ASSIGNMENT 4

Due Date: anytime before 11:00pm on Nov 20, 2017

Note

- A copy of the assignment must be submitted online via Moodle before the due date. **Email submissions are not accepted.**
- Before submitting online, make sure everything in your assignment can work correctly. The grade of your assignment is totally based on the correctness of your online files.
- The students who do not ask for a due date extension before the due date, and who do not submit the assignment on the extended due date, can expect to see 0 points assigned for that assignment.
- Its weight is 4% and its full points are 100 points.

1. ***(Increment and Decrement Operator)*** Firstly, write a C# function that has two parameters(named *pv1* and *pv2*) and has no *return* statement. That is, it will not return any value to the caller after it is called. The data type of each parameter is an integer. This function will have the following operations:

pv1++;

pv1=pv2++;

*pv1 *=pv2;*

When each operation above is done, output its value (using Console.WriteLine()).

Then, write a main function that defines two variables(named *mv1* and *mv2*). The main function calls the function above and passes *mv1* and *mv2* to the function. (25 points)

2. ***(Diameter, Circumference and Area of a Circle)*** Write a C# function that has one parameter (named *radius*) and a return statement that returns the area of a circle. That is, this function will perform the following operations:

- Define a local variable named *localRadius* and a local variable named *area*;
- Assign the value of *radius* to the variable *localRadius*;
- Calculate the area of the circle, that is, *area = 3.1415926*r*^{2};
- Return the *area* in its return statement.

Then, write a main function that defines two variables(named *mradius* and *marea*). The main function calls the function above and pass the value of *mradius* to the function. After the function is done, the returned value from the function is assigned to *marea*. The main prints the value of marea (using Console.WriteLine()) (25 points)

3. ***(Table of Squares and Cubes)*** Write a C# function that calculates the squares and cubes of the numbers from 0 to 10 and displays the resulting values in table format, as shown below. All calculations should be done in terms of a variable x defined in the function. [*Note:* this function does not have any parameter, and does not return any value. That is, when it is called, it will perform the operations above and then stop.

Then, write a main function that will call this function. (25 points)

number	square	cube
0	0	0
1	1	1
2	4	8
3	9	27
4	16	64
5	25	125
6	36	216
7	49	343
8	64	512
9	81	729
10	100	1000

4. ***(Body Mass Index Calculator)*** Write a C# function that has two parameters (named *weight* and *height*) and has no return statement. When it is called, it calculates Body Mass Index (BMI). The formulas for calculating the Body Mass Index (BMI) are

$$BMI = \frac{weightInPounds \times 703}{heightInInches \times heightInInches}$$

If either of them is zero or negative, output an error message and BMI will not be calculated. Otherwise, the function calculates and displays the user's body mass index.

Then, write a main function that defines two variables(named *mweight* and m*height*). The main function calls the function above and pass the values of *mweight* and m*height* to the function. (25 points)