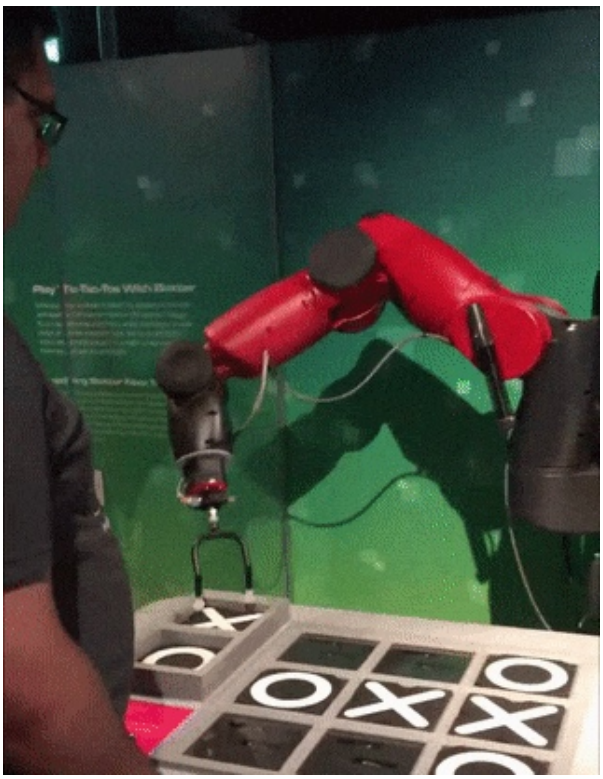
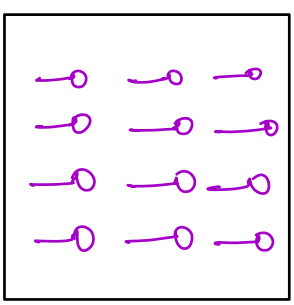
Code - https://www.scaler.com/topics/java/online-java-compiler/?snippet_slug=625853ddba74a7a128fc



Agenda

1. Why do we need 2D Array?
2. Syntax
3. Indices
4. Solve 8 problems



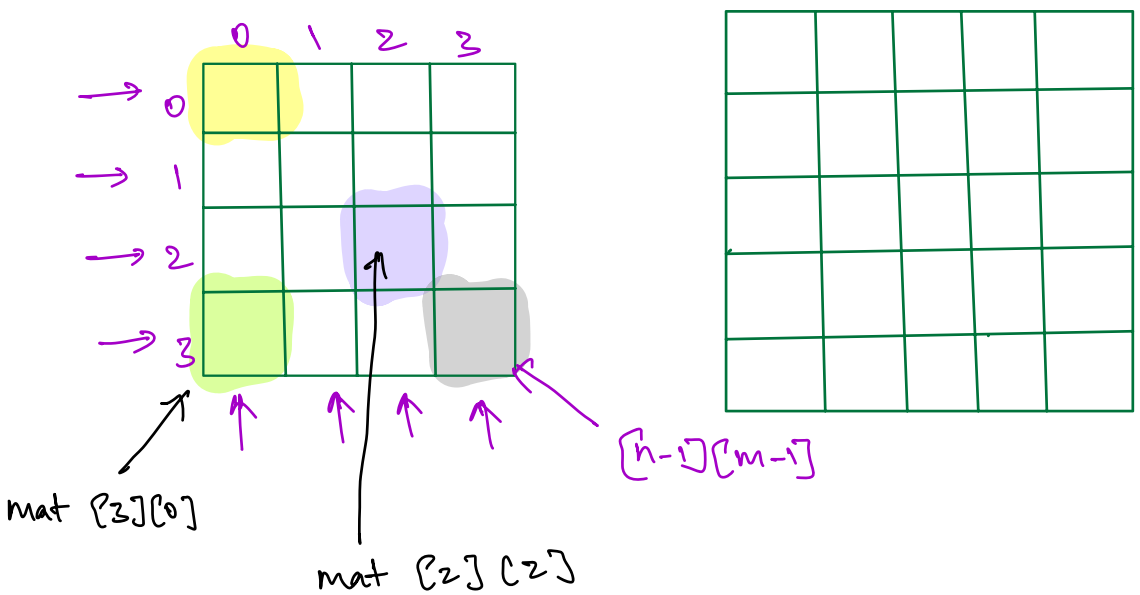
Sequential collection of similar item

Syntax of 2D Array

```
int [][] mat = new int [row] [col];
int mat[][] = new int [row] [col];
```

Index in 2D Array

N x M → N rows
M columns.

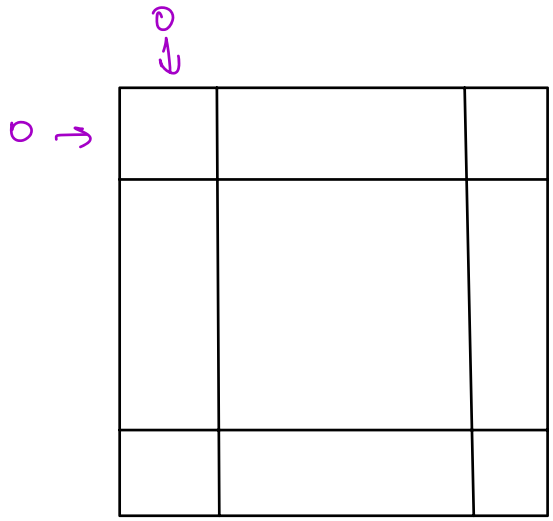


We use [] [] for accessing the cell in 2D matrix

row index

col index

Generic 2D Array. [N, M]



5 columns
7 rows

M x N

---

1) Given an N x M matrix, print its top row

array =
-3	2	7
1	-1	11
0	2	21
1	1	1

(0,0) (0,1) (0,2)

Output -3, 2, 7

① what are the indices in focus.

(0,0) (0,1) (0,2)

```
for (int col = 0; col < M; col++) {
    sop (mat[0][col] + " ");
}
```

Q2) Given a matrix of size N×M, print its left most column.

array =

-3	2	7
1	-1	11
0	2	21
1	1	1

(0,0)
(1,0)
(2,0)
(3,0)

Output = -3, 1, 0, 1

Indices in focus.

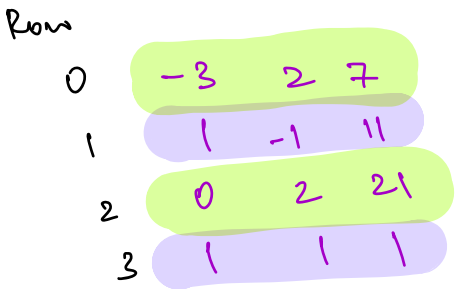
(0,0), (1,0), (2,0), (3,0)

```
for (int row = 0; row < N; row++){
    sop (mat[row][0]);
}
```

Wave form printing

-3	2	7
1	-1	11
0	2	21
1	1	1

-3	2	7
11	-1	1
0	2	21
1	1	1



even

Row no [0, 2]

Pt Ps printed as Pt Ps

Row [1, 3]

reverse is printed

odd

```
Put N = mat.length;
Put M = mat[0].length;
for (Put row=0; row<n; row++){
    Pf (row%2==0){
        for (Put col=0; col<m; col++){
            Sop (mat[row][col]);
        }
    }
```

```
        else {
            for (int col = m-1; col>=0; col--){
                sop(mat[row][col]);
            }
        }
        sopln();
    }
```