

# Java Arrays Complete Cheat Sheet

## 1. What is an Array?

An array is a collection of elements of the same data type stored in contiguous memory locations. Index starts from 0.

## 2. Declaration & Initialization

Declaration: int[] arr; | Creation: arr = new int[5]; | Initialization: int[] arr = {1, 2, 3};

## 3. Default Values

int/byte/short/long → 0 | float/double → 0.0 | char → '\u0000' | boolean → false | Object → null

## 4. Traversing Arrays

for (int i=0; i<arr.length; i++) | for (int x : arr) | Arrays.stream(arr).forEach(System.out::println);

## 5. Common Operations

Sum: sum += arr[i]; | Max: if(arr[i]>max) max = arr[i]; | Reverse: swap elements using two-pointer method.

## 6. Arrays Class Methods

Arrays.toString(arr), Arrays.sort(arr), Arrays.equals(a,b), Arrays.copyOf(a,n), Arrays.fill(a,val),  
Arrays.binarySearch(a,key)

## 7. Multi-Dimensional Arrays

int[][] matrix = {{1,2},{3,4}}; Access: matrix[i][j]; Traverse using nested loops.

## 8. Jagged Arrays

int[][] jagged = new int[3][]; jagged[0] = new int[2]; jagged[1] = new int[3];

## 9. Array Copying

System.arraycopy(src,0,dest,0,len); | Arrays.copyOf(arr, len);

## 10. Arrays vs ArrayList

Array: Fixed size, supports primitives | ArrayList: Dynamic, Objects only (java.util.ArrayList)

## 11. Important DSA Concepts

Reverse/Rotate array, Kadane's Algorithm, Searching & Sorting, Prefix Sum, Frequency Array

## 12. Common Interview Problems

Find 2nd largest, Move zeros, Rotate array, Merge sorted arrays, Max subarray sum

## 13. Best Practices

Check bounds, Use for-each if index not needed, Use Arrays.copyOf, Avoid hardcoded lengths

Data Type	Default Value
int, byte, short, long	0
float, double	0.0
char	\u0000
boolean	false
Object references	null