**Java Basics**

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## **1. What is OOPs?**

Object Oriented Programming is a programming paradigm that allows you to model real world entities as objects and define their behaviour through methods and attributes. Oops promote modularity, reusability and maintainability of code.

### # Benefits of OOPs

## **2. Arrays**

An array is a container object that holds a fixed number of values of a single data type. The length of an array is established when the array is created, and cannot be changed. (Arrays are immutable and not thread safe)

Declaration

// way to declare the array  
int[] arr;  
  
//ways to initialize the array  
int[] arr = new int[4];  
  
int[] arr = {1,2,3,4};

Default Values of Array Elements

* Numeric arrays are initialized to 0.
* boolean arrays are initialized to false.
* Reference type arrays (like String[]) are initialized to null.

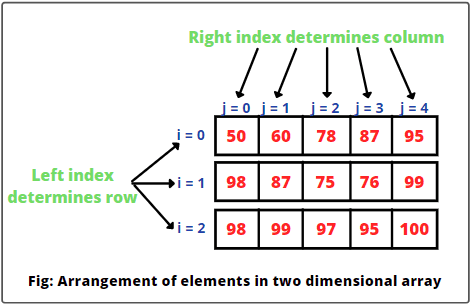
Basic functions

public class Array {  
 public static void main(String args[]){  
 int[] arr = {1,2,3,4};  
  
 //way to access the elements  
 System.*out*.println("Second Element of array is "+ arr[1]);  
  
 //Modifying the value  
 arr[0] = 24;  
  
 //printing the array  
 for(int i=0; i< arr.length; i++){ //output 24 2 3 4  
 System.*out*.println(arr[i]);  
 }  
  
 //For each loop  
 for(int ele:arr){  
 System.*out*.println(ele); //output 24 2 3 4  
 }  
 }  
}

Taking array as input from user

import java.util.\*;  
  
public class Array2 {  
 public static void main(String args[]){  
 Scanner scan = new Scanner(System.*in*);  
 int size = scan.nextInt();  
  
 int[] arr = new int[size];  
 //Getting array input from users  
 for(int i=0; i<size; i++){  
 arr[i] = scan.nextInt();  
 }  
 //Printing array  
 for(int ele: arr){  
 System.*out*.println(ele);  
 }  
  
 }  
}

2D Arrays



int[][] matrix = {  
 {1, 2, 3},  
 {4, 5, 6},  
 {7, 8, 9}  
};  
System.*out*.println(matrix[1][2]); // Output: 6

Array Utility class

Java provides the Arrays class with useful methods:

* sort(): Sorts the array in ascending order.
* binarySearch(): Searches for a specified value in a sorted array.
* copyOf(): Copies elements from an array.

import java.util.Arrays;  
  
public class LearnArrayUtil {  
 public static void main(String[] args) {  
  
 int[] arr = {5, 2, 8, 1};  
 Arrays.*sort*(arr); // Sorts array  
  
 //Convert array to string to print in 1 line  
 System.*out*.println(Arrays.*toString*(arr)); // Output: [1, 2, 5, 8]  
  
 int[] arr2 = {4, 3, 7};  
 int[] arr3 = {4, 3, 7};  
 System.*out*.println(Arrays.*compare*(arr,arr2)); //-1 arr is larger than arr2  
 System.*out*.println(Arrays.*compare*(arr2,arr3)); //0 > arrays are equal  
 }  
}

## **3. Interview Questions**

**1. Are java constructors a function?**

In Java, a constructor is not considered a "function" or "method" in the traditional sense, though it is similar in some ways. Here’s why a constructor is unique and different from regular methods: