DAY 13 ASSIGNMENTS
DATE:09/02/2022
DAY : WEDNESDAY

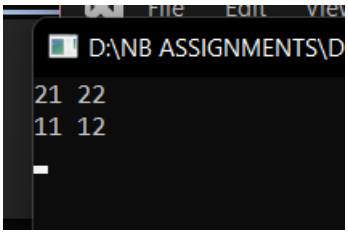
M. SAI HARICHANDANA

1.Declare a d dimensional array of size (2,2)and initialize using indexes print the values using nested for loop ?

Code :

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

namespace _2_dimensionalarray
{
    internal class Program
      // Author :M.Sai Harichandana
      //Purpose :2 dimensional array of size
    {
        static void Main(string[] args)
        {
            int[,] data = new int[2, 2];
            data[0, 0] = 21;
            data[1, 0] = 11;
            data[0, 1] = 22;
            data[1, 1] = 12;
            {
                for (int i = 0; i < 2; i++)
                {
                    for (int j = 0; j < 2; j++)
                    {
                        Console.Write(data[i, j]+ " ");



                    }
                    Console.WriteLine();


                }
                Console.ReadLine();


            }
```

OUTPUT :



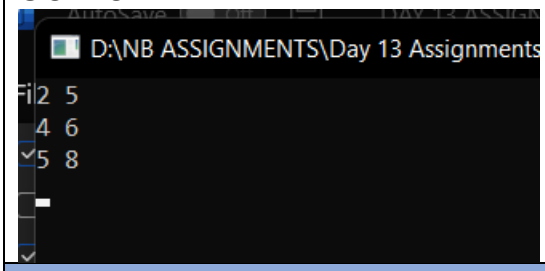
2.Declare a 2 dimensional array of size (3,2) and initialize in the same Line while declaring and print the values using nested for loop ?

Code:

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

namespace _2_dimensionalarray
{
    internal class Program
    {
        // Author :m.sai harichandana
        // purpose : declare a 2 dimensional  array
        static void Main(string[] args)
        {
            int[,] data = new int[,] { { 2, 5 } ,{ 4, 6 }, { 5, 8 } };


            {
                for (int i = 0; i < 3; i++)
                {
                    for (int j = 0; j < 2; j++)
                    {
                        Console.Write(data[i, j]+ " ");



                    }
                    Console.WriteLine();


                }
                Console.ReadLine();


            }
```

```
        }
    }
}
```

OUTPUT :



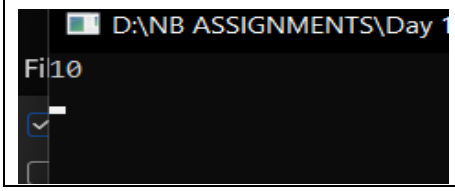
3.Declare a 2 dimensional array of size (3,3) and print trace of the array?

Code :

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

namespace _2_dimensionalarray
{
    internal class Program
    {
            // Author:m.sai harichandana
             // purpose :Declare a 2D array of size
        static void Main(string[] args)
        {
            int[,] data = new int[,] { { 2, 5 ,3} ,{ 4, 6 ,4}, { 5, 8 ,2} };
            int sum = 0;



            {
                for (int i = 0; i < 3; i++)
                {
                    for (int j = 0; j < 3; j++)
                    {

                        if (i == j)
                            sum = sum + data[i, j];


                    }


                }
                Console.WriteLine(sum);
                Console.ReadLine();


            }




        }
```

```
    }
}
```

OUTPUT :

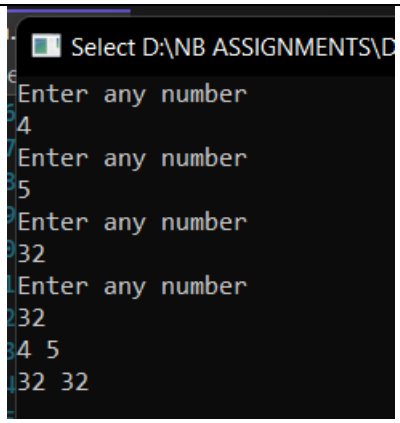


4.Declare a 2 dimensional array of size (2,2)and read values user and print the array values ?

CODE :

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

namespace _2_dimensionalarray
{
    internal class Program
    {
        static void Main(string[] args)
        {
            int[,] data = new int[2, 2];
            //Read from user
            for (int i = 0; i < 2; i++)
            {
                for (int j = 0; j < 2; j++)
                {
                    Console.WriteLine("Enter any number");
                    data[i, j] = Convert.ToInt32(Console.ReadLine());
                }

            }
            //print the values
            for (int i = 0; i < 2; i++)
            {
                for (int j = 0; j < 2; j++)
                {

                    Console.Write(data[i, j] + " ");
                }

                Console.Write("\n");
            }
            Console.ReadLine();
            }
}
}
```

OUTPUT :



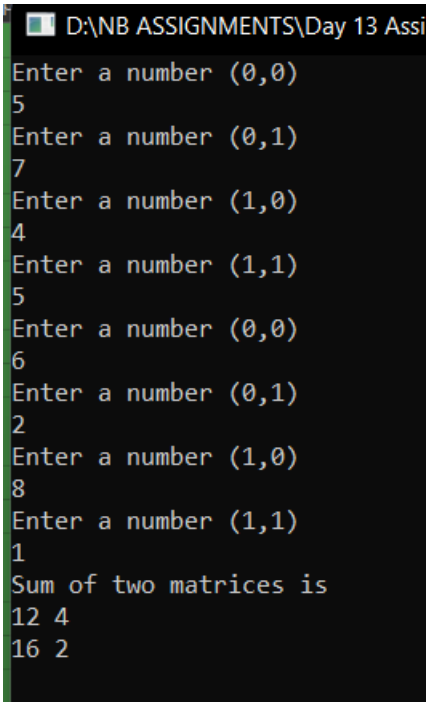
5.Declare 2 dimensional arrays of size (2,2)and read values user and print the product of the 2 matrices ?

CODE :

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

namespace Consoleapp_4
{
    internal class Program
    {
        static void Main(string[] args)
        {
            int[,] data1 = new int[2, 2];
            int[,] data2 = new int[2, 2];
            int[ ,] sum = new int[2, 2];
            //Read data from user for first matrix

            for (int i = 0; i < 2; i++)
            {
                for (int j = 0; j < 2; j++)
                {
                    Console.WriteLine($"Enter a number ({i},{j})");
                    data1[i, j] = Convert.ToInt32(Console.ReadLine());
                }
            }
            for (int i = 0; i < 2; i++)
            {
                for (int j = 0; j < 2; j++)
                {
                    Console.WriteLine($"Enter a number ({i},{j}) ");
                    data2[i, j] = Convert.ToInt32(Console.ReadLine());
                }
            }
            Console.WriteLine("Sum of two matrices is ");
            for (int i = 0; i < 2; i++)
            {
```

```
                for (int j = 0; j < 2; j++)
                {
                    sum[i,j] = data2[i, j] + data2[i, j];
                    Console.Write(sum[i, j] + " ");
                }
                Console.WriteLine();
            }
            Console.ReadLine();
        }



    }
}
```

OUTPUT :



7.what is jagged array and what is the benefits of jagged array ?

JAGGED ARRAY :

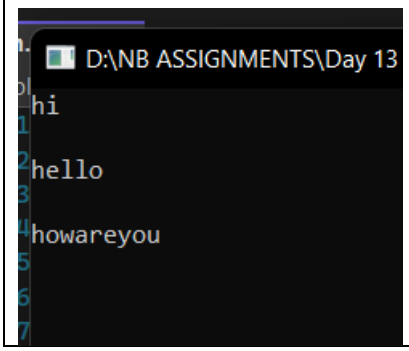
- Jagged array is not all rows are same
- Each rows of arrays in different size
- It is save some memory

8.Write a c# program to declare a jagged array and print values ?

CODE:

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

namespace ConsoleApp1
{
    internal class Program
    {
        static void Main(string[] args)
        {
            char[][] ch = new char[3][];

            ch[0] = new char[] { 'h', 'i' };

            ch[1] = new char[] { 'h', 'e', 'l', 'l', 'o' };

            ch[2] = new char[] { 'h', 'o', 'w', 'a', 'r', 'e', 'y', 'o', 'u' };

            for (int i = 0; i < 3; i++)

            {

                for (int j = 0; j < ch[i].Length; j++)

                {

                    Console.Write(ch[i][j]);

                }

                Console.WriteLine();
                Console.ReadLine();

            }
        }
    }
}
```

OUTPUT :



9.what is recursion ?

- A function which calls itself repeatedly until a specific condition is satisfied

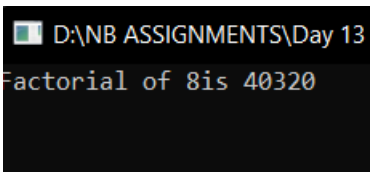
10.write a c # program illustrate usage of recursion what are benefits of recursion ?

CODE :

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

namespace ConsoleApp2
{
    internal class Program
    {
        public static int Factorial(int n)
        {
            if (n == 0)
                return 1;
            else
                return n * Factorial(n - 1);
        }
        public static void print(int n)
        {
            Console.WriteLine("Factorial of {0}is {1}",n,Factorial(n));
        }
        static void Main(string[] args)
        {
            int n = 8;
                print(n);
            Console.WriteLine();
            Console.ReadLine();
        }
```

```
        }
    }
```

OUTPUT :



11.Write a c# program to illustrate usage of stack<> and write couple of points about stack ?

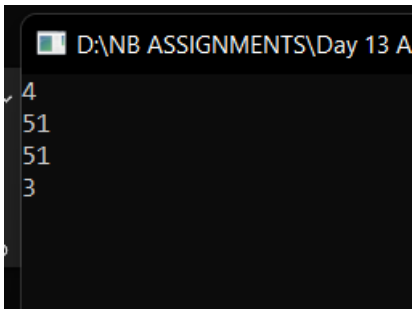
STACK :

- Last in first out (LIFO)
- Pop will remove the element
- Enque will not remove the element

CODE:

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

namespace ConsoleApp2
{
    class program
    {
        static void Main(string[] args)
        {
            Stack<int> data = new Stack<int>();
            data.Push(5);
            data.Push(14);
            data.Push(15);
            data.Push(51);
            Console.WriteLine(data.Count);
            Console.WriteLine(data.Peek());
            Console.WriteLine(data.Pop());
            Console.WriteLine(data.Count());
            Console.ReadLine();
        }
    }
}
```

OUTPUT :



12.Write the c# program to illustrate usage of queue<>and write couple of points about queue ?

- QUEUE :
- QUEUE is first in first out (FIFO)
- Deque is remove the element

CODE :

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

namespace ConsoleApp3
{
    class program
    {
        static void Main(string[] args)
        {
           Queue<int> data = new Queue<int>();
            data.Enqueue(5);
            data.Enqueue(14);
            data.Enqueue(16);
            data.Enqueue(51);
            Console.WriteLine(data.Count);
            Console.WriteLine(data.Peek());
            Console.WriteLine(data.Dequeue());
            Console.WriteLine(data.Count());
            Console.ReadLine();
        }
    }
```

```
}
```

OUTPUT :