How to Find Duplicates Elements in Java Array:

The most important interview question.

Solution 1 : with Time Complexity = O(nxn)

Our first solution is very simple. All we are doing here is to loop over an array and comparing each element to every other element. Since we are comparing every element to every other element, this solution has quadratic time complexity i.e. O(n^2). This solution has the worst complexity in all three solutions.

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Solution 2 : with Time Complexity = O(n)

Second solution is even simpler than this. All you need to know is that Set doesn't allow duplicates in Java. Which means if you have added an element into Set and trying to insert duplicate element again, it will not be allowed. If add() returns false it means that element is not allowed in the Set and that is your duplicate

Solution 3 : with Time Complexity = O(2n)

Third solution takes advantage of another useful data structure, hash map. All you need to do is loop through the array using enhanced for loop and insert each element and its count into hash table. In order to build map, you check if hash table contains the elements or not, if it is then increment the count otherwise insert element with count 1. Once you have this map ready, you can iterate over hashmap and print all those keys which has values greater than one. These are your duplicate elements. This is in fact a very good solution because you can extend it to found count of duplicates as well.