

Java for beginners

Arrays



Saurabh Shukla (MySirG)

Agenda

- ① Array Introduction
- ② Declaring Arrays
- ③ Two dimensional Arrays
- ④ 2d Array declaration
- ⑤ Distinct Array Length

Arrays

Array is a linear collection of similar elements.

How array is declared or created in C++?

C/C++

Total number
of variable

int a[5]; subscript value
 index → 0 1 2 3 4

expression



`a[2] = 20;`

[] ← subscript operator

a, 2 ← operands

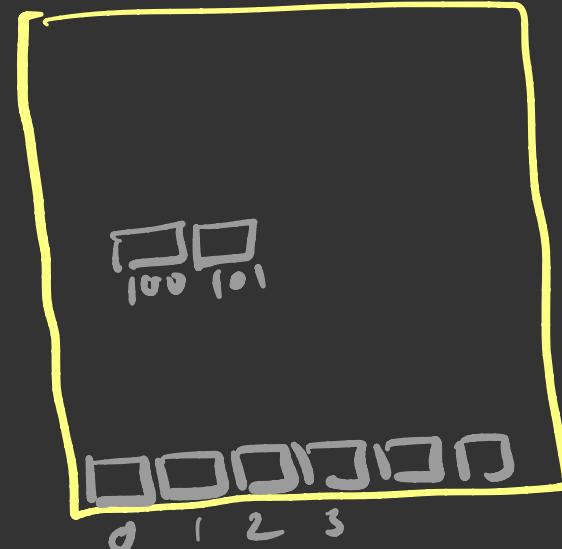
a ← &a[0]

`a[2] ← *(a+2)`

address + integer → address

`&a[0] + 1` → 1004

memory



In C++

int a[5]; ← SMA

or

int *arr = new int[5]; ← DMA

Java only support DMA for arrays.

Declaring arrays in Java

int arr[5]; Error

int arr[]; }
int []arr;

arr is not an array but
it is a reference variable
to hold reference of
int type array.

int a; } value type
float b; } variables

Student s1;
Box b1;
Circle c1;
Person p1;

Nullable
type
variable
or
reference
variable

int []a;
Student []s;

Reference
variable

```
int []arr;
```

```
arr = new int[5];
```

or

```
int []arr = new int[5];
```

Initialising array during declaration

```
int []arr = new int[] {5, 10, 15, 20, 25};
```

or

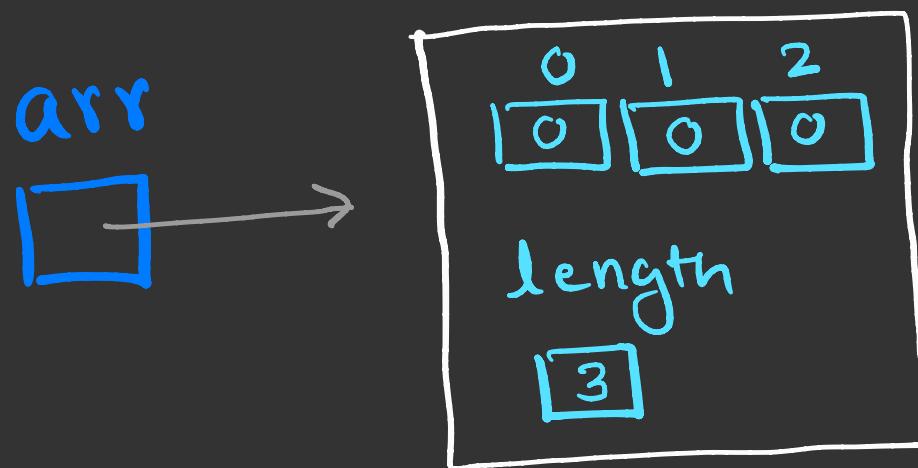
```
int []arr = {5, 10, 15, 20, 25};
```

```
int []arr = new int[5] {5, 15, 20, 25};
```

You cannot mention size and values together.

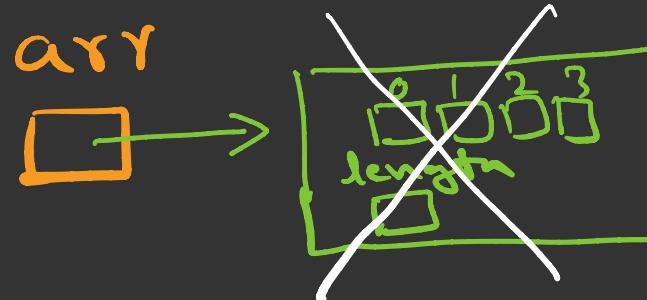
Array is not blank

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



Find Output

```
int arr[];  
arr[0] = 25;  
arr[1] = 50;
```



```
System.out.println( arr.length );
```

Error

Initialization after declaration

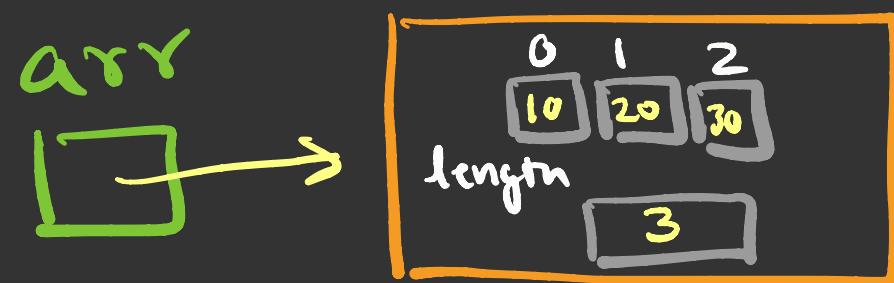
```
int arr[3];
```

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

```
arr[0] = 10;
```

```
arr[1] = 20;
```

```
arr[2] = 30;
```

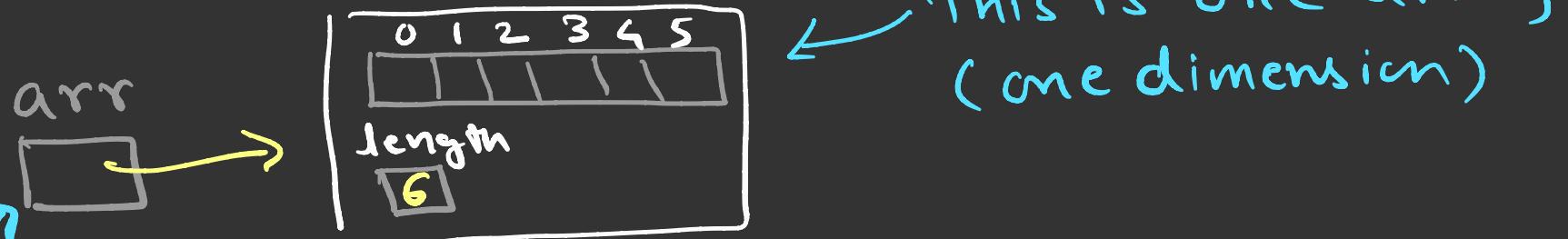


Two dimensional Arrays

It is array of arrays.

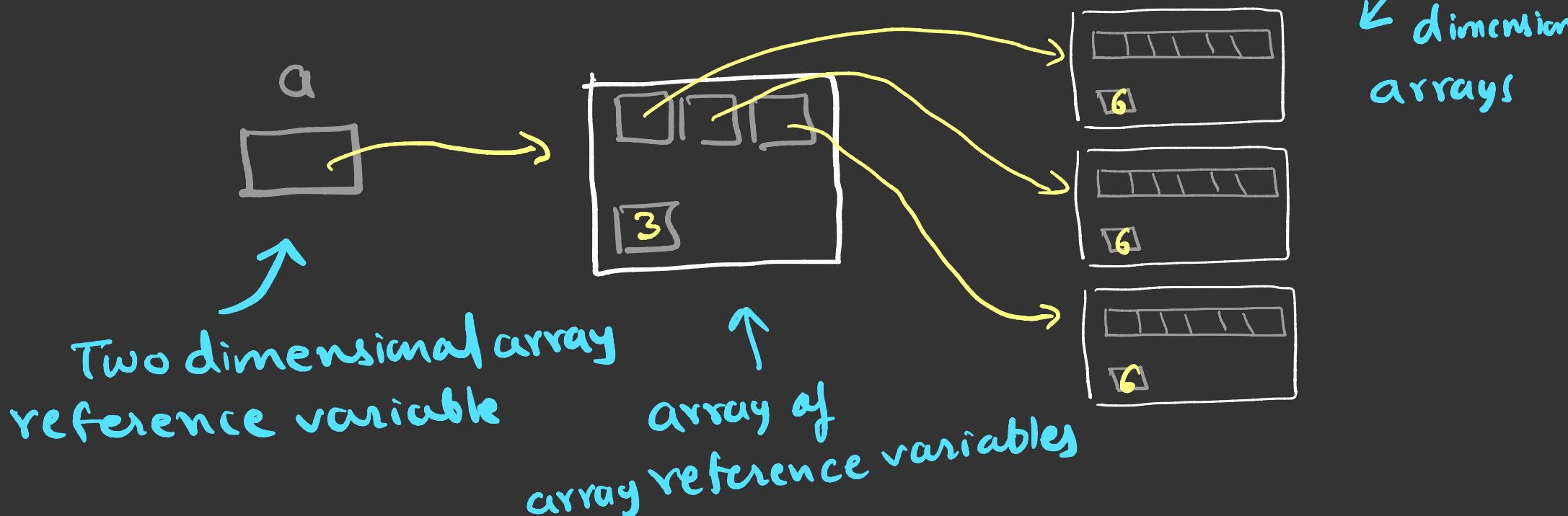
```
int []arr=new int[6];
```

one dimension
array
reference
variable



this is one array
(one dimension)

```
int [][]a = new int [3][6];
```



Three
one
dimension
arrays

2d array declaration

```
int [][]a;
```

a
[]

```
int [][]a = new int[3][6];
```



both blanks
not possible

```
int [][]a = new int [][];
```

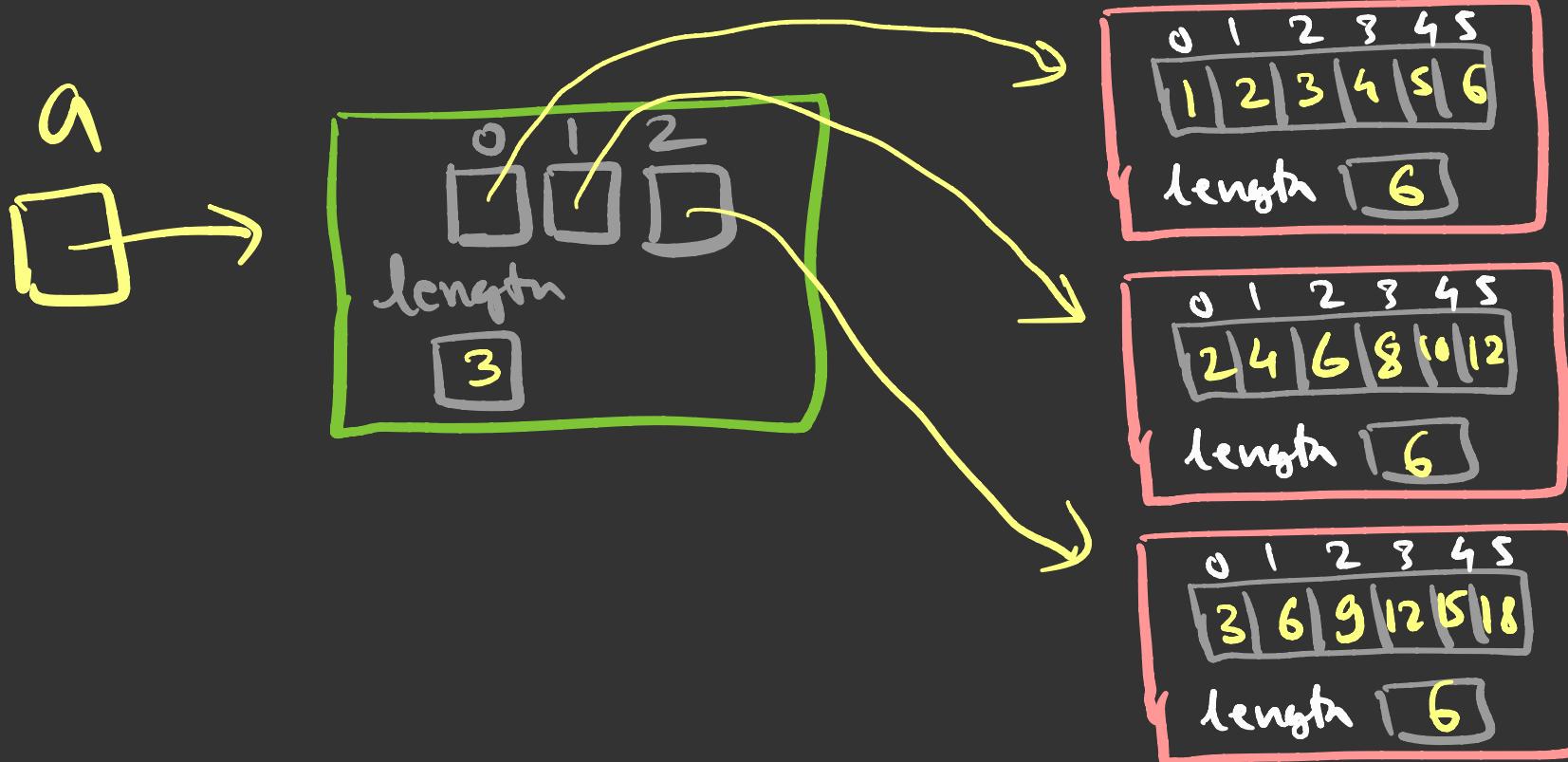
```
int [][]a = new int [][6];
```

← Not possible

```
int [][]a = new int [3][];
```



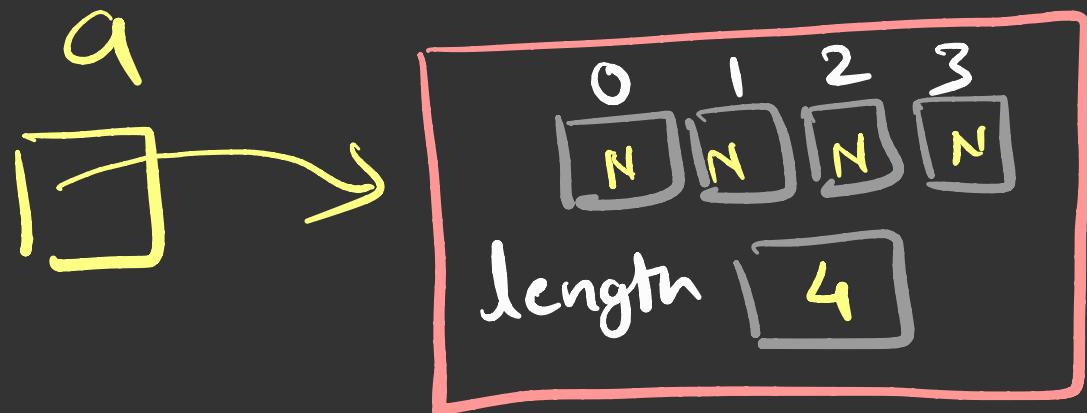
```
int [][]a = new int [][]{{1,2,3,4,5,6},  
                        {2,4,6,8,10,12},  
                        {3,6,9,12,15,18}};
```



Find Output

int a[][] = new int[4][];

System.out.println(a[0][0]);



Null pointer exception

Find Output

```
int [][] a = new int [4][];
```

```
System.out.println ( a[0]);
```

null

Find Output

```
int [][] a = new int[4][];
```

```
System.out.println( a[0].length );
```

Null pointer exception

Distinct array length

```
int [][]a = new int[3][];
```

```
a[0] = new int[5];
```

```
a[1] = new int[8];
```

```
a[2] = new int[4];
```

