OBJECT ORIENTED PROGRAMMING LAB

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Experiment No.: 4

Aim:

Read a matrix from the console and check whether it is symmetric or not.

Program:

```
import java.util.*;
class SymmetricMatrix
{
public static void main(String[] args){

int row, col;
Scanner sc= new Scanner(System.in);
boolean isSymmetic= true;

System.out.print(&amp;quot;Enter the number of rows for the Matrices : &amp;quot;);
row= sc.nextInt();
System.out.print(&amp;quot;Enter the number of columns for the Matrices : &amp;quot;);
col= sc.nextInt();

int[][] matrix= new int[row][col];

System.out.println(&amp;quot;Enter the elements for the Matrix : &amp;quot;);
for(int i=0;i&amp;lt;row;i++){
for(int j=0;j&amp;lt;col;j++){
```

```
matrix[i][j]= sc.nextInt();
}
 }
System.out.println(&quot;\n&quot;);

System.out.println(&quot;The entered matrix is : &quot;);
for(int i=0;i&lt;row;i++)
{
for(int j=0;j&lt;col;j++)
{
System.out.print(matrix[i][j]+&quot; &quot;);
}
System.out.println(&quot;\n&quot;);
}

for(int i=0;i&lt;row;i++)
{
for(int j=0;j&lt;col;j++)
{
if(i!=j)
{
if(matrix[i][j]!=matrix[j][i])
{
isSymmetic= false;
break;
}
}
}
```

```
if(!isSymmetic)
   break;
}

if(isSymmetic){
System.out.println(&amp;quot;The entered matrix is Symmetric Matrix&amp;quot;);
}
else{
System.out.println(&amp;quot;The entered matrix is not a Symmetric Matrix&amp;quot;);
}
}
}
```

OUTPUT:

```
D:\javaprograms>java SymmetricMatrix
Enter the number of rows for the Matrices : 2
Enter the number of columns for the Matrices : 2
Enter the elements for the Matrix :
7
1
1
7


The entered matrix is :
7   1

1   7

The entered matrix is Symmetric Matrix

D:\javaprograms>java SymmetricMatrix
Enter the number of rows for the Matrices : 2
Enter the number of columns for the Matrices : 2
Enter the elements for the Matrix :
4
6
1
2


The entered matrix is :
4   6

1   2

The entered matrix is not a Symmetric Matrix
```