Day 13 Assignment
By
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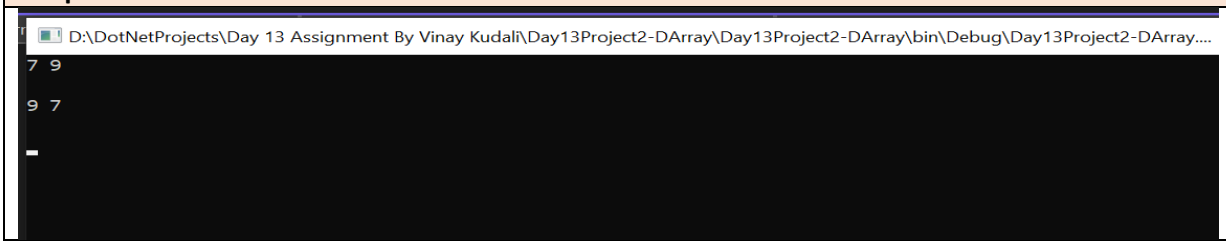
nations benefits

1. Declare a 2 dimentional array of size (2,2) and initialize using indexes and 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 Day13Project2_DArray
{
   internal class Program
   {
      //Author: Vinay Kudali
      //Purpose: Creating 2-D Array
      static void Main(string[] args)
      {
         int[,] data = new int[2,2];
         data[0, 0] = 7;
         data[0, 1] = 9;
         data[1, 0] = 9;
         data[1, 1] = 7;

         for(int i=0;i<2;i++)
         {
            for (int j = 0; j < 2; j++)
            {
               Console.Write(data[i,j] +" ");
            }
            Console.WriteLine("\n");
         }
         Console.ReadLine();

      }
   }
}
```

Output:

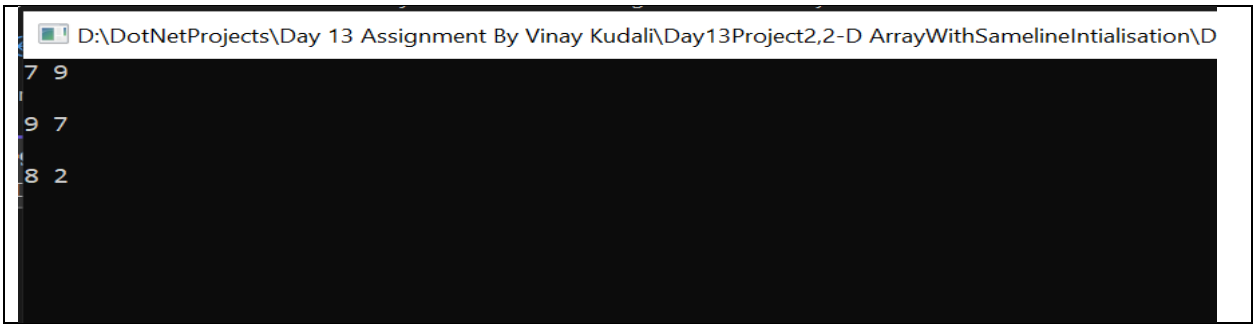


2. Declare a 2-D array of size (3,2) and initialize in the same line while declaring and print the values using nested for loop

Code:

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

namespace Day13Project2_DArray
{
   internal class Program
   {
      //Author: Vinay Kudali
      //Purpose: Creating 2-D Array and initializing in same Line
      static void Main(string[] args)
      {
         int[,] data = new int[,] { { 7, 9 }, { 9, 7 }, { 8, 2 } };


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

      }
   }
}
```

Output:

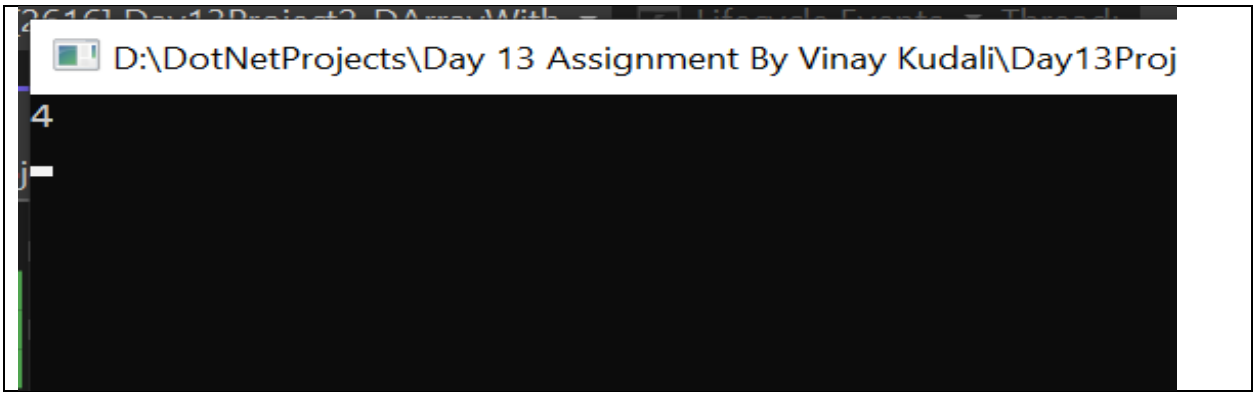


3. Declare a 2-D array of size (3,3) and print trace of the array

Code:

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

namespace Day13Project2_DArrayWithTrace
{
   internal class Program
   {
      //Author: Vinay Kudali
      //Purpose Creating 2-D Array With sum of trace (Diagnoal)
      static void Main(string[] args)
      {
         int sum = 0;
         int[,] data = new int[,] { { 1, 2, 3 }, { 3, 2, 1 }, { 2, 3, 1 } };
         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-D array of size (2,2) and read values from user and print the array values.

Code:

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

namespace Day13Project42_DArrayWithreadDataFromUser
{
   internal class Program
   {
      //Author: Vinay Kudali
      //Purpose: 2-D Array using Read Data And Print Data
      static void Main(string[] args)
      {
         int[,] data = new int[2,2];
         //Read Data From User
         for (int i = 0; i < 2; i++)
         {
            for (int j = 0; j < 2; j++)
            {
               Console.WriteLine("Enter Array Value at: " + data [i,j]);
               data[i, j] = Convert.ToInt32(Console.ReadLine());
            }
         }
         //Print data From User

         for (int i = 0; i < 2; i++)
         {
            for (int j = 0; j < 2; j++)
            {
```

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

        }
        Console.ReadLine();



    }
  }
}
```

Output:

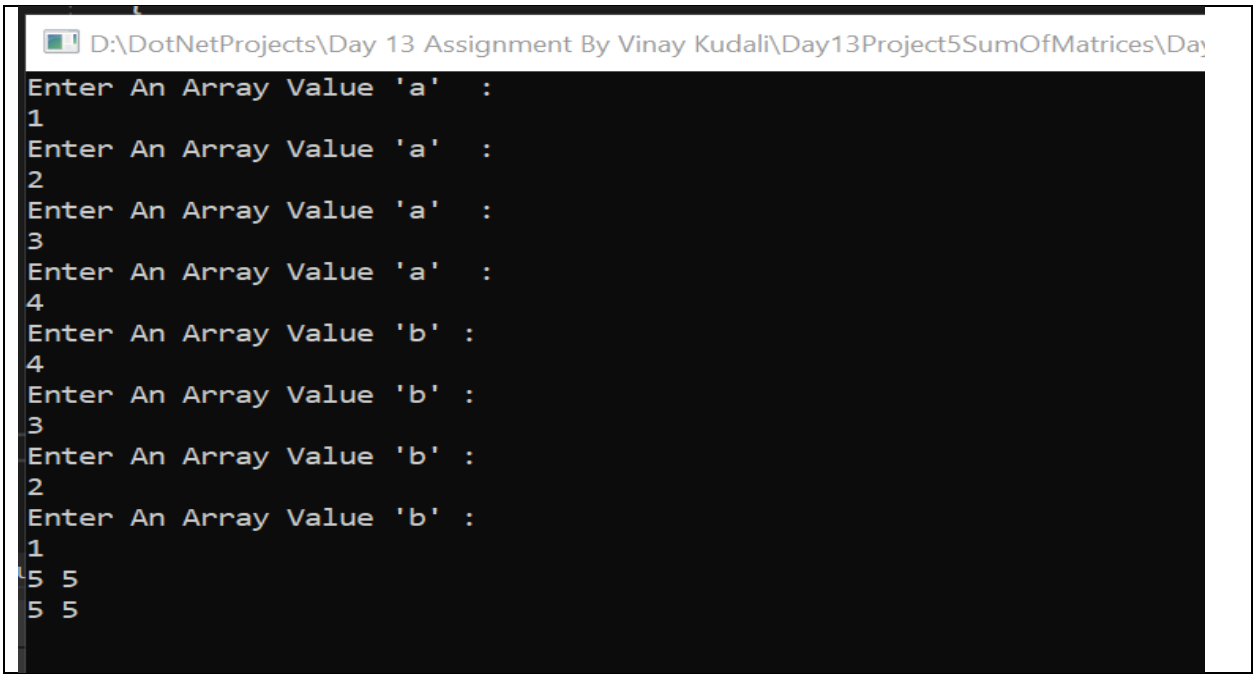
5. Declare TWO 2-D arrays of size (2,2) and read values from user and print the sum of the two matrices.

Code:

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

namespace Day13Project5SumOfMatrices
{
   internal class Program
   {
      //Author: Vinay Kudali
      //Purpose Sum of two Matrices
      static void Main(string[] args)
```

```
    {
        int[,] x = new int[2, 2];
        int[,] y = new int[2, 2];
        int[,] sum = new int[2,2];

        //Read Data From User for x matrices
        for (int i = 0; i < 2; i++)
        {
            for (int j = 0; j < 2; j++)
            {
                Console.WriteLine("Enter An Array Value 'a'  :");
                x[i, j] = Convert.ToInt32(Console.ReadLine());
            }
        }
        //read Data from User for y matrices
        for (int i = 0; i < 2; i++)
        {
            for (int j = 0; j < 2; j++)
            {
                Console.WriteLine("Enter An Array Value 'b' :");
                y[i, j] = Convert.ToInt32(Console.ReadLine());

            }
        }

        //Additon Of matrices
        for (int i = 0; i < 2; i++)
        {
            for (int j = 0; j < 2; j++)
            {
                sum[i, j] = x[i, j] + y[i, j];


                Console.Write(sum[i, j] + " ");
            }
            Console.WriteLine();
        }
        Console.ReadLine();
    }
  }
}
```

Output:



7. What is a jagged array. What is the benefit of jagged array

Jagged Array:

Jagged Array is the Array in C# which will have different sizes for Different rows and columns.

Benefits of jagged Array:

- ❖ Array Memory will not be wasted
- ❖ We can increase size dynamically.

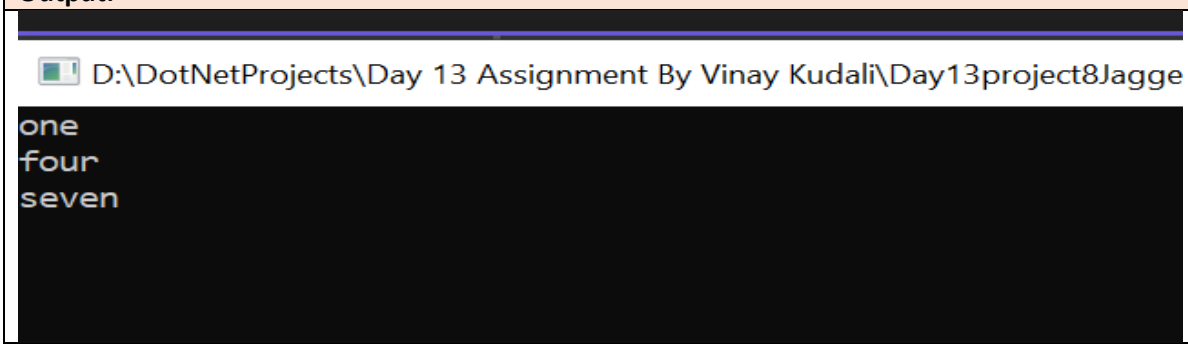
8. WACP to declare a jagged array and print values

Code:

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

namespace Day13project8JaggedArray
{
   internal class Program
   {
```

```
    //Author : Vinay Kudali
    //Purpose: jagged array with printing values
    static void Main(string[] args)
    {
        char[][] names = new char[3][];
        names[0] = new char[] { 'o', 'n', 'e' };
        names[1] = new char[] { 'f', 'o', 'u', 'r' };
        names[2] = new char[] { 's', 'e', 'v', 'e', 'n' };

        for(int i=0; i<3; i++)
        {
            for(int j = 0; j<names[i].Length; j++)
            {
                Console.Write(names[i][j]);
            }
            Console.WriteLine();
        }
        Console.ReadLine();
    }
  }
}
```

Output:



9. What is Recursion

Recursion is a function calling itself repeatedly until specific condition satisfies.

10. WACP to illustrate usage of Recursion. What are the benefits of recursion

Code:

```
using System;
using System.Collections.Generic;
using System.Linq;
```

```
using System.Text;
using System.Threading.Tasks;

namespace Day13Project10Recursion
{
   internal class Program
   {
      //Author: Vinay Kudali
      //Purpose: Factorial using Recursion
      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 {0} is {1}", n,Factorial(n));
      }
      static void Main(string[]args)
      {
         int n = 7;
         Print(n);
         Console.ReadLine();
      }

   }
}
```

Output:

11. WACP to illustrate usage of Stack<> Write couple of points about Stack

Code:

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

```
namespace Day13project7
{
   class Program
   {
      static void Main(string[] args)
      {

          //Author: Vinay Kudali
          //Purpose:performing operation by using stack


         Stack<int> data = new Stack<int>();
         data.Push(74);
         data.Push(91);
         data.Push(32);
         data.Push(53);
         Console.WriteLine(data.Count);
         Console.WriteLine(data.Peek());
         Console.WriteLine(data.Pop());
         Console.WriteLine(data.Count());
         Console.ReadLine();
      }
   }
}
```

Output:

12. WACP to illustrate usage of Queue<> Write couple of points about Stack

Code:

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

namespace Day13project8
```

```
{
   class Program
   {
      static void Main(string[] args)
      {

          //Author:Vinay Kudali
          //Purpose:performing operation by using queue

         Queue<int> data = new Queue<int>();
         data.Enqueue(17);
         data.Enqueue(19);
         data.Enqueue(21);
         data.Enqueue(97);
         Console.WriteLine(data.Count);
         Console.WriteLine(data.Peek());
         Console.WriteLine(data.Dequeue());
         Console.WriteLine(data.Count());
         Console.ReadLine();
      }
   }
}
```

Output: