Programming Basics C# Lab

Lab Exercise 1: Write a program to output 0,1,2,3,4,5,6,7,8,9,10 using for loop.

Lab Exercise 2: Write a program to output 0,1,2,3,4,5,6,7,8,9,10 using while loop

Lab Exercise 3: Write a program to output 0,1,2,3,4,5,6,7,8,9,10 using Do While loop

Lab Exercise 4: Write a loop that outputs all integer values from 0 to 100 that are divisible by 3 and 4.

Lab Exercise 5: What is the problem with the following looping constructs?

```
do
{
  Result += 1;
} while (Result>= 0);
```

Lab Exercise 6: Create a class called Car.

i) The data members to the class – make, model, colour and registration number. The Car should have a user-defined constructor that takes a set of parameters to set each of these data members.
ii) A ReadOnly properties for registration that allow the values of the data members to be read from an object but not written to.
iii) A properties for make that allow the values of the data members to be set/ written only if it has some value.
iv) A method to the class that outputs the data about a car as a string.

Lab Exercise 7: Using the following mechanism performing input validation and exception handling for the Console application above:

• Prevention using if/else statements

• Exception Handling using try{ }catch{ }

• Exception Handling using try{ }catch{ }finally{ }

• Catch Multiple types of exceptions

This part of a Console application which allow users to enter operands and operators to perform calculation.

```
Start:
while (true)
{
        if (!(double.TryParse(Console.ReadLine(), out double a)))
```

```
            {
                Console.WriteLine("Please enter a numnber!");
                goto Start;
             }

            if (!(char.TryParse(Console.ReadLine(), out char c)))
            {
                Console.WriteLine("Please enter correct operator: + - * / ");
                 goto Start;

             } else if (!(c == '+' || c == '-' || c == '*' || c == '/'))
             {

                 Console.WriteLine("Please enter correct operator: + - * / ");
                 goto Start;
               }
               if (!(double.TryParse(Console.ReadLine(), out double b)))
               {
                  Console.WriteLine("Please enter a numnber!");
                  goto Start;
               }

                if (c == '+')
                {
                  Console.WriteLine(a.ToString() + " + " + b.ToString() + " = " +
(a + b));
                }
                else if (c == '-')
                {
                  Console.WriteLine(a.ToString() + " - " + b.ToString() + " = " +
(a - b));
                }
                else if (c == '*')
                {
                  Console.WriteLine(a.ToString() + " * " + b.ToString() + " = " +
a * b);
                }
                 else if (c == '/')

                {
                  Console.WriteLine(a.ToString() + " / " + b.ToString() + " = " +
(Math.Round((a / b), 2)).ToString());
                 }
```