C# and Dot Net Framework
Part A

Steps to execute these programs

Step 1. Path Environment variable for C# Compiler

Copy the path of .NET framework from your computer

*Copy the path: "**C:\Windows\Microsoft.NET\Framework64\v4.0.30319**"*
Search for environment variable in Start menu
Double click on "Path" Variable
Click New
Paste the given path
Press Ok

Step 2. Running the C# program

Save the Program using .cs extension
Open command prompt
Using cd command go to the desired directory(folder)

Step 3. Compile the program using the following method:

"*csc filename.cs*"

Once compiled successfully corresponding .exe file created with same name as the program name

Step 4. Run the program at command prompt using: ".\filename.exe"

C# Lab Programs:

1.//Fibonacci series program in C#.

```
using System;
 public class Fibonacci
  {
    public static void Main(string[] args)
     {
       int n1=0,n2=1,n3,i,number;
       Console.Write("Enter the number of elements: ");
       number = int.Parse(Console.ReadLine());
       Console.Write(n1+" "+n2+" "); //printing 0 and 1
        for(i=2;i<number;++i) //loop starts from 2 because 0 and 1 are already printed
        {
         n3=n1+n2;
         Console.Write(n3+" ");
         n1=n2;
         n2=n3;
        }
     }
  }
```

Output:

```
Enter the number of elements: 15
0 1 1 2 3 5 8 13 21 34 55 89 144 233 377
```

2. Prime Number Program in C#

```
using System;
  public class PrimeNumber
   {
     public static void Main(string[] args)
      {
         int n, i, m=0, flag=0;
         Console.Write("Enter the Number to check Prime: ");
         n = int.Parse(Console.ReadLine());
         m=n/2;
         for(i = 2; i <= m; i++)
         {
          if(n % i == 0)
           {
            Console.Write("Number is not Prime.");
            flag=1;
            break;
           }
         }
         if (flag==0)
          Console.Write("Number is Prime.");
     }
   }
```

Output:

```
Enter the Number to check Prime: 17
Number is Prime.
Enter the Number to check Prime: 57
Number is not Prime.
```

3. Palindrome program in C#

```
using System;
  public class Palindrome
   {
     public static void Main(string[] args)
      {
         int n,r,sum=0,temp;
         Console.Write("Enter the Number: ");
         n = int.Parse(Console.ReadLine());
         temp=n;
         while(n>0)
         {
          r=n%10;
```

```
        sum=(sum*10)+r;
        n=n/10;
       }
       if(temp==sum)
        Console.Write("Number is Palindrome.");
       else
        Console.Write("Number is not Palindrome");
  }
 }
```

Output:

Enter the Number=121
Number is Palindrome.

Enter the number=113
Number is not Palindrome.

4. Factorial Program in C#:

```
using System;
 public class Factorial
  {
    public static void Main(string[] args)
     {
      int i,fact=1,number;
      Console.Write("Enter any Number: ");
      number= int.Parse(Console.ReadLine());
      for(i=1;i<=number;i++){
       fact=fact*i;
      }
      Console.Write("Factorial of " +number+" is: "+fact);
    }
 }
```

Output:

Enter any Number: 6
Factorial of 6 is: 720

5. Sum of digits program in C#

```
using System;
 public class Sumdigit
  {
    public static void Main(string[] args)
     {
      int  n,sum=0,m;
```

```
      Console.Write("Enter a number: ");
      n= int.Parse(Console.ReadLine());
      while(n>0)
      {
       m=n%10;
       sum=sum+m;
       n=n/10;
      }
      Console.Write("Sum is= "+sum);
    }
  }
```

Output:

```
Enter a number: 23
Sum is= 5
Enter a number: 624
Sum is= 12
```

6. C# Program to find the reverse of a number

```
using System;
  public class ReverseDigit
   {
     public static void Main(string[] args)
      {
       int  n, reverse=0, rem;
       Console.Write("Enter a number: ");
       n= int.Parse(Console.ReadLine());
       while(n!=0)
       {
        rem=n%10;
        reverse=reverse*10+rem;
        n/=10;
       }
       Console.Write("Reversed Number: "+reverse);
    }
  }
```

Output:

```
Enter a number: 234
Reversed Number: 432
```

7. C# Program to swap two numbers without third variable

```
using System;
  public class SwapNumber
```

```
 {
   public static void Main(string[] args)
    {
     int  a=5, b=10;
     Console.WriteLine("Before swap a= "+a+" b= "+b);
     a=a+b; //a=15 (5+10)
     b=a-b; //b=5 (15-10)
     a=a-b; //a=10 (15-5)
     Console.Write("After swap a= "+a+" b= "+b);
    }
 }
```

Output:

Before swap a= 5 b= 10
After swap a= 10 b= 5

8. //C# Program to Print Pascal Triangle

```
using System;
  public class PascalTri
  {
    public static void Main(string[] args)
     {
      int  i,j,k,l,n;
      Console.Write("Enter the Range=");
      n= int.Parse(Console.ReadLine());
      for(i=1; i<=n; i++)
      {
       for(j=1; j<=n-i; j++)
       {
        Console.Write(" ");
       }
       for(k=1;k<=i;k++)
       {
        Console.Write(k);
       }
       for(l=i-1;l>=1;l--)
       {
       Console.Write(l);
       }
       Console.Write("\n");
      }
  }
 }
```

Output:

```
Enter the Range=5
    1
   121
  12321
 1234321
123454321
```

9. Program to demonstrate Multithreaded Programming in C#.NET

```
using System.Threading;
using System;
namespace ThreadingDemo
{
   class ThreadProg
   {
      static void Main(string[] args)
      {
         Thread t = Thread.CurrentThread;
         //By Default, the Thread does not have any name
         //if you want then you can provide the name explicitly
         t.Name = "Main Thread";
         Console.WriteLine("Current Executing Thread Name :" + t.Name);
         Console.WriteLine("Current Executing Thread Name :" + Thread.CurrentThread.Name);
         Console.Read();
      }
   }
}
```

Output:

```
Current Executing Thread Name :Main Thread
Current Executing Thread Name :Main Thread
```

10. //Program to find square of a number using subroutines and functions in C#.NET

```
using System;
class SubProgram
   {
      // function with integer return type declaration
      public int square(int nmbr)
      {
         int sq = nmbr * nmbr;
         // Lets provide a return statement
         return sq;
      }

      public static void Main(string[] args)
```

```
    {
        SubProgram pr = new SubProgram(); // Creating a class Object
        Console.Write("Enter a number: ");
        int n= int.Parse(Console.ReadLine());
      int rslt = pr.square( n); //Calling the method and assigning the value to an integer type
      Console.WriteLine("Square of the given number is  "+ rslt); //Printing the result
    }
}
```

Output

Square of the given number is 4

Part B
Based on VB.net

For More Materials Details Visit