Storing
Matrix
Binary search

```
import java.io.*;
import java.util.*;

public class Solution {

    public static void main(String[] args) {
        Scanner sc = new Scanner(System.in);
        int n = sc.nextInt();
        int [][] mat = new int[n][n];
        for(int i=0;i<n;i++){
            for(int j=0;j<n;j++){
                mat[i][j]=sc.nextInt();
            }
        }

        for(int row=1;row<n;row++){
            boolean equal = false;
            for(int k =0;k<=n;k++){
                rotate(mat, row);

                if(compare(mat,0,row )==true){
                    equal = true;
                    break;
                }
            }
            if(equal == false ){
                System.out.print("NO");
                return;
            }
        }
        System.out.print("YES");
    }
    public static void rotate( int [][] mat , int row){
        int temp = mat[row][mat[0].length-1];
        for(int col =mat[0].length-1;col>0;col--){
            mat[row][col]= mat[row][col-1];
        }
        mat[row][0]=temp;
    }

    public static boolean  compare( int [][] mat ,
int row1, int row2){
        for(int col =0;col<mat[0].length;col++){
            if(mat[row1][col]!=mat[row2][col])return
false;
        }
        return true;
    }
```

Sample Input 0

```
3
1 2 3
3 1 2
2 3 1
```

Sample Output 0

```
YES
```

Explanation 0

All rows are rotated permutation of each other.

Sample Input 1

```
3
1 2 3
3 2 1
1 3 2
```

Sample Output 1

```
NO
```