

**Gebze Technical University
Computer Engineering**

CSE 222 - 2019 Spring

HOMEWORK 04-5 REPORT

**Muhammed ÖZKAN
1510440804**

Course Assistant: Ayşe ŞERBETÇİ TURAN

1 INTRODUCTION

1.1 Problem Definition

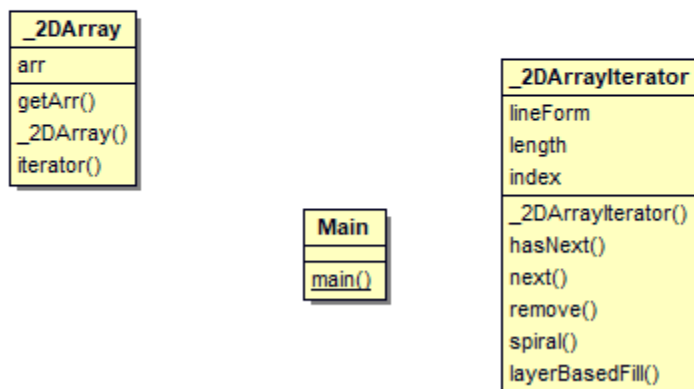
Given a matrix `arr[][]` of size `m*n`. Traverse and print the matrix in spiral form. We are tasked with coding an iterator class for these data that will traverse a given 2D array spirally clockwise starting at the top left element. Elements when travelled in Spiral form, will be displayed in a single line.

1.2 System Requirements

We will develop this program for all devices running Java. The classes used in the solution of the problems have been developed considering the minimum possible memory consumption. Memory size shows a linear increase. In case of proper use, the prepared programs can be used in any environment, even on a smartphone or even on a smart watch.

2 METHOD

2.1 Class Diagrams



2.2 Use Case

This software works on the console screen.

2.3 Problem Solution Approach

This software converts the given matrix into a line form by handling the layer by layer.

3 RESULT

3.1 Test Cases

Square and non-square tested with various matrices.

3.2 Running Results

Input

```
int arr[][] = {{1, 2, 3, 4, 5},
               {6, 7, 8, 9, 10},
               {11, 12, 13, 14, 15},
               {16, 17, 18, 19, 20},
               {21, 22, 23, 24, 25}};
```

Result

1 2 3 4 5 10 15 20 25 24 23 22 21 16 11 6 7 8 9 14 19 18 17 12 13

Input

```
int arr[][] = {{1, 2, 3, 4},
               {5, 6, 7, 8},
               {9, 10, 11, 12},
               {13, 14, 15, 16}};
```

Result

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