X

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 × 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 × 5 and nothing else.

Private Test cases used for evaluation	Input	Expected Output	Actual Output	Status

Test Case 1	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	Passed

The due date for submitting this assignment has passed.
1 out of 1 tests passed.
You scored 100.0/100.

Assignment submitted on 2020-04-03, 21:35 IST
Your last recorded submission was :

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

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```
                            tra[a][b] = arr[i][j];
                            break;
                        }
                    }
                    // Transform inner portion
                    for(int k=0; k<inner.length; k++){
                        char indices[]=inner[k].toCharArray();
                        int a = Integer.parseInt(String.valueOf(indices[0]))
                        int b = Integer.parseInt(String.valueOf(indices[1]))
                        if(a==i && b==j){
                            if(k==7){k=0;}
                            else {k+=1;}
                            indices=inner[k].toCharArray();
                            a = Integer.parseInt(String.valueOf(indices[0]))
                            b = Integer.parseInt(String.valueOf(indices[1]))
                            tra[a][b] = arr[i][j];
                            break;
                        }
                    }
                    // Keeping center same
                    tra[2][2] = arr[2][2];
                }
            }
            // Print the transformed output
            for(int i=0;i<5;i++){
                for(int j=0;j<5;j++){
                    System.out.print(tra[i][j]);
                }
                System.out.println();
            }

    } // The main() method ends here
} // The main class ends here
```

Sample solutions (Provided by instructor)

Select the Language . Java ▼

```
import java.util.Scanner;
public class Question93{
    public static void main(String args[]){
        Scanner sc = new Scanner(System.in);
            char arr[][]= new char[5][5];
            // Input 2D Array using Scanner Class
            for(int line=0;line<5; line++){
                String input = sc.nextLine();
                char seq[] = input.toCharArray();
                if(seq.length==5){
                    for(int i=0;i<5;i++){
                        arr[line][i]=seq[i];
                    }
                }else{
                    System.out.print("Wrong Input!");
                    System.exit(0);
                }
            }
            // Declaring the array to store Transition
            char tra[][] = new char[5][5];
            String outer[]={"00","10","20","30",
                            "40","41","42","43",
                            "44","34","24","14",
                            "04","03","02","01"};

            String inner[]={"11","21","31","32",
                            "33","23","13","12"};

            // 45-Degree rotation
            for(int i=0;i<5;i++){
                for(int j=0;j<5;j++){
                    // Transform outer portion
                    for(int k=0; k<outer.length; k++){
                        char indices[]=outer[k].toCharArray();
                        int a = Integer.parseInt(String.valueOf(indices[0]))
                        int b = Integer.parseInt(String.valueOf(indices[1]))
                        if(a==i && b==j){
                            if(k==15){k=1;}
                            else if(k==14){k=0;}
                            else {k+=2;}
                            indices=outer[k].toCharArray();
```

```
                            a = Integer.parseInt(String.valueOf(indices[0]))
                            b = Integer.parseInt(String.valueOf(indices[1]))
                            tra[a][b] = arr[i][j];
                            break;
                        }
                    }
                    // Transform inner portion
                    for(int k=0; k<inner.length; k++){
                        char indices[]=inner[k].toCharArray();
                        int a = Integer.parseInt(String.valueOf(indices[0]))
                        int b = Integer.parseInt(String.valueOf(indices[1]))
                        if(a==i && b==j){
                            if(k==7){k=0;}
                            else {k+=1;}
                            indices=inner[k].toCharArray();
                            a = Integer.parseInt(String.valueOf(indices[0]))
                            b = Integer.parseInt(String.valueOf(indices[1]))
                            tra[a][b] = arr[i][j];
                            break;
                        }
                    }
                    // Keeping center same
                    tra[2][2] = arr[2][2];
                }
            }
            // Print the transformed output
            for(int i=0;i<5;i++){
                for(int j=0;j<5;j++){
                    System.out.print(tra[i][j]);
                }
                System.out.println();
            }
    } // The main() method ends here
} // The main class ends here
```