ASSIGNMENT-9(1FEB)

Q. What do you mean by an array?

Ans- It refers to index collection of fixed number of homogeneous data elements. Single variable holding multiple values which improves readability of the program.

Q. How to create an array?

Ans- int a[]; // 1-Dimensional Array

Int a[][]; //2-Dimensional Array

Q. Can we change the size of an array at run time?

Ans- We can't change the size of an array after it's constructed.

Q. Can you declare an array without assigning the size of an array?

Ans- Yes, We can declare an array without size but before using it needs to be initialized.

Q. What is the default value of array?

Ans- The default value of array will be null.

Q. What is a 1-D array with an example?

Ans- 1-D array is the simplest form of the array in which the elements are stored linearly and can be accessed individually by specifying the index value of each element stored in the array. E.g-> int a[5]={0,4,6,8,6};

Q. Write a program on a 2-d Array.

Ans-

```
import java.util.Scanner;

public class array_29 {

    static void rotateMatrix(int[][]matrix,int r,int c){
     transporseInPlace(matrix,r,c);
     for (int i = 0; i < c; i++) {
        reverseArray(matrix[i]);
     }
    }

    static void reverseArray(int[] arr){
        int i=0;
        int j= arr.length-1;
        while (i < j) {
            int temp= arr[i];
            arr[i]=arr[j];
```

```
            arr[j]=temp;
            i++;
            j--;
        }
    }

    static void transporseInPlace(int[][]matrix,int r,int c){
        for (int i = 0; i < c; i++) {
            for (int j = i; j < r; j++) {
                int temp = matrix[i][j];
                matrix[i][j]=matrix[j][i];
                matrix[j][i]=temp;
            }
        }
    }

    static void printArray(int[][] matrix){
        for (int i = 0; i < matrix.length; i++) {
            for (int j = 0; j < matrix[i].length; j++) {
                System.out.print(matrix[i][j]+" ");
            }
            System.out.println();
        }
    }
    public static void main(String[] args) {
        Scanner sc= new Scanner(System.in);
        System.out.print("Enter no. of rows:");
        int r= sc.nextInt();
        System.out.print("Enter no. of columns:");
        int c= sc.nextInt();
        int[][] matrix= new int[r][c];
        int totalElements=r*c;
        System.out.println("Enter "+totalElements+" elements:");
        for (int i = 0; i < r; i++) {
            for (int j = 0; j < c; j++) {
                matrix[i][j]=sc.nextInt();
            }
        }
        System.out.println("Input Matrix:");
        printArray(matrix);
        rotateMatrix(matrix, r, c);
        System.out.println("Rotated Matrix");
        printArray(matrix);
    }
}
```