

## Session-5 Single Dimensional Arrays

Thursday, July 7, 2022 4:16 PM

### Arrays

Arrays are used to store multiple values in a single variable, instead of declaring separate variables for each value. **Java array** is an object which contains **elements of a similar data type**. For example: If we want to store salary of 5 employees.

#### Without using Array

```
→ int SalEmp1 = 5000;
→ int SalEmp2 = 6000;
→ int SalEmp3 = 8000;
→ int SalEmp4 = 9000;
→ int SalEmp5 = 4000;
```

(5)  
6 = 7000

#### Using arrays

```
int [] salaryEmp = {5000, 6000, 8000, 9000, 4000};
```

① 2 3 4 5  
- - - - -

#### 1<sup>ST</sup> Advantage

**Code Optimization:** It makes the code optimized, we can retrieve or sort the data efficiently.

### How To Access Array

$n = 5$   
`int[] a = {10, 20, 30, 40, 50};`  
 ↑ element 1<sup>st</sup>  
 ↑ 1<sup>st</sup> index  
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50  
 0  
1  
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3  
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### Single Dimensional Array

- Declare & instantiate array
- Insert values to array
- Find length of array
- Read values from array
- Change value of an array element

## Declaration & Instantiation

### Declaration

1. dataType[] arrayRefVar;  
or

2. dataType arrayRefVar[];

*int[] a;*  
*int a[];*

### Instantiation

arrayRefVar = new dataType[size];

*a = new int[5];*

### Combine Declaration & instantiation in one statement

dataType[] arrRefVar = new dataType[size];

dataType[] arrRefVar = {10,20,30,40,50};

```

3 public class Arrays {
4
5     public static void main(String[] args) {
6         // TODO Auto-generated method stub
7
8         //declare and instantiate
9         int [] roll = new int[5];
10
11         //insert value in array
12         roll[0] = 12; //1st element
13         roll[1] = 22; //2nd element
14         roll[2] = 32; //3rd element
15         roll[3] = 45; //4th element
16         roll[4] = 25; //5th element
17
18         int [] roll = {12,22,32,45,25};
19         //print size of an array
20         System.out.println("size of array:" + roll.length);
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```

terminated> Arrays [Java Application] C:\Program Files\Java\jdk-17.0.1\bin\javaw.exe (Nov 3, 2021, 12:52:43 PM – 12:52:44 PM)

value of 4th element :45

```

13 //         roll[1] = 22; //2nd element
14 //         roll[2] = 32; //3rd element
15 //         roll[3] = 45; //4th element
16 //         roll[4] = 25; //5th element
17
18         int [] roll = {12,22,32,45,25};
19
20         //print size of an array
21         System.out.println("size of array:" + roll.length);
22
23         //read values from array
24         System.out.println("value of 4th element :" + roll[3]);
25
26         //read all the values of roll array
27
28         for(int i=0; i<roll.length;i++)
29         {
30             //code to executed
31             System.out.println(roll[i]); //12,22,32,45,25
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```

```

28 //         for(int i=0; i<roll.length;i++)
29 //         {
30 //             //code to executed
31 //             System.out.println(roll[i]); //12,22,32,45,25
32 //         }
33
34         //for each loop - enhanced loop
35
36         for(int i:roll)
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```

```
39  
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41 //code  
42 System.out.println(i);  
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```