I guess 4 and you guess 2, I get 4 points and you get just 2. If I guess 4 again and you guess 1 then I get 16 points and you get just 1. If, on the next turn I guess 4 again and you guess 3 then you get $3 + 4 \times 4 \times 4 = 67$ points added to your score and I get nothing.

For this assignment the computer may optionally be one of the players. It will guess one of the numbers and it will keep track of and display the score after each round. Flaunt continues until one player scores at least 60 points. The person (or computer) who scores at least 60 points first is declared the winner.

Obviously, the way to win this game is to know in advance what number your opponent is going to guess. Since mind reading is not a C# function we will use random guesses for the computer's choice of a number. C# has a random number generator as a built-in function. Pages 245-246 in your Deitel & Deitel or pages 401-402 in Nakov and Kolev explains how to use this function.

Your program should declare a winner and allow for ties (both players exceed 60 points in one turn). Set up the input as a function so that it will not accept anything from the user except a number from 1 to 5. To do this you will need a loop that continually does the input and generates error messages until the user enters a valid number.

Your program MUST be modular - that is, it should consist of a main program that is largely a sequence of function calls.

Create a user interface GUI similar to that shown on the following page.

Notes:

1. The players will enter a number 1 to 5 in the numeric UpDown boxes. Clicking on Enter will cause the game to accept the two numbers in the UpDown boxes and record the new score.
2. The "Announcements" label should be used to write the game status information. For example, the turn number, which player is ahead, declaration of a winner,
points added for the last turn, or maybe a note saying "waiting for user input…"
etc. The Announcements label will likely change with each turn.

Turn in a complete design for your program and your zipped project folder to
\\cecsfp01\Users\Everyone\Engr123