

Problem Statement – Wave Form Traversal

```
4 public class waveForm {
5     public static void main(String[] args) {
15         for (int j = 0; j < m; j++) {
16             arr[i][j] = sc.nextInt();
17         }
18     }
19
20     for(int j=0;j<m;j++){
21         if(j%2==0){
22             int i =0;
23             while(i<n){
24                 System.out.print(arr[i][j]+" ");
25                 i++;
26             }
27
28
29         }
30
31         else if(j%2!=0){
32             int i =n-1;
33             while(i>=0){
34                 System.out.print(arr[i][j]+" ");
35                 i--;
36             }
37
38         }
39     }
40 }
41 }
42 }
```

"C:\Program Files\Java\jdk-23\bin\java.exe" "-javaag
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1 5 9 10 6 2 3 7 11 12 8 4
Process finished with exit code 0
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Problem Statement – Transpose of a Matrix

```
1 package classwork;
2
3 import java.util.Scanner;
4 public class transposeMatrix {
5     public static void main(String[] args) {
6         Scanner sc = new Scanner(System.in);
7         int N = sc.nextInt();
8         int M = sc.nextInt();
9         int arr[][] = new int [N][M];
10        for(int i=0;i<N;i++){
11            for(int j=0;j<M;j++){
12                arr[i][j] = sc.nextInt();
13            }
14        }
15        for(int j=0;j<M;j++){
16            for(int i=0;i<N;i++){
17                System.out.print(arr[i][j]+" ");
18            }
19            System.out.println("");
20        }
21    }
22 }
23
24
```

2

"C:\Program Files\Java\jdk-23\bin\java.exe" "-javaagent:C:\Pr

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Process finished with exit code 0

work > transposeMatrix > main 17:39 CRLF UTF-8 4 s

Problem Statement – Spiral Traversal of a Matrix

```
2 import java.util.Scanner;
3 public class spiralTraversal {
4     public static void main(String[] args) {
5         Scanner sc = new Scanner(System.in);
6         int n = sc.nextInt();
7         int m = sc.nextInt();
8         int[][] matrix = new int[n][m];
9         for(int i = 0; i < n; i++) {
10             for(int j = 0; j < m; j++) {
11                 matrix[i][j] = sc.nextInt();
12             }
13             int i = 0;
14             int k = 0;
15             for (int j = 0; j < m; j++) {
16                 System.out.print(matrix[i][j] + " ");
17                 k = j;
18             }
19             i++;
20             int h = 0;
21             while(i < n) {
22                 System.out.print(matrix[i][k] + " ");
23                 i++;
24                 h = i-1;
25                 for(int j = m-2; j >= 0; j--) {
26                     System.out.print(matrix[h][j] + " ");
27                     k=j;
28                 }
29                 h--;
30                 while(h>0){
31                     System.out.print(matrix[h][k] + " ");
32                     h--;
33                 }
34                 h++;
35                 for(int j = k+1; j < m-1; j++) {
36                     System.out.print(matrix[h][j] + " ");
37                 }
38             }
39         }
40     }
41 }
```

```
"C:\Program Files\Java\jdk-23\bin\java.exe" "-javaagent:C
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1 2 3 4 8 12 11 10 9 5 6 7
Process finished with exit code 0
```

Problem Statement – Rotate Matrix by 90° Clockwise

```
1 package classwork;
2
3 import java.util.Scanner;
4
5 public class rotateBy90 {
6     public static void main(String[] args) {
7         Scanner sc = new Scanner(System.in);
8         int n = sc.nextInt();
9         int arr[][] = new int [n][n];
10        for (int i = 0; i < n; i++) {
11            for (int j = 0; j < n; j++) {
12                arr[i][j] = sc.nextInt();
13            }
14        }
15        for (int j = 0; j < n; j++) {
16            for (int i = n-1; i >=0; i--) {
17                System.out.print(arr[i][j] + " ");
18            }
19            System.out.println("");
20        }
21    }
22 }
23
```

"C:\Program Files\Java\jdk-23\bin\java.exe" "-javaagent:C:\Program Files\Java\jdk-23\bin\java-agent.jar" -Djconsole.enabled=true -Djconsole.port=9000 -Djconsole.url=service:jmx:rmi:///jndi/rmi://localhost:9000/jmx-console -Djconsole.url=service:jmx:rmi:///jndi/rmi://localhost:9000/jmx-console -Djconsole.url=service:jmx:rmi:///jndi/rmi://localhost:9000/jmx-console

```
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13 9 5 1
14 10 6 2
15 11 7 3
16 12 8 4

Process finished with exit code 0
```

18:14 CRLF UTF-8 4 spaces