



JAVA

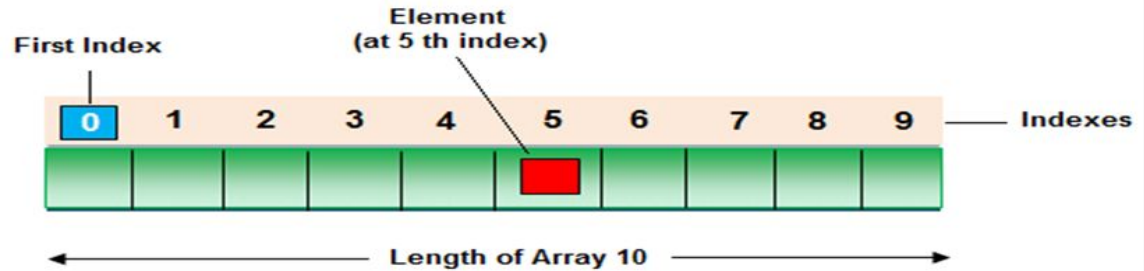
Class 10

# Agenda

Arrays in JAVA

# Array in Java

- Array is a collection of similar type of data.
- Array is a container object that hold values of homogeneous type.
- It is a collection of similar data types.
- It is fixed in size that means you can't increase the size of array at run time.
- It stores the value on the basis of index value. The first element of an array starts with zero



# Declaring and Initializing an Array

**dataType[] arrayVar;**  
preferred way

or

**dataType arrayVar[];**  
works but not preferred way

**dataType[] arrayVar = new dataType[arraySize];**  
preferred way

Or

**dataType arrayVar[] = new dataType[arraySize];**  
works but not preferred way

**Note:** At the time of array declaration we can not specify the size of array.  
For Example `int[5] a;` → this is wrong.

# Array in Java

- Every array in a java is an object, Hence we can create array by using **new** keyword.
- Access the elements of array by using index value of an elements.

```
5 public static void main(String[] args) {  
6     //declare an array  
7     int[] array;  
8  
9     //initialize or create an array  
10    array=new int[3];  
11  
12    //assign value  
13    array[0]=10;  
14    array[1]=20;  
15    array[2]=30;  
16  
17    //access array element  
18    System.out.println(array[1]);  
19 }  
20 }  
21
```

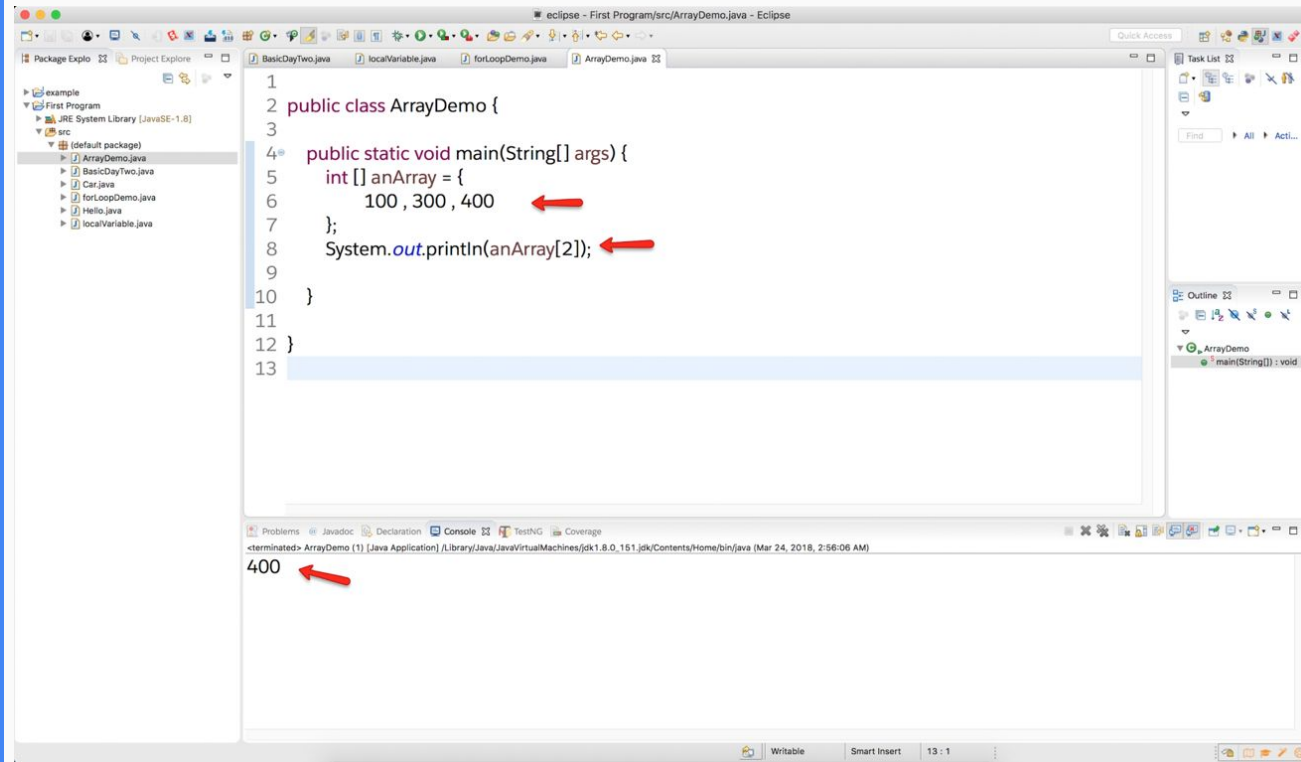
Console

<terminated> ArraysIntro [Java Application] /Library/Java/JavaVirtualMachines/jdk1.8.0\_144.jdk/Contents/Home/bin/java (Mar 15, 2019)

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# Array in Java

Another way to write the previous scenario which will create and initialize an array is



```
1
2 public class ArrayDemo {
3
4     public static void main(String[] args) {
5         int [] anArray = {
6             100 , 300 , 400
7         };
8         System.out.println(anArray[2]);
9     }
10 }
11
12 }
13
```

The screenshot shows the Eclipse IDE with the file `ArrayDemo.java` open. The code defines a class `ArrayDemo` with a `main` method. In the `main` method, an integer array `anArray` is declared and initialized with the values 100, 300, and 400. The value 400 is highlighted with a red arrow. The array is then printed using `System.out.println(anArray[2]);`, where the index 2 is also highlighted with a red arrow. The console at the bottom shows the output `400`, which is also highlighted with a red arrow. The Package Explorer on the left shows the project structure, and the Outline view on the right shows the class and method structure.

# Task

1. Create an array of chars and store grades into it: A,B,C,D,E,F. Then print a grade B (use 2 different ways of creating an array).
2. Create an array of names and store all names of your group. Then print your name from that array. (use 2 different ways of creating an array).
3. Create an array of words: Java, Saturday, day, coding, is. Print the following sentence using element of array: "Saturday is Java coding Day".

# Array in Java

```
int[] arr = new int[10]; // The size of array is 10.  
or  
int[] arr = {10,20,30,40,50};
```

## Note:

- 1) At the time of array creation we must specify the size of array otherwise get a compile time error. For Example  
`int[] a = new int[];` → Invalid.  
`int[] a = new int[5];` → Valid
- 2) If we specify array size as negative int value, then we will get run-time error, `NegativeArraySizeException`.
- 3) To specify array size the allowed data types are byte, short, int, char. If we use other data type then we will get a compile time error.
- 4) The maximum allowed size of array in java is 2147483647  
(It is maximum value of int data type)



# How to find a size of an Array

To find the length of an array, we can use the following syntax:

**arrayName.length();**

```
String[] names=new String[5];
```

```
names[0]="John";  
names[1]="Anna";  
names[2]="Michael";  
names[3]="Donald";  
names[4]="Omar";
```

```
System.out.println(names.length); output->5
```

# How to print all values from an Array

To print all values from an array we can use for loop using following syntax

```
for ( int i=0; i < array.length; i++ ) {  
    System.out.println( array[i] );  
}
```

```
String[] names=new String[3];
```

```
names[0]="John";  
names[1]="Anna";  
names[2]="Michael";
```

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