OBJECT ORIENTED PROGRAMMING LAB

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Aim

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

Procedure

```
import java.util.Scanner;

public class SymmetricMatrix
{
   public static void main(String[] args)
   {
      Scanner sc = new Scanner(System.in);

      System.out.println("Enter the numb of rows : ");

      int rows = sc.nextInt();

      System.out.println("Enter the numb of columns : ");

      int cols = sc.nextInt();

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

      System.out.println("Enter the elements :");

      for (int i = 0; i < rows; i++)
      {
         for (int j = 0; j < cols; j++)
         {
            matrix[i][j] = sc.nextInt();
         }
      }

      System.out.println("Printing the input matrix :");

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

```
{
            System.out.print(matrix[i][j]+"\t");
        }

        System.out.println();
    }



    if(rows != cols)
    {
        System.out.println("The matrix is not a square matrix, so it can't be symmetric.");
    }
    else
    {
        boolean symmetric = true;

        for (int i = 0; i < rows; i++)
        {
            for (int j = 0; j < cols; j++)
            {
                if(matrix[i][j] != matrix[j][i])
                {
                    symmetric = false;
                    break;
                }
            }
        }

        if(symmetric)
        {
            System.out.println("The matrix is symmetric...");
        }
        else
        {
            System.out.println("The matrix is not symmetric...");
        }
    }

    sc.close();
  }
}
```

Output Screenshot