1 / 1 points

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[]`.

Note: these interview questions are ungraded and purely for your own enrichment. To get a hint, submit a solution.

d

Your answer cannot be more than 10000 characters.

Thank you for your response.

Hint: shellsort (or any other subquadratic sort).

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1 / 1 points

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.

d

Your answer cannot be more than 10000 characters.

Thank you for your response.

Hint: sort both arrays.

1 / 1 points

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.
- $color(i)$: determine the color of the 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.

d

Your answer cannot be more than 10000 characters.

Thank you for your response.

Hint: 3-way partitioning.