Lesson:

Array in Java

List of Concepts Involved:

- Different ways to create an Array
- Buffer overrun and arrayindexoutofbounds exception
- Disadvantages of Array in Java

length vs length()

length
It is a property of the Array type class.
length()
It is a method of String class.

Example

```
int[] a= {10,20,30};
System.out.println(a);//[I@...
System.out.println(a.length);//3
System.out.println(a.length());//CE::symbol not found

String[] names={"sachin","saurav","dhoni","yuvi"};
System.out.println(names); //[L@....
System.out.println(names[0]);//sachin
System.out.println(names.length);//4
System.out.println(names[0].length());6

int[] a[] ={{10,20,30},{100,200},{1000},{40,50,60,70}};
System.out.println(a);//[[I@...
System.out.println(a[0]);//[I@...
System.out.println(a.length);//4
System.out.println(a[0].length);3
```

Anonymous Array

- An array without a name is called Anonymous Array.
- This type of array is created just for instance use.

Example

```
public class Demo{
        public static void main(String... args){
                add(new int[]{10,20,30,40});
                add(new int[]{10,20});
                add(new int[]{});
       }
       public static void add(int[] a){
               sum+=0;
               for(int i=0;i<a.length;i++){
                        sum+=a[i];
```

```
                }
                System.out.println("The sum is ::"+sum);
        }
 }
```

Output
The sum is 100
The sum is 30
The sum is 0

Usage of anonymous array internally by JVM

```
public class Demo{
        public static void main(String []args){
                System.out.println("Working with array");
        }
}
```

Behind the Scenes by JVM

```
javac Demo.java
java  Demo 10 20  ⇒ Demo.main(new String[]{"10","20});
java  Demo        ⇒ Demo.main(new String[]{});
java  Demo 10     ⇒ Demo.main(new String[]{"10"});
java  Demo sachin tendulkar ⇒ Demo.main(new String[]{"sachin","tendulkar"});
```

Buffer overrun and ArrayIndexOutOfBoundsException

In java when we create an array, array index starts from 0 index.
Example:

```
  int[] a = {10,20,30,40};
```

In the zero index we have 10, similarly in the first index we have 20, third index we have 30 and in fourth index we have 40.
If we try to access the index which is not in the array range then it would result in an Exception called "**ArrayIndexOutOfBoundsException**".

Example

```
public class Demo{
        public static void main(String []args){
              int[] a = {10,20,30,40,50}
              for(int i =0;i⩽5;i++)
                        System.out.println(a[i]);
        }
}
```

Output

10
20
30
40
50
Exception in Thread main **java.lang.ArrayIndexOutOfBoundsException**

Disadvantages of Arrays

- once we create the size cannot be increased/decreased.
- It stores only homogeneous data elements.