

# L14

## Dynamic Array

For discord mail to [support@learnyard.com](mailto:support@learnyard.com)

## Use of Dynamic Arrays

leetcode / GFG / Coding Test  for

Array → 8 3 1 8 3 5



→ ~~count odd~~ → 4

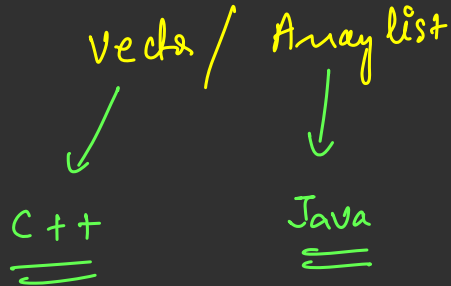


size



Element Store  $\longrightarrow$  No. of element is  
Unknown

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## Vector in C++/ ArrayList in Java

C++

$\begin{bmatrix} 1 & 2 \\ 0 & 1 \end{bmatrix}$

`vector< datatype > an;`

`an.push_back(1);`

`an.push_back(2);`

`an[0] → 1`

Java

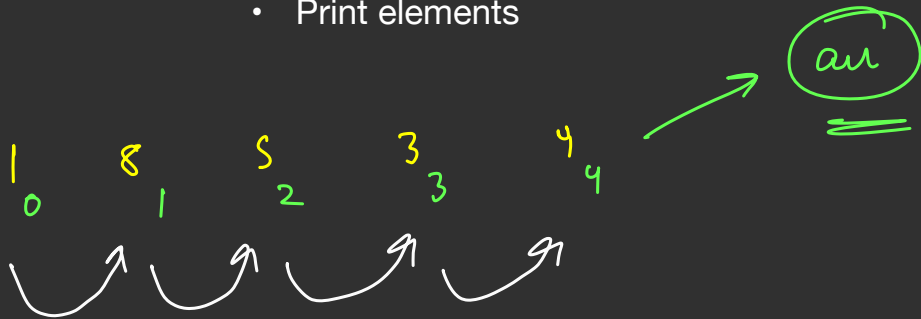
`ArrayList< Datatype > an =  
new ArrayList<>();`

`an.add(1);`

`an.add(2);`

`an.get(0) → 1`

- Insertion of elements
- Print elements



```
for (int i = 0; i < an.size(); i++)
{
    an[i] / an.get(i)
}
```

How internally dynamic array handles the size ?

arr  $\rightarrow$  [ ]



arr  $\rightarrow$

[ 1 2 3 ]

Policy



capacity  $\rightarrow$  8



Exponentially  
+ 2

10<sup>7</sup>  
 $\uparrow$

## Time Complexity Analysis of Dynamic Arrays

push\_back  $\rightarrow O(1)$

add  $\rightarrow O(1)$

arr[i]  $\rightarrow O(1)$

get(i)  $\rightarrow O(1)$

pop\_back  $\rightarrow O(1)$

remove

$\downarrow$   
 $\rightarrow O(1)$

size  $\rightarrow O(1)$

Vector of Vector in C++/  
ArrayList of ArrayList in Java

2D vector  
2D ArrayList

$$\begin{bmatrix} 1 & 2 & 3 \\ 4 & 5 & 6 \end{bmatrix}$$

Every row  
can have diff  
column

an

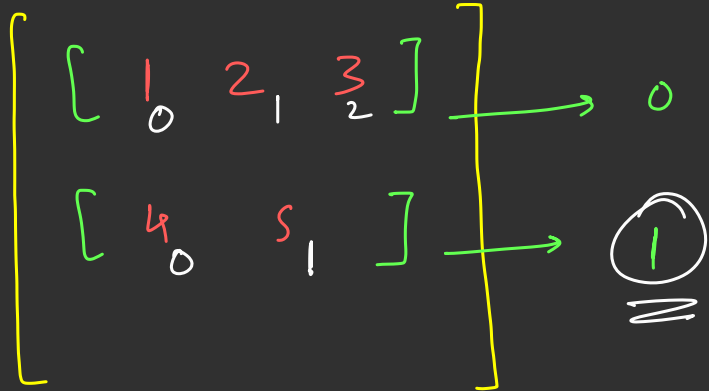
$$\begin{bmatrix} [1 \ 2 \ 3] \\ [4 \ 5] \\ [7 \ 8] \end{bmatrix}$$



an

C++

an[1][1]



an.get(1).get(1)

Java

vector < vector < int > > an ;      →      C++

ArrayList < ArrayList < Integer > > an =  
new ArrayList < > ();      →      Java

*Thank You!*

Please practice more questions and examples as above !!