Data Structures and Algorithms

CSE2001

Lab - 1 - Assignment - 2

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Problem : Write a Program to to Transpose Matrix
Time Complexity = O(N^2)

Codes

```
import java.util.*;
class Transpose
{
   public static void main(String[] args)
   {
      Scanner sc=new Scanner(System.in);
      System.out.println("Enter Number of Rows");
      int r = sc.nextInt();
      System.out.println("Enter Number of Columns");
      int c = sc.nextInt();
      int a[][]=new int[r][c];
      int b[][]=new int[r][c];
      int i,j;
      System.out.println("Enter Numbers to fill " +r+ " Rows and  " +c+ " Columns in
matrix to Transpose");
      for(i=0;i<r;i++)
      {
```

```
        for(j=0;j<c;j++)
        {
            a[i][j]=sc.nextInt();

        }
    }
    System.out.println("The actual matrix before Transpose is ");
    for(i=0;i<r;i++)
    {
        for(j=0;j<c;j++)
        {
            System.out.print(a[i][j]+" ");
            b[j][i]=a[i][j];
        }
    System.out.println(" ");
    }
    System.out.println("Transpose Matrix");
    for(i=0;i<r;i++)
    {
        for(j=0;j<c;j++)
        {
            System.out.print(b[i][j]+" ");
        }
    System.out.println(" ");
    }

  }
}
```

Output

```
C:\Users\yashw\Desktop\Summer\Labs>java Transpose
Enter Number of Rows
3
Enter Number of Columns
3
Enter Numbers to fill 3 Rows and  3 Columns in matrix to Transpose
1 2 3
4 5 6
7 8 9
The actual matrix before Transpose is
1 2 3
4 5 6
7 8 9
Transpose Matrix
1 4 7
2 5 8
3 6 9

C:\Users\yashw\Desktop\Summer\Labs>
```