Assignment 4

Q1. Write a program to calculate transpose of a matrix and check if the resultant matrix is lower triangular or not

Ans:

```
object matrix_transpose
{
	def main(args:Array[String])
	{
		var i:Int = 0
		var j:Int =0
		var m = Array.ofDim[Int](2,2)
		var l:Int =0

		printf("enter the matrix ")
		i=0
		while(i<2)
		{
			j=0
			while(j<2)
			{
				printf ("element %d and %d => ",i,j)
				m(i)(j)=scala.io.StdIn.readInt()
				j+=1
			}
			i=i+1
		}
		printf("matrix \n ")
		i=0
		while(i<2)
		{
			j=0
```

```
        while(j<2)
        {
                printf("%d \t ",m(i)(j))
                j=j+1
        }
        i=i+1
        println()
}
printf("matrix_transpose \n ")
i=0
while(i<2)
{
        j=0
        while(j<2)
        {
                printf("%d \t ",m(j)(i))
                j+=1
        }
        i+=1
        println()
}
i=0
while(i<2)
{
        j=0
        while(j<2)
        {
                if(i < j)
                {
                        if(m(j)(i)==0)
                        {
```

```
                                        l=1
                                    }
                                }
                                j+=1
                            }
                            i+=1
                        }
                        if(l==1)
                            println("given matrix is lower triangular")
                        else
                            println("given matrix is not lower triangular")
                }
}
```

Output:

```
enter the matrix element 0 and 0 => 1
element 0 and 1 => 0
element 1 and 0 => 0
element 1 and 1 => 6
matrix
 1      0
0       6
matrix_transpose
 1      0
0       6
given matrix is lower triangular
```