م.م. زينة صادق / م.م. حنان عبد الولي

((Course 2\Eighth lab))

Ex1: Write a C# program to read and print the elements of two dimensions array [3,3] and print:

- Main diagonal
- Secondary diagonal
- Upper triangle
- Lower triangle

```csharp
namespace ConsoleApplication12
{
    class Program
    {
        static void Main(string[] args)
        {
            const int s = 3;
            int[,] a = new int[s, s];

            //to read array
            for (int i = 0; i < s; i++)
                for (int j = 0; j < s; j++)
                    a[i, j] = Int32.Parse(Console.ReadLine());

            //to print array
            Console.WriteLine("The Element of array");
            for (int i = 0; i < s; i++)
            {
                for (int j = 0; j < s; j++)
                    Console.Write(a[i, j] + "   ");
                Console.WriteLine();
            }


            //to print elements of main diagonal
            Console.WriteLine("elements of main diagonal");
            for(int i=0;i<s;i++)
                for(int j=0;j<s;j++)
                    if(i==j)
                        Console.Write(a[i,j]+"    ");

            Console.WriteLine();
            //to print elements of main diagonal in an other way
            Console.WriteLine("elements of main diagonal in an other way");
            for (int i = 0; i < s; i++)
                Console.Write(a[i, i] + "    ");
```

```csharp
            Console.WriteLine();
            //to print elements of secondary diagonal
            Console.WriteLine("elements of secondary diagonal");
            for(int i=0;i<s;i++)
                for(int j=0;j<s;j++)
                    if(i+j==s-1)
                        Console.Write(a[i,j]+"    ");

            Console.WriteLine();
            //to print upper traingle
            Console.WriteLine("elements of upper traingle");
            for (int i = 0; i < s; i++)
                for (int j = 0; j < s; j++)
                    if (i < j)
                        Console.Write(a[i, j] + "   ");

            Console.WriteLine();
            //to print lower traingle
            Console.WriteLine("elements of lower traingle");
            for (int i = 0; i < s; i++)
                for (int j = 0; j < s; j++)
                    if (i > j)
                        Console.Write(a[i, j] + "    ");

            Console.ReadLine();

        }
    }
}
```

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The output

```
9
6
3
2
5
8
1
4
7
The Element of array
9    6    3
2    5    8
1    4    7
elements of main diagonal
9      5      7
elements of main diagonal in an other way
9      5      7
elements of secondary diagonal
3      5      1
elements of upper traingle
6    3    8
elements of lower traingle
2    1    4
```