

Assignment 12

Q1. Write a program for multiplication of two matrices. Find determinant of resultant matrix

Ans:

object matrix_mult

```
{  
  
    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 det = 0  
  
        //accept matrix1  
        printf("enter the elements of martix1 \n")  
        i=0  
        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  
        }  
    }  
}
```

```

//accept matrix2
printf("enter the elements of martix2 \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
}

```

```

//multiply matrix
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
    }

//display matrix1
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()
}

```

```

//display matrix2
printf("matrix2:\n")
i=0
while(i<2)
{
    j=0
    while(j<2)
    {
        printf("%d ",m2(i)(j))
        j+=1
    }
    i+=1
}

```

```

        println()
    }

    //display resultant matrix
    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()
    }

    det = m3(0)(0)*m3(1)(1)-m3(0)(1)*m3(1)(0)
    println("determinant => "+det)
}
}

```

Output:

enter the elements of martix1

element (0)(0): 1

element (0)(1): 2

element (1)(0): 3

element (1)(1): 4

enter the elements of martix2

element (0)(0): 5

element (0)(1): 6

element (1)(0): 7

element (1)(1): 8

matrix1:

1 2

3 4

matrix2:

5 6

7 8

multiplication of matrix

19 22

43 50

determinant => 4