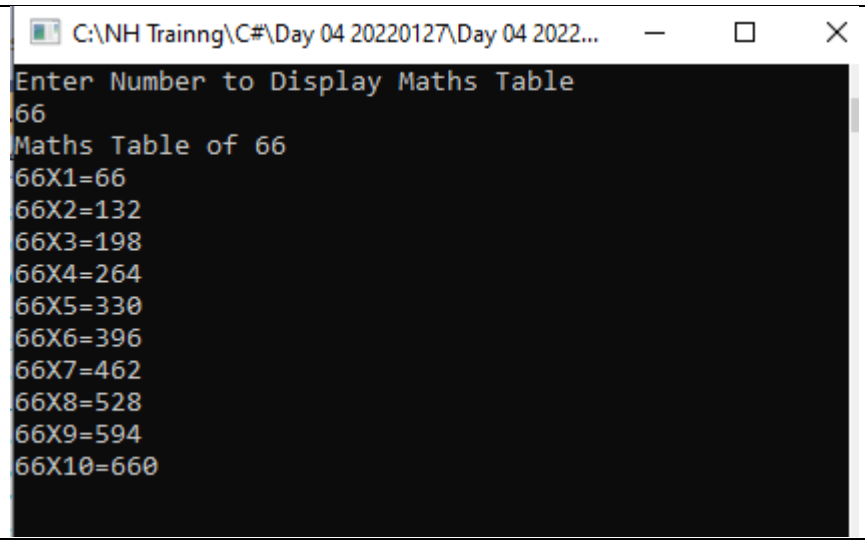
20 C# programs Assignment
Day 4 Assignment on 27/01/2022
By
P.V.Subramanyam

| Q No | 1 |
|---|---|
| Program | Multiplication Table of given number |
| Code | |

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;

namespace Day_04_20220127
{
   class Program
   {

      static void Main(string[] args)
      {
         //Setting up i.e., Declare & initiation Section
         int Num, Loop_Index;

         // Accepting user input or colleting base data
         Console.WriteLine("Enter Number to Display Maths Table");
         Num = Convert.ToInt32(Console.ReadLine());

         // Processing & Displaying output
         Console.WriteLine("Maths Table of " + Num);
         for (Loop_Index = 1; Loop_Index <= 10; Loop_Index++)
            Console.WriteLine(Num + "X" + Loop_Index + "=" + Num * Loop_Index);
         Console.ReadLine();
      }
   }
}
```

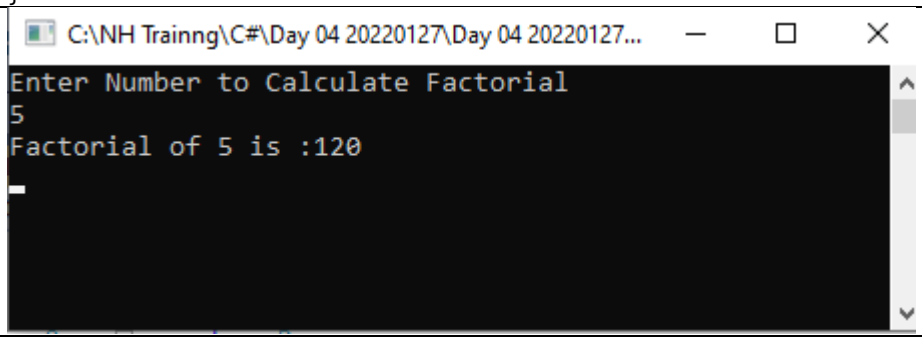
Output


C:\NH Trainng\C#\Day 04 20220127\Day 04 2022...
Enter Number to Display Maths Table
66
Maths Table of 66
66X1=66
66X2=132
66X3=198
66X4=264
66X5=330
66X6=396
66X7=462
66X8=528
66X9=594
66X10=660

| Q No | 2 |
|---|---|
| Program | Print Factorial of a given number |
| Code | |

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
namespace Day_04_20220127
{
    class Program
    {

        static void Main(string[] args)
        {
            //Setting up i.e., Declare & initiation Section
            int Num, Loop_Index, Factorial=1;

            // Accepting user input or colleting base data
            Console.WriteLine("Enter Number to Calculate Factorial");
            Num = Convert.ToInt32(Console.ReadLine());

            // Processing
            for (Loop_Index = 1; Loop_Index <= Num; Loop_Index++)
                Factorial = Factorial * Loop_Index;
            // Displaying output
            Console.WriteLine("Factorial of " + Num+" is :"+ Factorial);
            Console.ReadLine();
        }
    }
}
```

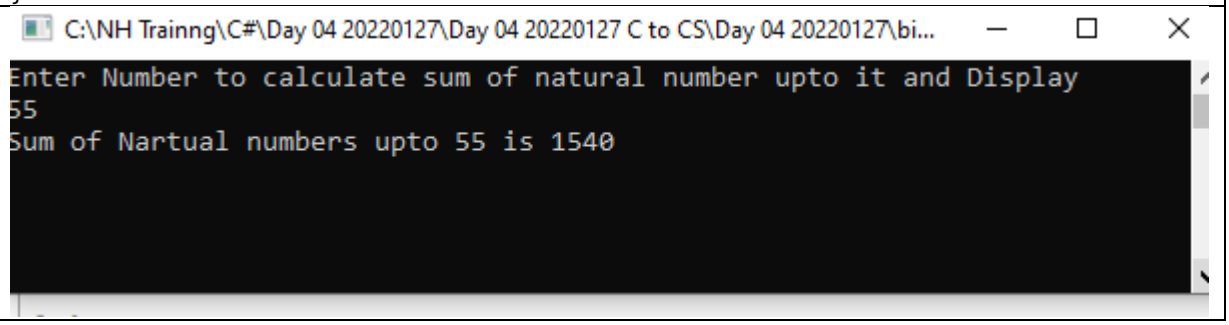
Output



| Q No | 3 |
|---|---|
| Program | Print Sum of first n natural numbers |
| Code | |

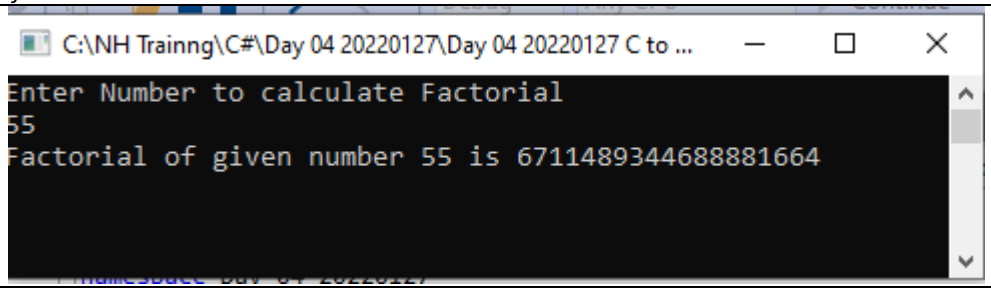
```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;

namespace Day_04_20220127
{
    class Program
    {

        static void Main(string[] args)
        {
            //Print Sum of first n natural numbers
            //Setting up i.e., Declare & initiation Section
            int Num, Loop_Index,Sum=0;

            // Accepting user input or colleting base data
            Console.WriteLine("Enter Number to calculate sum of natural number upto it and Display");
            Num = Convert.ToInt32(Console.ReadLine());

            // Processing & Displaying output
            for (Loop_Index = 1; Loop_Index <= Num; Loop_Index++)
                Sum = Sum + Loop_Index;

            // Processing & Displaying output
            Console.WriteLine("Sum of Nartual numbers upto "+Num+" is "+Sum);
            Console.ReadLine();

        }
    }
}
```

Output



| Q No | 4 |
|---|---|
| Program | Print Factorial using function |
| Code | |

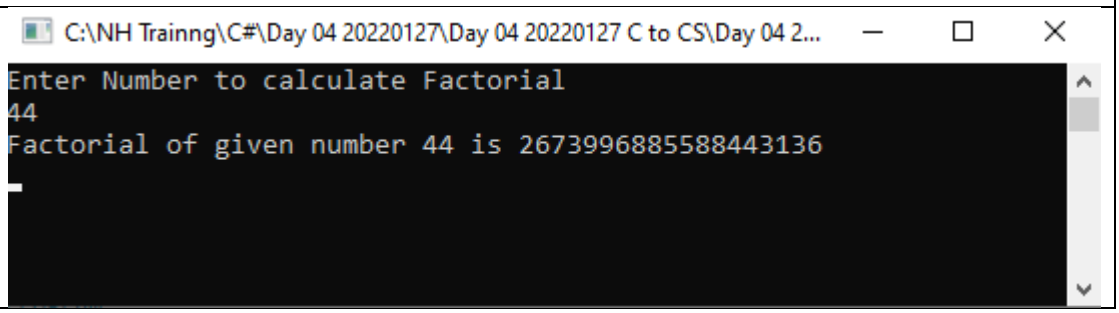
```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;

namespace Day_04_20220127
{
    class Program
    {
        public static long Factorial(int n)
        {
            //Setting up i.e., Declare & initiation Section
            int Loop_Index;
            long Factorial = 1;
            // Processing
            for (Loop_Index = 1; Loop_Index <= n; Loop_Index++)
                Factorial = Factorial * Loop_Index;
            // Return
            return Factorial;
        }
        static void Main(string[] args)
        {
            //Print Factorial using function
            //Setting up i.e., Declare & initiation Section
            int Num;

            // Accepting user input or colleting base data
            Console.WriteLine("Enter Number to calculate Factorial");
            Num = Convert.ToInt32(Console.ReadLine());

            // Processing i.e., calling function Displaying output
            Console.WriteLine("Factorial of given number " + Num+" is "+ Factorial(Num));
            Console.ReadLine();

        }
    }
}
```

| Output |  |
|---|---|

| Q No | 5 |
|---|---|
| Program | Print Factorial using recursion |
| Code | |

```
System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;

namespace Day_04_20220127
{
    class Program
    {
        public static long Factorial(long n)
        {
            // Processing & Return
            if (n == 1)
                return 1;
            else
                return n * Factorial(n - 1);
        }
        static void Main(string[] args)
        {
            //Print Factorial using recursion
            //Setting up i.e., Declare & initiation Section
            int Num;

            // Accepting user input or colleting base data
            Console.WriteLine("Enter Number to calculate Factorial");
            Num = Convert.ToInt32(Console.ReadLine());

            // Processing i.e., calling function Displaying output
            Console.WriteLine("Factorial of given number " + Num+" is "+
Factorial(Num));
            Console.ReadLine();

        }
    }
}
```

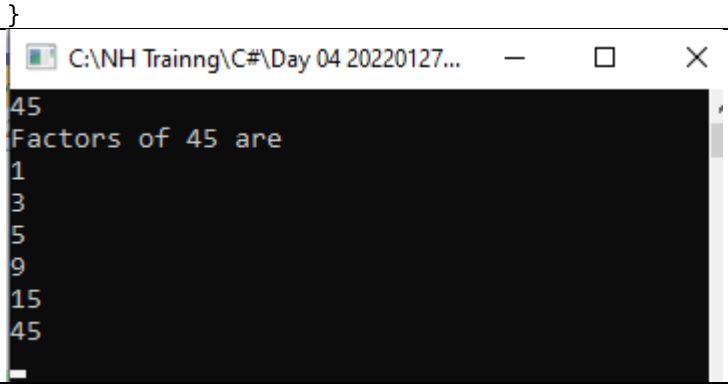
Output



| Q No | 6 |
|---|---|
| Program | Print factors of given number |
| Code | |

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;

namespace Day_04_20220127
{
    class Program
    {
                static void Main(string[] args)
        {
            //Print factors of given number
            //Setting up i.e., Declare & initiation Section
            int Num, Loop_Index;

            // Accepting user input or colleting base data
            Console.WriteLine("Enter Number to Display factors of it");
            Num = Convert.ToInt32(Console.ReadLine());

            // Processing & Displaying output
            Console.WriteLine("Factors of "+Num+" are ");
            for (Loop_Index=1;Loop_Index<=Num;Loop_Index++)
                if(Num%Loop_Index==0)
                    Console.WriteLine(Loop_Index);
            Console.ReadLine();

        }
    }
}
```

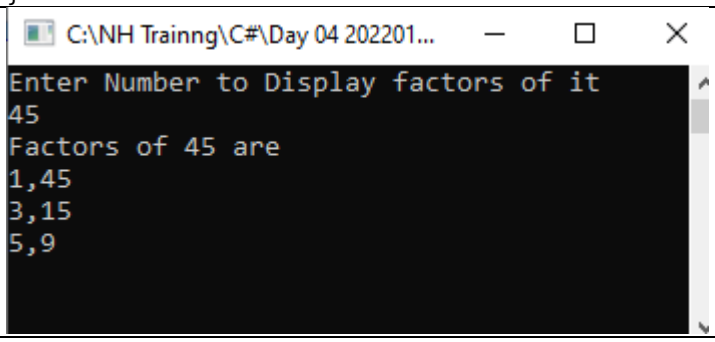
Output



| Q No | 6A |
|---|---|
| Program | Print factors of given number (result as pairs) |
| Code | |

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;

namespace Day_04_20220127
{
    class Program
    {
                static void Main(string[] args)
        {
            //Print factors of given number
            //Setting up i.e., Declare & initiation Section
            int Num, Loop_Index;

            // Accepting user input or colleting base data
            Console.WriteLine("Enter Number to Display factors of it");
            Num = Convert.ToInt32(Console.ReadLine());

            // Processing & Displaying output
            Console.WriteLine("Factors of "+Num+" are ");
            for (Loop_Index=1;Loop_Index<=Math.Sqrt(Num);Loop_Index++)
                if(Num%Loop_Index==0)
                    Console.WriteLine(Loop_Index+","+Num/Loop_Index);
            Console.ReadLine();

        }
    }
}
```

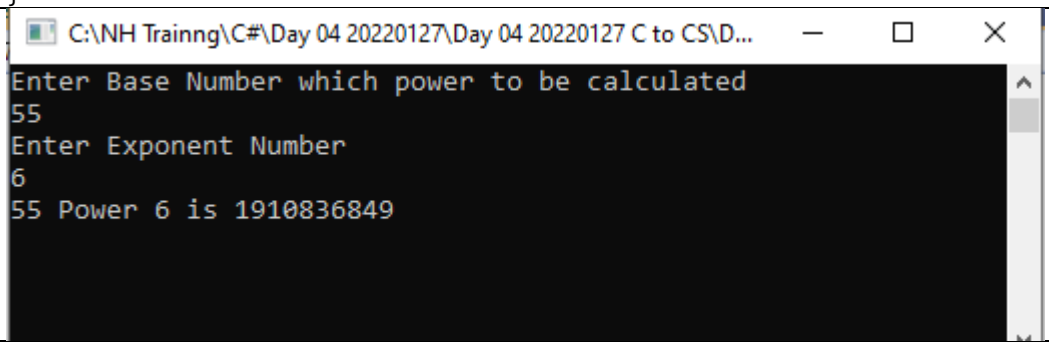
Output



| Q No | 7 |
|---|---|
| Program | Print power of given numbers a power b |
| Code | |

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;

namespace Day_04_20220127
{
    class Program
    {
                static void Main(string[] args)
        {
            //Print power of given numbers a power b
            //Setting up i.e., Declare & initiation Section
            int Base_Num, Expo_Num, Loop_Index, Power_Num=1;

            // Accepting user input or colleting base data
            Console.WriteLine("Enter Base Number which power to be
calculated");
            Base_Num = Convert.ToInt32(Console.ReadLine());
            Console.WriteLine("Enter Exponent Number");
            Expo_Num = Convert.ToInt32(Console.ReadLine());

            // Processing
            for (Loop_Index = 1; Loop_Index <= Expo_Num; Loop_Index++)
                Power_Num = Power_Num * Base_Num;

            // Displaying output
            Console.WriteLine(Base_Num+" Power "+Expo_Num+" is "+Power_Num);
            Console.ReadLine();

        }
    }
}
```

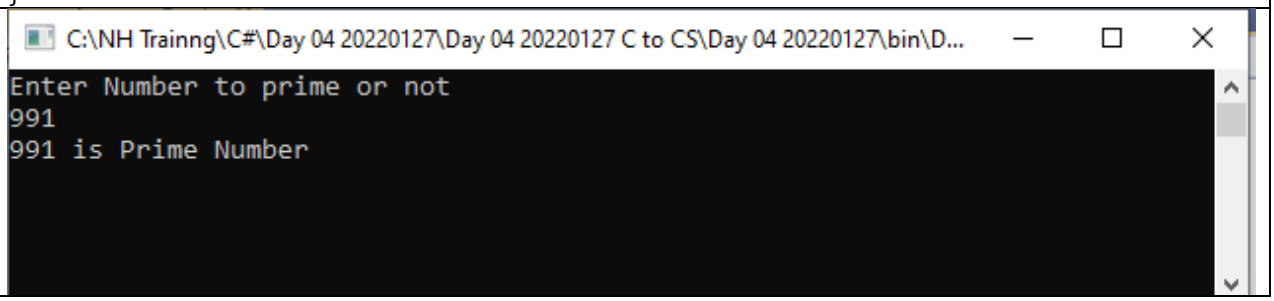
Output



| Q No | 8 |
|---|---|
| Program | Prime number or not |
| Code | |

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;

namespace Day_04_20220127
{
    class Program
    {
     static void Main(string[] args)
        {
            //Prime number or not
            //Setting up i.e., Declare & initiation Section
            int Num, Loop_Index;
            bool Prime=true;

            // Accepting user input or colleting base data
            Console.WriteLine("Enter Number to prime or not ");
            Num = Convert.ToInt32(Console.ReadLine());

            // Processing
            for (Loop_Index = 2; Loop_Index <= Math.Sqrt(Num); Loop_Index++)
                if(Num%Loop_Index==0)
                { Prime = false; break; }

            // Check & Displaying output
            if(Prime)
                Console.WriteLine(Num+" is Prime Number ");
             else
                Console.WriteLine(Num + " not a Prime Number ");
            Console.ReadLine();

        }
    }
}
```

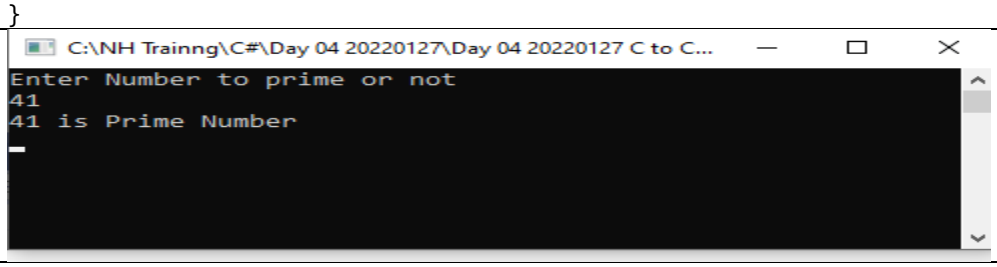
Output



| Q No | 9 |
|---|---|
| Program | Prime number check using function |
| Code | |

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
namespace Day_04_20220127
{
    class Program
    {
    public static bool Prime_Fun(int n)
        {
            //Setting up i.e., Declare & initiation Section
            int Loop_Index;

            //Processing & Return value
            for (Loop_Index = 2; Loop_Index <= Math.Sqrt(n); Loop_Index++)
                if (n % Loop_Index == 0) return false;
            return true;
        }
        static void Main(string[] args)
        {
            //Prime number check using function
            //Setting up i.e., Declare & initiation Section
            int Num;
            bool Prime;

            // Accepting user input or colleting base data
            Console.WriteLine("Enter Number to prime or not ");
            Num = Convert.ToInt32(Console.ReadLine());

            // calling function
            Prime = Prime_Fun(Num);

            // Check & Displaying output
            if(Prime)
                Console.WriteLine(Num+" is Prime Number ");
             else
                Console.WriteLine(Num + " not a Prime Number ");
            Console.ReadLine();

        }
    }
}
```

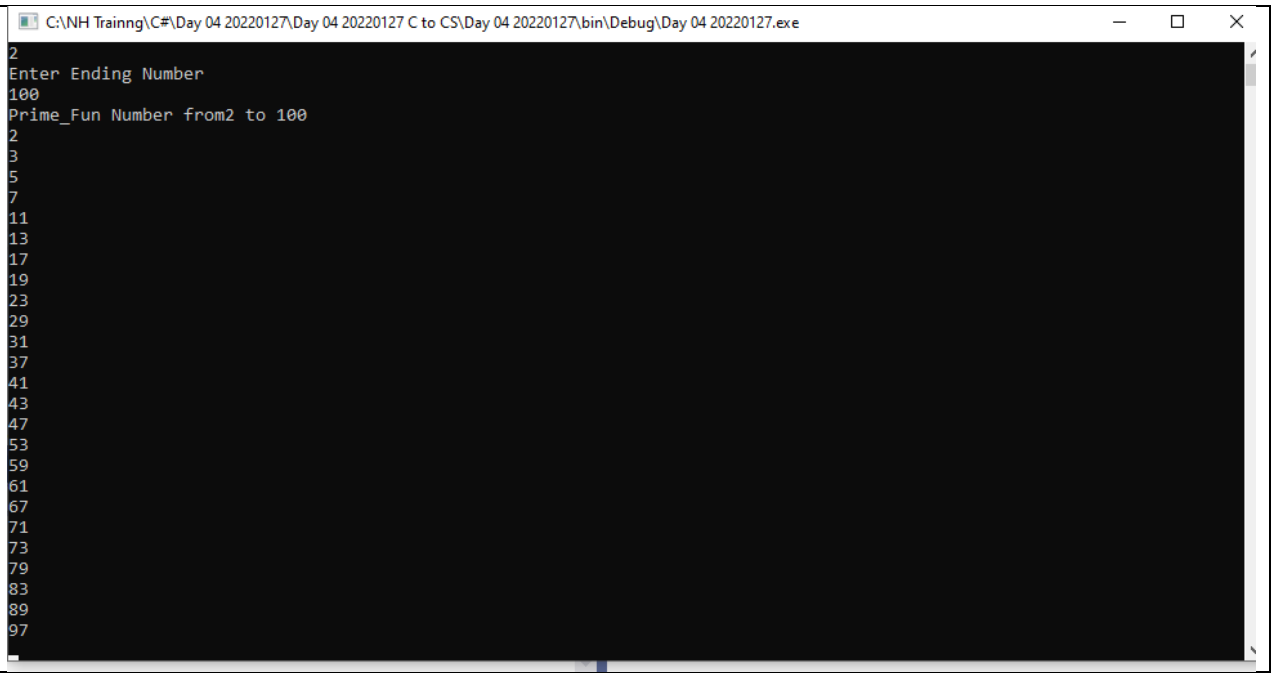
Output



| Q No | 10 |
| --- | --- |
| Program | Prime numbers in range |
| Code | |

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;

namespace Day_04_20220127
{
    class Program
    {
    public static bool Prime_Fun(int n)
        {
            //Setting up i.e., Declare & initiation Section
            int Loop_Index;

            //Processing & Return value
            for (Loop_Index = 2; Loop_Index <= Math.Sqrt(n); Loop_Index++)
                if (n % Loop_Index == 0) return false;
            return true;
        }
        static void Main(string[] args)
        {
            //Prime numbers in range
            //Setting up i.e., Declare & initiation Section
            int From_Num,To_Num,Loop_index;

            // Accepting user input or colleting base data
            Console.WriteLine("To print prime number in Range. Enter starting Number ");
            From_Num = Convert.ToInt32(Console.ReadLine());
            Console.WriteLine("Enter Ending Number ");
            To_Num = Convert.ToInt32(Console.ReadLine());

            // Calling function i.e., Check & Displaying output
            Console.WriteLine("Prime_Fun Number from"+From_Num+" to "+To_Num);
            for(Loop_index=From_Num;Loop_index<=To_Num;Loop_index++)
                if (Prime_Fun(Loop_index))
                    Console.WriteLine(Loop_index);
            Console.ReadLine();

        }
    }
}
```

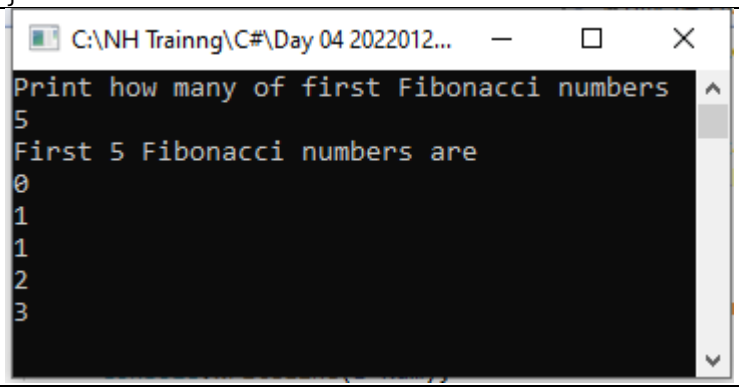
Output


C:\NH Trainng\C#\Day 04 20220127\Day 04 20220127 C to CS\Day 04 20220127\bin\Debug\Day 04 20220127.exe
2
Enter Ending Number
100
Prime_Fun Number from2 to 100
2
3
5
7
11
13
17
19
23
29
31
37
41
43
47
53
59
61
67
71
73
79
83
89
97

| Q No | 11 |
| --- | --- |
| Program | Fibonacci series |
| Code | |

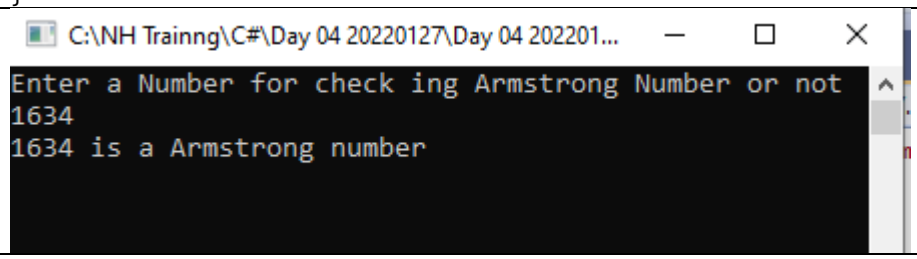
```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;

namespace Day_04_20220127
{
    class Program
    {
      static void Main(string[] args)
        {
            //Fibonacci series
            //Setting up i.e., Declare & initiation Section
            int Num,F_Num=0,S_Num=1,Loop_index,Temp_Num;

            // Accepting user input or colleting base data
            Console.WriteLine("Print how many of first Fibonacci numbers");
            Num = Convert.ToInt32(Console.ReadLine());

            // Procesing & Displaying output
            Console.WriteLine("First "+Num+" Fibonacci numbers are ");
            Console.WriteLine(F_Num);
            Console.WriteLine(S_Num);
            for (Loop_index = 2; Loop_index < Num; Loop_index++)
            {
                Console.WriteLine(F_Num + S_Num);
                Temp_Num = F_Num;
                F_Num = S_Num;
                S_Num = F_Num + Temp_Num;
            }

            Console.ReadLine();

        }
    }
}
```

Output



| Q No | 12 |
|---|---|
| Program | Armstrong number |
| Code | |

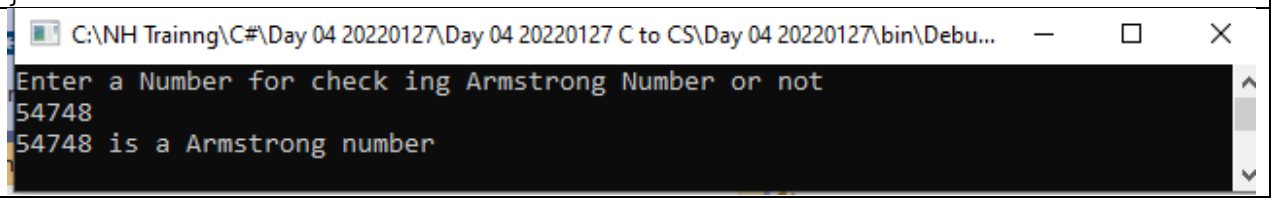
```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
namespace Day_04_20220127
{
    class Program
    {
      static void Main(string[] args)
        {
            //Armstrong number -Armstrong number definition is the number in any given number base,
            //which forms the total of the same number, when each of its digits is raised to the
            // power of the number of digits in the number.
            // 1, 2, 3, 4, 5, 6, 7, 8, 9, 153, 370, 371, 407, 1634, 8208, 9474, 54748
            //Setting up i.e., Declare & initiation Section
            int Num,Test_Num,Proc_Num, Rem_Dig,Loop_index,Num_Index,Dig_Pow;
            // Accepting user input or colleting base data
            Console.WriteLine("Enter a Number for check ing Armstrong Number or not ");
            Num = Convert.ToInt32(Console.ReadLine());
            // Procesing
            // find number of digits in given number
            for (Num_Index = 0, Proc_Num = Num; Proc_Num > 0; Num_Index++, Proc_Num /= 10) ;
            // Suming each digit to power of number of digits
            Test_Num = 0;
            Proc_Num = Num;
            do
            {
                Rem_Dig = Proc_Num % 10;
                Dig_Pow = 1;
                for (Loop_index = 0; Loop_index < Num_Index; Loop_index++)
                    Dig_Pow = Dig_Pow*Rem_Dig;
                Test_Num = Test_Num + Dig_Pow;
                Proc_Num /= 10;
            } while (Proc_Num > 0);

            // Check & Displaying output
            if(Test_Num==Num)
                Console.WriteLine(Num+ " is a Armstrong number");
             else
                Console.WriteLine(Num + " is not a Armstrong number");
            Console.ReadLine();

        }
    }
}
```

| Output |  |
|---|---|

| Q No | 13 |
|---|---|
| Program | Armstrong number using function |
| Code | |

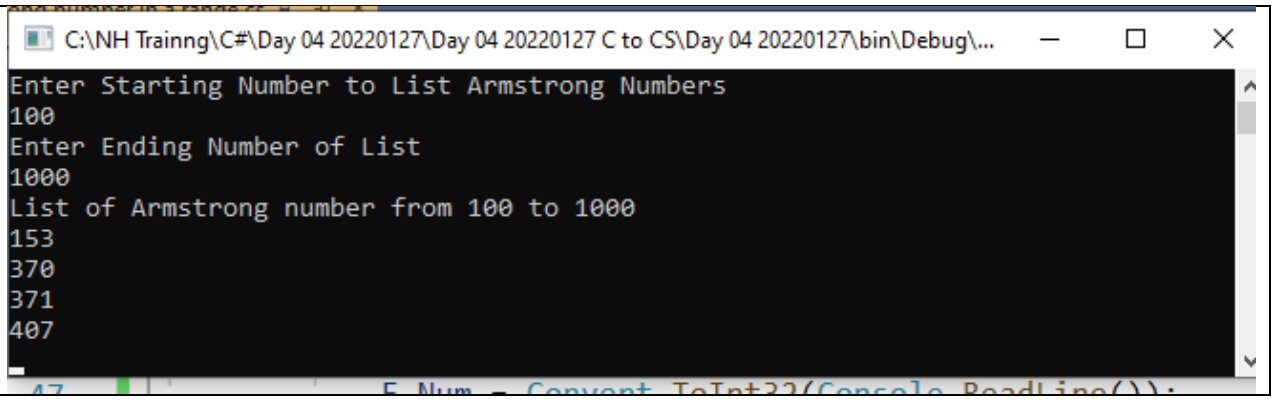
```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
namespace Day_04_20220127
{
class Program
    {
        public static bool Armstrong(int Num1)
        {
            int Test_Num, Proc_Num, Rem_Dig, Loop_index, Num_Index, Dig_Pow;
            // Procesing
            // find number of digits in given number
            for (Num_Index = 0, Proc_Num = Num1; Proc_Num > 0; Num_Index++, Proc_Num /= 10) ;
            // Suming each digit to power of number of digits
            Test_Num = 0;
            Proc_Num = Num1;
            do
            {
                Rem_Dig = Proc_Num % 10;
                Dig_Pow = 1;
                for (Loop_index = 0; Loop_index < Num_Index; Loop_index++)
                    Dig_Pow = Dig_Pow * Rem_Dig;
                Test_Num = Test_Num + Dig_Pow;
                Proc_Num /= 10;
            } while (Proc_Num > 0);
            if (Test_Num == Num1) return true;
            else return false;
        }
        static void Main(string[] args)
        {
            //Setting up i.e., Declare & initiation Section
            int Num;
            // Accepting user input or colleting base data
            Console.WriteLine("Enter a Number for check ing Armstrong Number or not ");
            Num = Convert.ToInt32(Console.ReadLine());
           // Check & Displaying output
            if(Armstrong(Num))
                Console.WriteLine(Num+ " is a Armstrong number");
             else
                Console.WriteLine(Num + " is not a Armstrong number");
            Console.ReadLine();
        }
    }
}
```

Output



| Q No | 14 |
|---|---|
| Program | Armstrong number in a range |
| Code | |

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;
namespace Day_04_20220127
{
class Program
    {
        public static bool Armstrong(int Num1)
        {
            int Test_Num, Proc_Num, Rem_Dig, Loop_index, Num_Index, Dig_Pow;
            // Procesing
            // find number of digits in given number
            for (Num_Index = 0, Proc_Num = Num1; Proc_Num > 0; Num_Index++, Proc_Num /= 10) ;
            // Suming each digit to power of number of digits
            Test_Num = 0;
            Proc_Num = Num1;
            do
            {
                Rem_Dig = Proc_Num % 10;
                Dig_Pow = 1;
                for (Loop_index = 0; Loop_index < Num_Index; Loop_index++)
                    Dig_Pow = Dig_Pow * Rem_Dig;
                Test_Num = Test_Num + Dig_Pow;
                Proc_Num /= 10;
            } while (Proc_Num > 0);

            // Check & Displaying output
            if (Test_Num == Num1) return true;
            else return false;
        }
        static void Main(string[] args)
        {
            //Setting up i.e., Declare & initiation Section
            int F_Num,T_Num,Loop_Index;

            // Accepting user input or colleting base data
            Console.WriteLine("Enter Starting Number to List Armstrong Numbers ");
            F_Num = Convert.ToInt32(Console.ReadLine());
            Console.WriteLine("Enter Ending Number of List ");
            T_Num = Convert.ToInt32(Console.ReadLine());

            // Check & Displaying output
            Console.WriteLine("List of Armstrong number from " + F_Num + " to " + T_Num);
            for(Loop_Index=F_Num;Loop_Index<=T_Num;Loop_Index++)
            if (Armstrong(Loop_Index))
                Console.WriteLine(Loop_Index);
            Console.ReadLine();
        }
    }
}
```

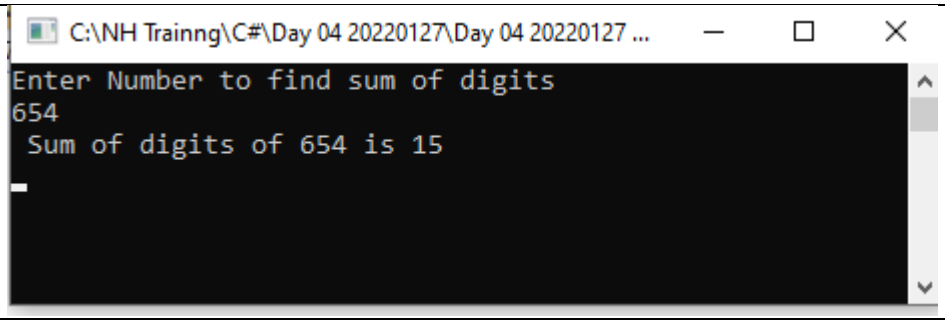
| | |
|---|---|
| Output |  |

C:\NH Trainng\C#\Day 04 20220127\Day 04 20220127 C to CS\Day 04 20220127\bin\Debug\...
Enter Starting Number to List Armstrong Numbers
100
Enter Ending Number of List
1000
List of Armstrong number from 100 to 1000
153
370
371
407

| Q No | 15 |
|---|---|
| Program | Sum of digits of given number |
| Code | |

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;

namespace Day_04_20220127
{

class Program
    {

        static void Main(string[] args)
        {
            //Sum of digits of given number

            //Setting up i.e., Declare & initiation Section
            int Num,Sum_Dig,Temp_Num;

            // Accepting user input or colleting base data
            Console.WriteLine("Enter Number to find sum of digits");
            Num = Convert.ToInt32(Console.ReadLine());

            // Procssing
            Temp_Num = Num;
            Sum_Dig = 0;
            while (Temp_Num > 0)
            {
                Sum_Dig += Temp_Num % 10;
                Temp_Num /= 10;
            }
            Console.WriteLine(" Sum of digits of "+Num+" is "+Sum_Dig);
            Console.ReadLine();
        }
    }
}
```

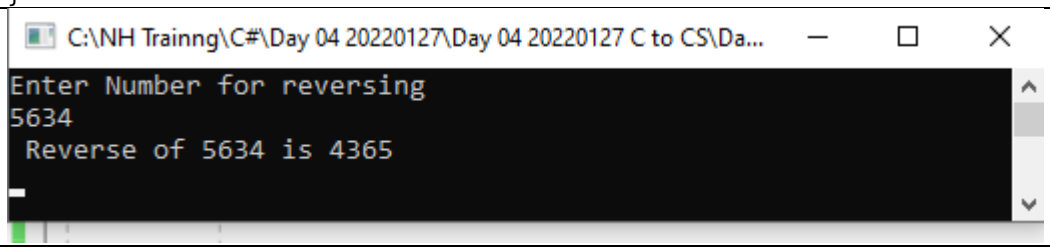
Output



| Q No | 16 |
| --- | --- |
| Program | Reverse of given number |
| Code | |

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;

namespace Day_04_20220127
{

class Program
    {

        static void Main(string[] args)
        {
            //Reverse of given number

            //Setting up i.e., Declare & initiation Section
            int Num,R_Num,Temp_Num;

            // Accepting user input or colleting base data
            Console.WriteLine("Enter Number for reversing ");
            Num = Convert.ToInt32(Console.ReadLine());

            // Procssing
            Temp_Num = Num;
            R_Num = 0;
            while (Temp_Num > 0)
            {
                R_Num=R_Num*10+Temp_Num % 10;
                Temp_Num /= 10;
            }
            Console.WriteLine(" Reverse of "+Num+" is "+R_Num);
            Console.ReadLine();
        }
    }
}
```

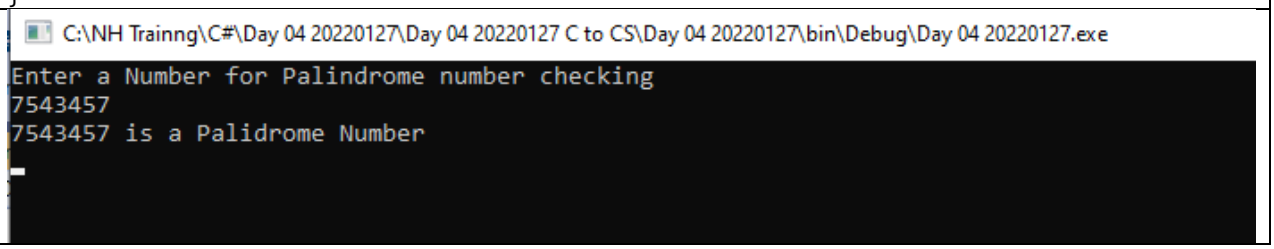
Output



| Q No | 17 |
|---|---|
| Program | Palindrome number |
| Code | |

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;

namespace Day_04_20220127
{

class Program
    {

        static void Main(string[] args)
        {
            //Palindrome number

            //Setting up i.e., Declare & initiation Section
            int Num,R_Num,Temp_Num;

            // Accepting user input or colleting base data
            Console.WriteLine("Enter a Number for Palindrome number checking ");
            Num = Convert.ToInt32(Console.ReadLine());

            // Procssing
            Temp_Num = Num;
            R_Num = 0;
            while (Temp_Num > 0)
            {
                R_Num=R_Num*10+Temp_Num % 10;
                Temp_Num /= 10;
            }

            // Display Output
            if (Num == R_Num)
                Console.WriteLine(Num + " is a Palidrome Number");
             else
                Console.WriteLine(Num + "is not a Palidrome Number");
            Console.ReadLine();
        }
    }
}
```

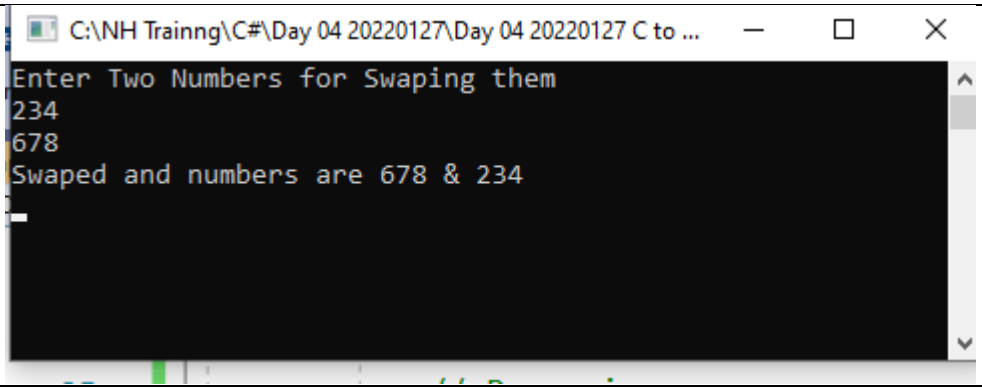
Output



| Q No | 18 |
| --- | --- |
| Program | Swap numbers using third variable |
| Code | |

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;

namespace Day_04_20220127
{

class Program
    {

        static void Main(string[] args)
        {

            //Setting up i.e., Declare & initiation Section
            int Num1,Num2,Temp_Num;

            // Accepting user input or colleting base data
            Console.WriteLine("Enter Two Numbers for Swaping them  ");
            Num1 = Convert.ToInt32(Console.ReadLine());
            Num2 = Convert.ToInt32(Console.ReadLine());

            // Procssing
            Temp_Num = Num1;
            Num1 = Num2;
            Num2 = Temp_Num;

            // Display Output
            Console.WriteLine(“Swaped numbers are "+Num1+" & "+Num2);
            Console.ReadLine();
        }
    }
}
```

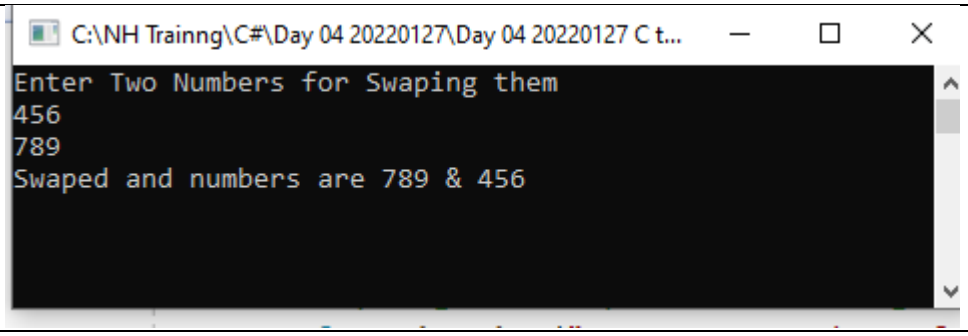
Output



| Q No | 19 |
| --- | --- |
| Program | Swap numbers without using third variable |
| Code | |

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;

namespace Day_04_20220127
{

class Program
    {

        static void Main(string[] args)
        {
            //Swap numbers without using third variable

            //Setting up i.e., Declare & initiation Section
            int Num1,Num2;

            // Accepting user input or colleting base data
            Console.WriteLine("Enter Two Numbers for Swaping them  ");
            Num1 = Convert.ToInt32(Console.ReadLine());
            Num2 = Convert.ToInt32(Console.ReadLine());

            // Procssing
            Num1 = Num1+Num2;
            Num2 = Num1 - Num2;
            Num1 = Num1 - Num2;

            // Display Output
            Console.WriteLine("Swaped and numbers are "+Num1+" & "+Num2);
            Console.ReadLine();
        }
    }
}
```

Output



| Q No | 20 |
| --- | --- |
| Program | Print stars(*) in pattern (right angle triangle pattern) |
| Code | |

```
using System;
using System.Collections.Generic;
using System.Linq;
using System.Text;
using System.Threading.Tasks;

namespace Day_04_20220127
{

class Program
    {

        static void Main(string[] args)
        {
            //Print stars(*) in pattern (right angle triangle pattern)

            //Setting up i.e., Declare & initiation Section
            int Num_Rows, Loop_Index1, Loop_Index2;

            // Accepting user input or colleting base data
            Console.WriteLine("Enter Number of Rows ");
            Num_Rows = Convert.ToInt32(Console.ReadLine());

            // Procssing & Display Output

            for (Loop_Index1 = 0; Loop_Index1 < Num_Rows; Loop_Index1++)
            {
                for (Loop_Index2 = 0; Loop_Index2 <= Loop_Index1; Loop_Index2++)
                    Console.Write("* ");
                Console.WriteLine("");
            }

            Console.ReadLine();
        }
    }
}
```

Output