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PROGRAM :

```
import java.util.*;

public class TwoD
{

  public static void main(String args[])
 {int opt=0;
  int option=0;
  int sum =0;
  Scanner sc = new Scanner (System.in);

  System.out.println("Enter the no. of rows in the array");
  int rows= sc.nextInt();

  System.out.println("Enter the no. of rows in the array");
  int cols= sc.nextInt();

  int A [][] = new int [rows][cols];

  int B [][] = new int [rows][cols];

  int C [][]= new int[rows][cols];

  System.out.println("Enter the elements in array or matrix 1 :");

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

```
  for(int j=0;j<cols;j++)
  {
   System.out.printf("Enter the A[%d][%d] element:\t",i,j);
   A[i][j]=sc.nextInt();

  }
}

System.out.println("Enter the elements in array or matrix 2 :");

for(int i=0;i<rows;i++)
{
  for(int j=0;j<cols;j++)
  {
   System.out.printf("Enter the B[%d][%d] element:\t",i,j);
   B[i][j]=sc.nextInt();

  }
}
System.out.println("Matrix 1 :");


for(int i=0;i<rows;i++)
{
  for(int j=0;j<cols;j++)
  {
   System.out.printf(A[i][j]+"\t");

  }
 System.out.println(" ");
```

```
 }
System.out.println("Matrix 2 :");
 for(int i=0;i<rows;i++)
 {
   for(int j=0;j<cols;j++)
   {
    System.out.printf(B[i][j]+"\t");
   }
   System.out.println(" ");
 }
do
{
System.out.println("***MENU***");
System.out.println("1.Add");
System.out.println("2.Subtract");
System.out.println("3.Multiply");
System.out.println("4.Transpose");
System.out.println("5.Exit");
System.out.println("Choose an option");
opt = sc.nextInt();

 switch(opt)
{
  case 1 :System.out.println("Sum of the two matrices are:");
              for(int i=0;i<rows;i++)
              {
                for(int j=0;j<cols;j++)
                {
                      System.out.printf(A[i][j]+B[i][j]+"\t");
                }
```

```
            System.out.println(" ");
          }break;
case 2 :System.out.println("Difference between the two matrices are:");
          for(int i=0;i<rows;i++)
          {
            for(int j=0;j<cols;j++)
            {
                 System.out.printf(A[i][j]-B[i][j]+"\t");
            }
                System.out.println(" ");
          }break;
case 3 :System.out.println("Product of the two matrices are:");
          for(int i=0;i<rows;i++)
          {
            for(int j=0;j<cols;j++)
            { C[i][j]=0;
                for(int k=0;k<rows;k++)
                 {
                  C[i][j]+=A[i][k]*B[k][j];

                 }
                System.out.printf(C[i][j]+"\t");
            }
                System.out.println(" ");
          }

          break;

case 4 : System.out.println("Choose whether you want transpose of which matrix : 1 for A or 2 for B");
          option=sc.nextInt();
```

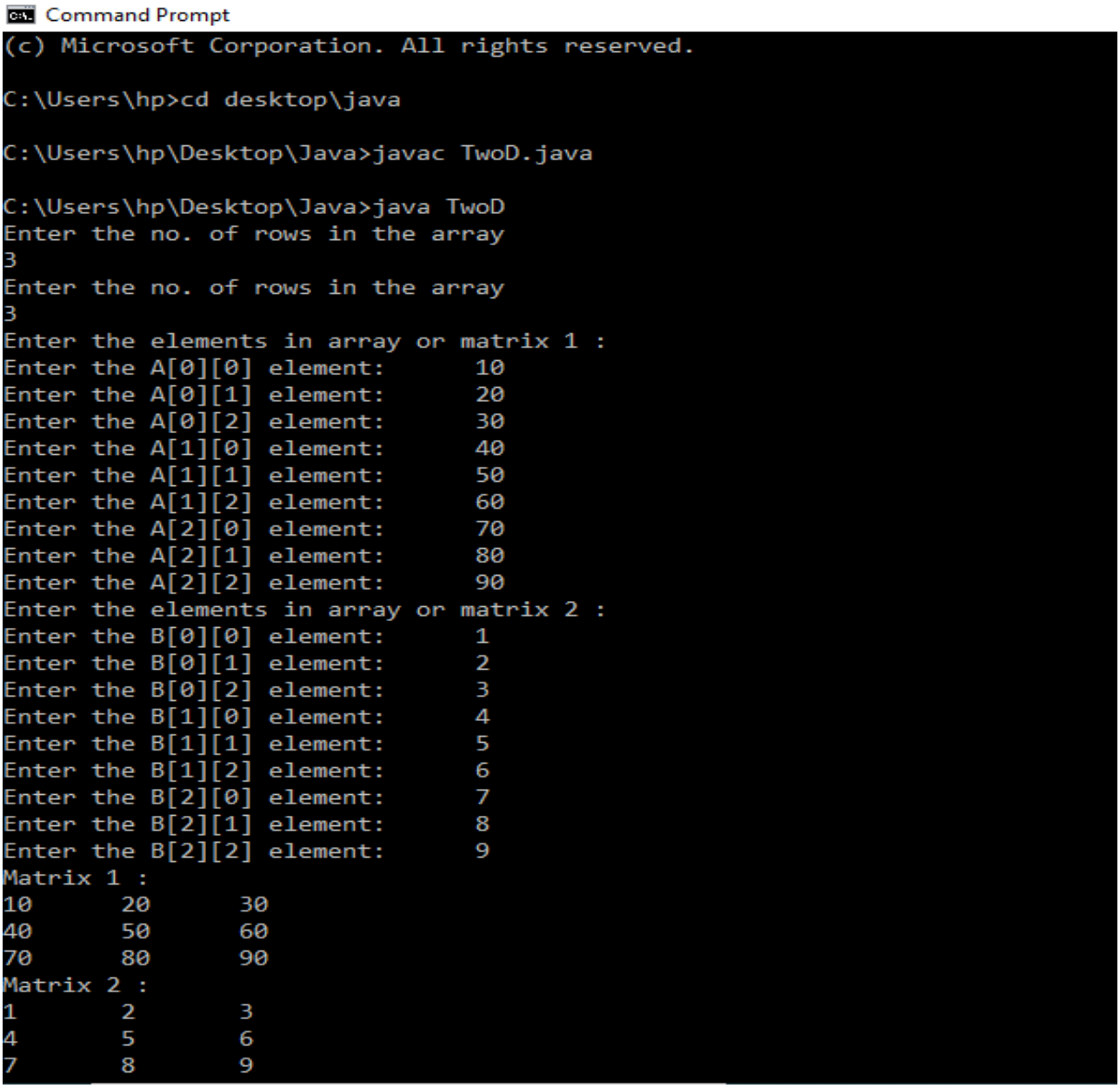
```
            if(option==1)
            {
             for(int i=0;i<rows;i++)
             {
               for(int j=0;j<cols;j++)
               {
                    System.out.printf(A[j][i]+"\t");
               }
                   System.out.println(" ");
             }
        }

        else if(option==2)
            {
             for(int i=0;i<rows;i++)
             {
               for(int j=0;j<cols;j++)
               {
                    System.out.printf(B[j][i]+"\t");
               }
                   System.out.println(" ");
             }
        }break;

   case 5 : break;
  }
}while(opt!=5);
 }

}
```

OUTPUT :



```
Command Prompt
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C:\Users\hp>cd desktop\java

C:\Users\hp\Desktop\Java>javac TwoD.java

C:\Users\hp\Desktop\Java>java TwoD
Enter the no. of rows in the array
3
Enter the no. of rows in the array
3
Enter the elements in array or matrix 1 :
Enter the A[0][0] element:      10
Enter the A[0][1] element:      20
Enter the A[0][2] element:      30
Enter the A[1][0] element:      40
Enter the A[1][1] element:      50
Enter the A[1][2] element:      60
Enter the A[2][0] element:      70
Enter the A[2][1] element:      80
Enter the A[2][2] element:      90
Enter the elements in array or matrix 2 :
Enter the B[0][0] element:      1
Enter the B[0][1] element:      2
Enter the B[0][2] element:      3
Enter the B[1][0] element:      4
Enter the B[1][1] element:      5
Enter the B[1][2] element:      6
Enter the B[2][0] element:      7
Enter the B[2][1] element:      8
Enter the B[2][2] element:      9
Matrix 1 :
10      20      30
40      50      60
70      80      90
Matrix 2 :
1       2       3
4       5       6
7       8       9
```

```
***MENU***
1.Add
2.Subtract
3.Multiply
4.Transpose
5.Exit
Choose an option
1
Sum of the two matrices are:
11      22      33
44      55      66
77      88      99
***MENU***
1.Add
2.Subtract
3.Multiply
4.Transpose
5.Exit
Choose an option
2
Difference between the two matrices are:
9       18      27
36      45      54
63      72      81
***MENU***
1.Add
2.Subtract
3.Multiply
4.Transpose
5.Exit
Choose an option
3
Product of the two matrices are:
300     360     420
660     810     960
1020    1260    1500
```

```
***MENU***
1.Add
2.Subtract
3.Multiply
4.Transpose
5.Exit
Choose an option
4
Choose whether you want transpose of which matrix : 1 for A or 2 for B
1
10      40      70
20      50      80
30      60      90
***MENU***
1.Add
2.Subtract
3.Multiply
4.Transpose
5.Exit
Choose an option
5

C:\Users\hp\Desktop\Java>
```