Assignment 7

Q1. Write a program for multiplication of two matrices. Also check if the resultant matrix is upper triangular or not

Ans:

```
object matrix_triangular
{
	def main(args:Array[String])
	{
		var m1=Array.ofDim[Int](2,2)
		var m2=Array.ofDim[Int](2,2)
		var m3=Array.ofDim[Int](2,2)

		var i:Int = 0
		var j:Int = 0
		var k:Int = 0
		var sum:Int = 0
		var isUpper:Int = 0
		printf("enter the elements of matrix1 \n")
		while(i<2)
		{
			j=0
			while(j<2)
			{
				printf("element (%d)(%d): ",i,j)
				m1(i)(j) = scala.io.StdIn.readInt()
				j+=1
			}
			i+=1
		}
		printf("enter the elements of matrix2 \n")
		i=0
```

```
while(i<2)
{
        j=0
        while(j<2)
        {
                printf("element (%d)(%d): ",i,j)
                m2(i)(j) = scala.io.StdIn.readInt()
                j=j+1
        }
        i=i+1
}
i=0
while(i<2)
{
        j=0
        while(j<2)
        {
                sum =0
                k=0
                while(k<2)
                {
                        sum+= (m1(i)(k)*m2(k)(j))
                        k=k+1
                }
                m3(i)(j) = sum;

                j=j+1
        }
        i=i+1
}
```

```
printf("matrix1:\n ")
i=0
while(i<2)
{
	j=0
	while(j<2)
	{
		printf("%d ",m1(i)(j))
		j=j+1
	}
	i=i+1
	println()
}
printf("matrix2:\n")
i=0
while(i<2)
{
	j=0
	while(j<2)
	{
		printf("%d ",m2(i)(j))
		j+=1
	}
	i+=1
	println()
}
printf("multiplication of matrix \n")
i=0
while(i<2)
{
	j=0
```

```
                while(j<2)
                {
                        printf("%d ",m3(i)(j))
                        j+=1
                }
                i+=1
                println()
        }
        i=0
        while(i<2)
        {
                j=0
                while(j<2)
                {
                        if(i>j)
                        {
                                if(m3(i)(j)==0)
                                {
                                        isUpper=1
                                }
                        }
                        j+=1
                }
                i+=1
        }
        if(isUpper==1)
                println("given matrix is upper triangular")
        else
                println("given matrix is not upper triangular")
    }
}
```

Output:

enter the elements of matrix1

element (0)(0): 1

element (0)(1): 2

element (1)(0): 0

element (1)(1): 7

enter the elements of matrix2

element (0)(0): 8

element (0)(1): 6

element (1)(0): 0

element (1)(1): 5

matrix1:

1 2

0 7

matrix2:

8 6

0 5

multiplication of matrix

8 16

0 35

given matrix is upper triangular