

Array List

→ in built  
→ linear

## Array

1) fixed size

2) primitive data types  
can stored

## Array List

dynamic size

primitive data types

can't be stored directly

Operations

1) Add → Variable.add();

2) Get → Variable.get(<sup>int</sup>); / int v = Variable.get();

3) Index of an element → Variable

Remove → Variable.remove();

4) Set → Variable.set();

5) Contains → Variable.contains(); output → T/F

## Size of Array list

• size()

## Swap two numbers

list = 2, 5, 9, 3, 6

index:  $idx_1=1, idx_2=3$

2 3 9 5 6

temp = list( $idx_1$ )

list( $idx_1$ ) = list( $idx_2$ )

list( $idx_2$ ) = temp

## Sorting

We have inbuilt fun - Collection → interface →

but we use Two lib

We MUST write

Collections.sort(var);

import java.util.\*;

Descending order

This lib indicate All

Collections.sort(var, reverseOrder());

```
import java.util.ArrayList; }  
import java.util.Collections; }
```

## ArrayList implementation

constr

?

```
ArrayList<Integer> list = new ArrayList<>();
          ↓      ↓      ↓      ↓
obj   data type dec->name create(heap)
```

[1|2|3] } Size 10,

? } → full java automatically  
double

<u>[1 2 3 4]</u>		20, 40, 80, 160
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## Multi-dimensional ArrayList      2D Array

list1: 1 2 3 4 5

list2: 2 4 6 8 10

list3: 3 6 9 12 15

2D

```
ArrayList<ArrayList<Integer>> Mainlist = new
ArrayList<>();
```

~~ArrayList<Integer>~~ list1 = new ArrayList<>();

ArrayList< Integer > list2 = new ArrayList<>();

ArrayList< Integers > list3 = new ArrayList<>();

for( int i=1; i<=5; i++ ) {

list1.add(i\*1);

list2.add(i\*2);

list3.add(i\*3);

}

Mainlist.add(list1); Mainlist.add(list2); Mainlist.add(list3)

for( int i=0; i<Mainlist.size(); i++ ) {

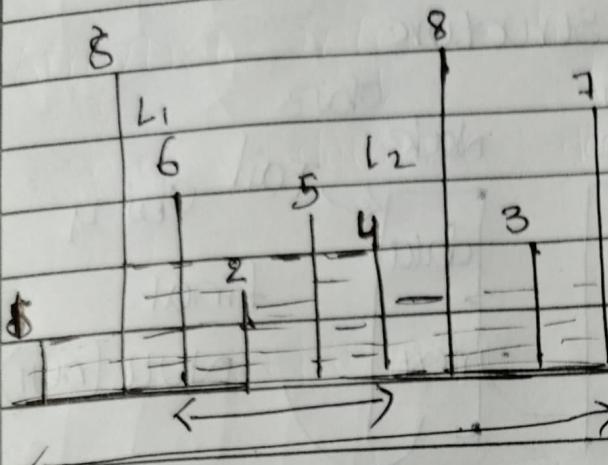
ArrayList< Integer > currlist = Mainlist.get(i);

for( int j=0; j<currlist.size(); j++ ) {

System.out.print(currlist.get(j) + " ");

System.out.println();

Expt No.: .....

Container with most waterheight = [1, 8, 6, 2, 5, 4, 8, 3, 7]  
1 2 3 4 5

for (int i=0; i&lt;ht.size(); i++)

for (int j=i+1; j&lt;ht.size(); j++)

y

$$\begin{aligned} \text{Water} &= \text{height} \times \text{width} \\ &= 4 \times 3 \\ &= 12 \end{aligned}$$

$$\begin{aligned} \text{width} &= L_2 - L_1 \\ &= 5 - 2 \\ &= 3 \end{aligned}$$

$$\text{width} = L_2 - L_1$$

$$\begin{aligned} \text{Water} &= \text{height} \times \text{width} \\ &= 7 \times 7 \\ &= 49 \end{aligned}$$

Container with