

Java Arrays - Study Material & Code Examples

Introduction to Arrays in Java

An array is a data structure that stores multiple values of the same type in a single variable. It is a fixed-size container where elements are stored in contiguous memory locations.

Syntax of Array:

`dataType[] arrayName = new dataType[size];` Example: `int[] numbers = new int[5];`

1. One Dimensional Array

```
public class OneDArray {
    public static void main(String[] args) {
        int[] numbers = {10, 20, 30, 40, 50};
        for (int i = 0; i < numbers.length; i++) {
            System.out.println("Element at index " + i + ": " + numbers[i]);
        }
    }
}
```

2. For-Each Loop with Array

```
public class ForEachArray {
    public static void main(String[] args) {
        String[] fruits = {"Apple", "Banana", "Cherry"};
        for (String fruit : fruits) {
            System.out.println(fruit);
        }
    }
}
```

3. Two Dimensional Array

```
public class TwoDArray {
    public static void main(String[] args) {
        int[][] matrix = { {1, 2}, {3, 4}, {5, 6} };
        for (int i = 0; i < matrix.length; i++) {
            for (int j = 0; j < matrix[i].length; j++) {
                System.out.print(matrix[i][j] + " ");
            }
            System.out.println();
        }
    }
}
```

4. Array of Objects

```
class Student {
    String name;
    Student(String name) {
        this.name = name;
    }
}

public class ArrayObjects {
    public static void main(String[] args) {
        Student[] students = { new Student("Ashim"), new Student("Ramesh"), new Student("Sita") };
        for (Student s : students) {
            System.out.println(s.name);
        }
    }
}
```

