Interview Questions: Elementary Sorts

> **Warning:** The hard deadline has passed. You can attempt it, but **you will not get credit for it**. You are welcome to try it as a learning exercise.

These interview questions are for your own enrichment and are not assessed. If you click the *Submit Answers* button, you will get a hint.

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Question 1

Intersection of two sets. Given two arrays a[] and b[], each containing N distinct 2D points in the plane, design a subquadratic algorithm to count the number of points that are contained both in array a[] and array b[].

Question 2

Permutation. Given two integer arrays of size N, design a subquadratic algorithm to determine whether one is a permutation of the other. That is, do they contain exactly the same entries but, possibly, in a different order.

Question 3

Dutch national flag. Given an array of N buckets, each containing a red, white, or blue pebble, sort them by color. The allowed operations are:

- $swap(i, j)$: swap the pebble in bucket i with the pebble in bucket j.
- $color(i)$: color of pebble in bucket i.

The performance requirements are as follows:

- At most N calls to $color()$.

- At most N calls to $swap()$.

- Constant extra space.

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Submit Answers   Save Answers

You cannot submit your work until you agree to the Honor Code. Thanks!