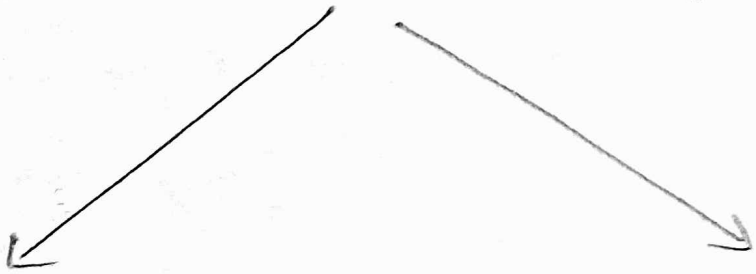
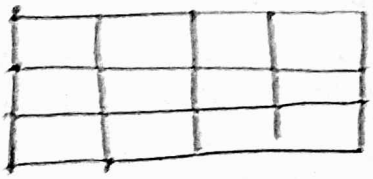
2D Array :-

Double Dimensional Array



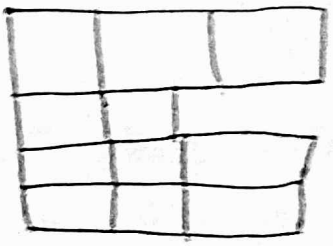
Rectangular 2D array

Every Row is of same Number of Columns



Jagged 2D array

Each row can have different Number of columns



Syntax of 2D Array :-

Array Reference :-

```
<datatype>[][] <array_name>
```

Actual Array

```
<array_Name> = new <datatype>[RowSize][ColumnSize]
```

Input / output in Rectangular Array :-

// WAP to create a Rectangle 2D array by accepting Row and Col size from the user. Accept value from the Array from the user and finally display all the elements in Matrix style as well as display their Sum ~~and Average~~.

```
import java.util.Scanner;
import java.util.Arrays;
Public class Main
{
    Public static void main (String [] args)
    {
        Scanner sc = new Scanner (System.in);
        System.out.println ("Enter Row size");
        int r = sc.nextInt();
        System.out.println("Enter Coloumb size");
        int c= sc.nextInt();
        int [][] arr = new int [r][c];
        int i, j, Sum = 0;
```

```
for (i=0; i<=r-1; i++)
{
    for(j=0; j<=c-1; j++)
    {
        System.out.println("Enter Value");
        arr[i][j] = sc.nextInt();
        Sum = Sum + arr[i][j];
    }
}
for( i=0; i<=r-1; i++)
{
    System.out.println();
    for(j=0; j<=c-1; j++)
    {
        System.out.println(arr[i][j]);
        System.out.print("    ");
    }
}
System.out.println("The Sum is " +Sum);
}
}
```

Initializing a rectangular 2D array

(1)

```
int [][] arr = new int [3][4]

arr[0][0] = 10;
arr[0][1] = 20;
arr[0][2] = 30;
```

(or)

(2) `int [][] arr = new int [][] {{10,20,30}, {40,80,...}, {60,70,80}};`

(optional)

(or)

(3) `int [][] arr = {{10,20,30}, {20,30,40}, {50,60,70}};`