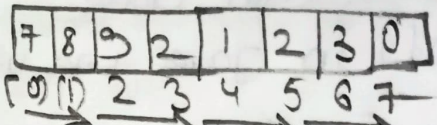
Ch-8

(Arrays)

Collection of same data type stored at contigerous memory location.

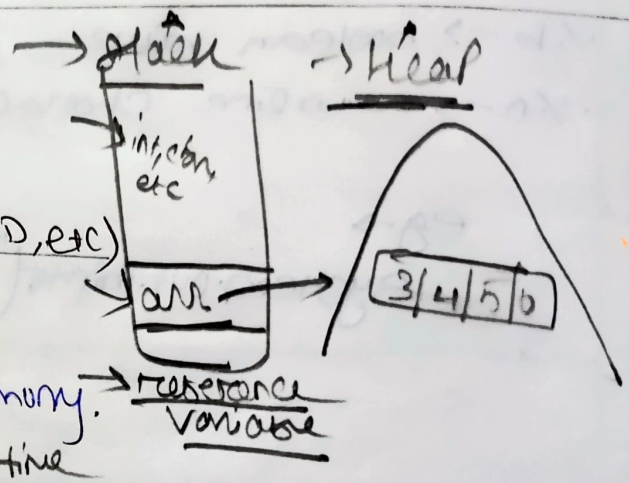


array[] (not in java, depends on JVM)

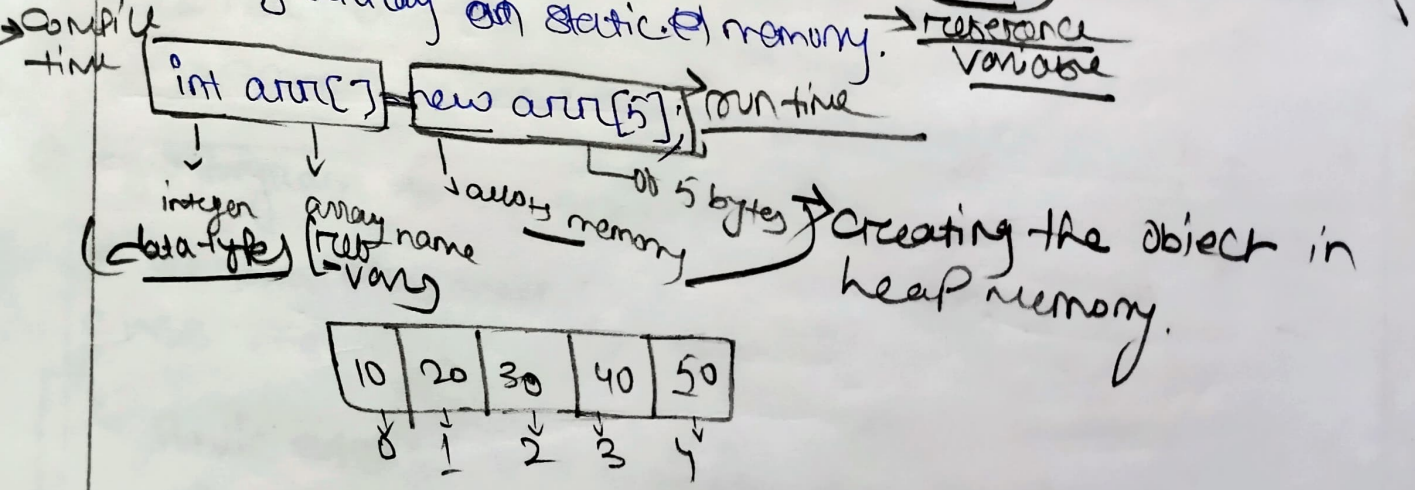
- C/C++ by default array are created on static memory location, unless Pointers are used to create them.
- In Java arrays are created on dynamic memory, i.e, allotment at runtime by JVM.

Types of array:-

- single dimensional array (1D)
- multi dimensional array (2D, 3D, etc)



* Creating array on static memory.



* Creating array on dynamic memory:

```
int arr[] = new int[n];
int n = sc.nextInt();
```

n a variable whose size is not fixed and can be changed dynamically at runtime

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③ Program to Perform the sorting of integer value using bubble sort.

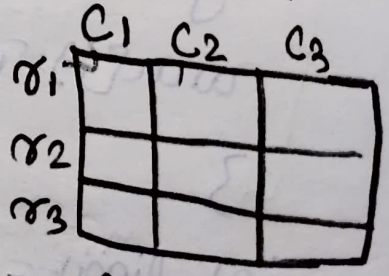
```
import java.io.*; // Package to take input/output.
Class sort
{
  Public static void main(String args[])throws IOException
  {
    BufferedReader br = new BufferedReader(new
    InputStreamReader(System.in));
Scanner class can be used.
    System.out.Print("Enter the element");
    int n = Integer.ParseInt(br.readline());
    int arr[] = new int[n];
    for(int i=0; i<n; i++)
    {
      System.out.Print("enter int:");
      arr[i] = Integer.ParseInt(br.readLine());
    }
    int limit = n-1;
    boolean flag = false;
    int temp;
    for(int i=0; i<limit; i++)
    {
      for(int j=0; j<limit; j++)
      swap
      if(arr[j]>arr[j+1])
      {
        temp = arr[j];
        arr[j] = arr[j+1];
```

```
arr[j+1] = temp;
flag = true;
}
}
if(flag==false) break;
else flag=false;
}

System.out.Println("The sorted array is:");
for(int i=0; i<n; i++)
System.out.Println(arr[i]);
}
}
```

~~Three D array~~ (3D) array in java

* 2D arrays in java : eg chess or excel sheet.



2D arrays

Syntax:

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

(2D: allocate)

```
for(i=0;
  [for(j=0
    arr[i][j] = sc.nextInt();
  }
 }
```

arrayname.length :- used to return the size of the array or length of array.

eg:->

```
int arr[] = new int[10];
arr[0]=50, arr[1]=55, arr[2]=60; //number of element is 3.
```

[arr.length (gives 3 to element) i.e the size.]

Command line arguments :- Represent the values passed to main() method. to catch and store these values, main() has Parameters, i.e String args[].

```
Public Static void main(String args[])
```

→ 1D array that can store string type data.

C:\> Java Prog 11 22 Vikas

(String Passed to main method.)

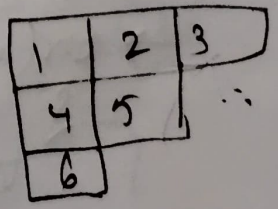
* Jagged arrays :- array that contains a group of array within it. Can used to store 1, 2, and 3D array as well. also called as "irregular multidimensional arrays.

eg-> `int a[][] = new int[2][];` → 1d array

element no (row size)

eg-> `int a[][][] = new double[3][][];` → 2D array.

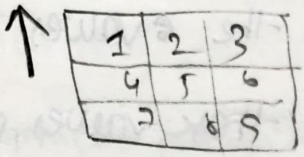
3 (row size)



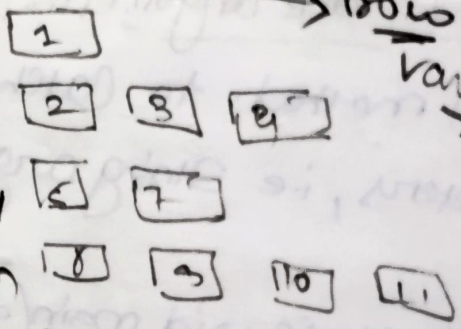
Defining number of element in each row

```
int [][] num = new int [3][];
num[0] = new int [3];   ---> [00][01][02]
num[1] = new int [2];   ---> [10][11]
num[2] = new int [1];   ---> [20]
```

eg → Rectangle array vs Jagged array



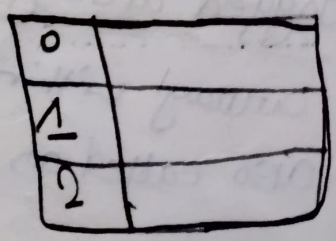
row is always same.



array row is not same in jagged array.

Demonstrate of Jagged array :

```
import java.util.*;
class Jaggedarray
{
    int arr[][] = new int [3][];   // row, column
    int[0] = new int[3];
    int[1] = new int[2];
    int[2] = new int[1];
```




```
→ for(int i=0; i<arr.length; i++)
  {
    for(int j=0; j<arr[i].length; j++)
    {
      System.out.("arr[i][j]");
    }
  }
```