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**NPTEL** (<https://swayam.gov.in/explorer?ncCode=NPTEL>) » **Programming in Java (course)**

Announcements (announcements)

**About the Course** ([https://swayam.gov.in/nd1\\_noc20\\_cs08/preview](https://swayam.gov.in/nd1_noc20_cs08/preview))    Ask a Question (forum)

Progress (student/home)    Mentor (student/mentor)

## Course outline

How does an NPTEL online course work?

Week 0 :

Week 1 :

Week 2 :

Week 3 :

Week 4 :

Week 5 :

Week 6 :

Week 7 :

Week 8 :

Week 9 :

 ● Lecture 41 :  
Demonstration-

## Java Week 9 : Q3

**Due on 2020-04-03, 23:59 IST**

 Complete the code to **perform a 45 degree anti clock wise rotation with respect to the center of a  $5 \times 5$  2D Array as shown below:**

INPUT:

```
00100
00100
11111
00100
00100
```

OUTPUT:

```
10001
01010
00100
01010
10001
```

**Note the following points carefully:**

1. Here, instead of 0 and 1 any character may be given.
2. The input and output array size must be of dimension  $5 \times 5$  and nothing else.

**Private Test cases used for evaluation**

Input	Expected Output	Actual Output	Status
-------	-----------------	---------------	--------

XV (unit?  
unit=10&lesson=55)

- Lecture 42 :  
AWT  
Programming--  
III (unit?  
unit=10&lesson=56)

Test Case 1

- Lecture 43 :  
Swing—I  
(unit?  
unit=10&lesson=57)

- Lecture 44 :  
Swing—II  
(unit?  
unit=10&lesson=58)

The due date for submitting this assignment has passed.

1 out of 1 tests passed.

You scored 100.0/100.

- Lecture 45 :  
Demonstration-  
XVI (unit?  
unit=10&lesson=59)

**Assignment submitted on 2020-04-03, 21:35 IST**

Your last recorded submission was :

- Quiz :  
Assignment 9  
(assessment?  
name=104)

- Java Week 9 :  
Q1  
(/noc20\_cs08/progassign  
name=167)

- Java Week 9 :  
Q2  
(/noc20\_cs08/progassign  
name=168)

- Java Week 9 :  
Q3  
(/noc20\_cs08/progassign  
name=169)

- Java Week 9 :  
Q4  
(/noc20\_cs08/progassign  
name=170)

- Java Week 9 :  
Q5  
(/noc20\_cs08/progassign  
name=171)

- Feedback For  
Week 9 (unit?  
unit=10&lesson=178)

**Week 10 :**

001  
00  
001  
00  
111  
11  
001  
00  
001  
00

10001\n  
01010\n  
00100\n  
01010\n  
10001

10001\n  
01010\n  
00100\n  
01010\n  
10001\n

Pass  
ed

```

1 import java.util.Scanner;
2 public class Question93{
3     public static void main(String args[]){
4         Scanner sc = new Scanner(System.in);
5         // Input 5X5 2D Array using Scanner Class
6
7         // Perform 45-Degree rotation keeping center same (use your own logic)
8
9
10        // Print the transformed output 5X5 2D Array
11        char arr[][]= new char[5][5];
12        // Input 2D Array using Scanner Class
13        for(int line=0;line<5; line++){
14            String input = sc.nextLine();
15            char seq[] = input.toCharArray();
16            if(seq.length==5){
17                for(int i=0;i<5;i++){
18                    arr[line][i]=seq[i];
19                }
20            }else{
21                System.out.print("Wrong Input!");
22                System.exit(0);
23            }
24        }
25        // Declaring the array to store Transition
26        char tra[][] = new char[5][5];
27        String outer[]={"00","10","20","30",
28                        "40","41","42","43",
29                        "44","34","24","14",
30                        "04","03","02","01"};
31
32        String inner[]={"11","21","31","32",
33                        "33","23","13","12"};
34
35        // 45-Degree rotation
36        for(int i=0;i<5;i++){
37            for(int j=0;j<5;j++){
38                // Transform outer portion
39                for(int k=0; k<outer.length; k++){
40                    char indices[]=outer[k].toCharArray();
41                    int a = Integer.parseInt(String.valueOf(indices[0]))
42                    int b = Integer.parseInt(String.valueOf(indices[1]))
43                    if(a==i && b==j){
44                        if(k==15){k=1;}
45                        else if(k==14){k=0;}
46                        else {k+=2;}
47                        indices=outer[k].toCharArray();
48                        a = Integer.parseInt(String.valueOf(indices[0]))
49                        b = Integer.parseInt(String.valueOf(indices[1]))
50

```

## DOWNLOAD VIDEOS

## Assignment Solution

## Books

## Live Interactive Session

```

51         tra[a][b] = arr[i][j];
52         break;
53     }
54 }
55 // Transform inner portion
56 for(int k=0; k<inner.length; k++){
57     char indices[]=inner[k].toCharArray();
58     int a = Integer.parseInt(String.valueOf(indices[0]))
59     int b = Integer.parseInt(String.valueOf(indices[1]))
60     if(a==i && b==j){
61         if(k==7){k=0;}
62         else {k+=1;}
63         indices=inner[k].toCharArray();
64         a = Integer.parseInt(String.valueOf(indices[0]))
65         b = Integer.parseInt(String.valueOf(indices[1]))
66         tra[a][b] = arr[i][j];
67         break;
68     }
69 }
70 // Keeping center same
71 tra[2][2] = arr[2][2];
72 }
73 }
74 // Print the transformed output
75 for(int i=0;i<5;i++){
76     for(int j=0;j<5;j++){
77         System.out.print(tra[i][j]);
78     }
79     System.out.println();
80 }
81 }
82 } // The main() method ends here
83 } // The main class ends here

```

Sample solutions (Provided by instructor)

Select the Language . Java ▼

```

1 import java.util.Scanner;
2 public class Question93{
3     public static void main(String args[]){
4         Scanner sc = new Scanner(System.in);
5         char arr[][]= new char[5][5];
6         // Input 2D Array using Scanner Class
7         for(int line=0;line<5; line++){
8             String input = sc.nextLine();
9             char seq[] = input.toCharArray();
10            if(seq.length==5){
11                for(int i=0;i<5;i++){
12                    arr[line][i]=seq[i];
13                }
14            }else{
15                System.out.print("Wrong Input!");
16                System.exit(0);
17            }
18        }
19        // Declaring the array to store Transition
20        char tra[][] = new char[5][5];
21        String outer[]={ "00","10","20","30",
22                        "40","41","42","43",
23                        "44","34","24","14",
24                        "04","03","02","01"};
25
26        String inner[]={ "11","21","31","32",
27                        "33","23","13","12"};
28
29        // 45-Degree rotation
30        for(int i=0;i<5;i++){
31            for(int j=0;j<5;j++){
32                // Transform outer portion
33                for(int k=0; k<outer.length; k++){
34                    char indices[]=outer[k].toCharArray();
35                    int a = Integer.parseInt(String.valueOf(indices[0]))
36                    int b = Integer.parseInt(String.valueOf(indices[1]))
37                    if(a==i && b==j){
38                        if(k==15){k=1;}
39                        else if(k==14){k=0;}
40                        else {k+=2;}
41                    indices=outer[k].toCharArray();

```

```

42         a = Integer.parseInt(String.valueOf(indices[0]))
43         b = Integer.parseInt(String.valueOf(indices[1]))
44         tra[a][b] = arr[i][j];
45         break;
46     }
47 }
48 // Transform inner portion
49 for(int k=0; k<inner.length; k++){
50     char indices[]=inner[k].toCharArray();
51     int a = Integer.parseInt(String.valueOf(indices[0]))
52     int b = Integer.parseInt(String.valueOf(indices[1]))
53     if(a==i && b==j){
54         if(k==7){k=0;}
55         else {k+=1;}
56         indices=inner[k].toCharArray();
57         a = Integer.parseInt(String.valueOf(indices[0]))
58         b = Integer.parseInt(String.valueOf(indices[1]))
59         tra[a][b] = arr[i][j];
60         break;
61     }
62 }
63 // Keeping center same
64 tra[2][2] = arr[2][2];
65 }
66 }
67 // Print the transformed output
68 for(int i=0; i<5; i++){
69     for(int j=0; j<5; j++){
70         System.out.print(tra[i][j]);
71     }
72     System.out.println();
73 }
74 } // The main() method ends here
75 } // The main class ends here

```