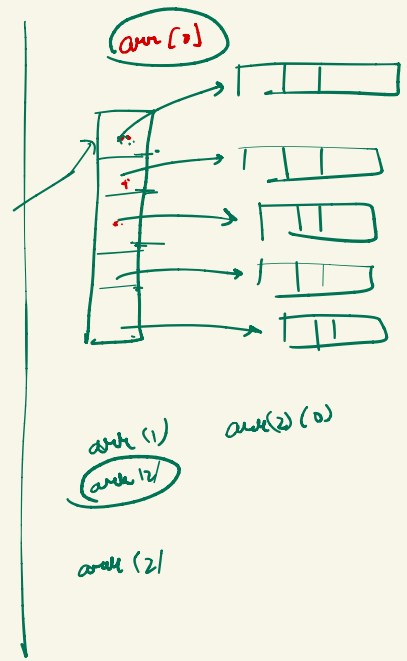



int() arr → 0th index address
 arr = new int(5)
 2d array → array of arrays
 array of integers
 array of strings

int[][] arr = new int[5][3]
 ↓
 number of rows number of columns
 arr[2][0], arr[2][1], arr[2][2]



arr[i][j]

	0	1	2	3
0	1	2	3	4
1	5	6	7	8
2	9	10	11	12
3	13	14	15	16

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

last row
 ↓
 reverse order

```
public static void main(String[] args) {
    Scanner scn = new Scanner(System.in);

    System.out.println(x: "Enter the number of rows");
    int n = scn.nextInt();

    System.out.println(x: "Enter the number of columns");
    int m = scn.nextInt();

    int[][] arr = new int[n][m];

    System.out.println("Enter "+n*m+" numbers for your matrix");

    for(int i=0; i<n; i++){
        for(int j=0; j<m; j++){
            arr[i][j] = scn.nextInt();
        }
    }

    System.out.println(x: "Your matrix is this neo");

    for(int i=0; i<n; i++){
        for(int j=0; j<m; j++){
            System.out.print(arr[i][j]+" ");
        }
        System.out.println();
    }
}
```

arr[2][3]
 ↓
 12

Ques Create 2d array, take input, find sum of whole 2d array.

```

int sum=0;

for(int i=0; i<n; i++){
    for(int j=0; j<m; j++){
        int ele=arr[i][j];

        sum=sum+ele;
    }
}

System.out.println("The sum of whole array is "+sum);

```

~~1) Search~~ → create a search function.

2) Compare

3) row sum equal

4) col sum equal.

$n=3, m=4$

	0	1	2	3
0	1	2	3	4
1	5	6	4	9
2	9	9	9	9

tar = 10

```

public static boolean search(int[][] arr, int tar){
    int n=arr.length;
    int m=arr[0].length;

    for(int i=0; i<n; i++){
        for(int j=0; j<m; j++){
            if(arr[i][j]==tar){
                return true;
            }
        }
    }

    return false;
}

```

1) Two arrays are equal if they have equal number of rows, columns and every cell element is equal.

1	2	3
4	5	6
7	8	9

1	2	3
4	5	6
7	8	10

$n1=3$
 $m1=3$

$n2=3$
 $m2=3$

```
// returns true if arr1, arr2 is same else false
public static boolean isSame(int[][] arr1, int[][] arr2){
    int n1=arr1.length;
    int m1=arr1[0].length;

    int n2=arr2.length;
    int m2=arr2[0].length;

    if(n1!=n2 || m1!=m2){
        return false;
    }

    for(int i=0; i<n1; i++){
        for(int j=0; j<m1; j++){
            if(arr1[i][j]!=arr2[i][j]){
                return false;
            }
        }
    }

    return true;
}
```

arr1(i)(j)
arr1(0)(2)
arr2(0)(2)

i=0
j=2

Ques Check if sum of every column is equal.

Ans Check if sum of every row is equal

n=4

m=3

first-row-sum = 2+6+0

```
public static boolean is_row_sum_equal(int[][] arr){
    int n=arr.length;
    int m=arr[0].length;

    int first_row_sum=0;

    int row=0;
    for(int col=0; col<m; col++){
        first_row_sum=first_row_sum+arr[row][col];
    }

    for(int i=1; i<n; i++){
        int row_sum=0;

        for(int j=0; j<m; j++){
            row_sum=row_sum+arr[i][j];
        }

        if(first_row_sum!=row_sum){
            return false;
        }
    }

    return true;
}
```

	0	1	2
0	0	1	5
1	1	2	3
2	2	5	0
3	3	6	2

also

	0,0	1,0	2,0
0,1	0,1	1,1	2,1
0,2	0,2	1,2	2,2

