Interview Questions (optional)

Practice Quiz, 3 questions

1 point

1.

Nuts and bolts. A disorganized carpenter has a mixed pile of n nuts and n bolts. The goal is to find the corresponding pairs of nuts and bolts. Each nut fits exactly one bolt and each bolt fits exactly one nut. By fitting a nut and a bolt together, the carpenter can see which one is bigger (but the carpenter cannot compare two nuts or two bolts directly). Design an algorithm for the problem that uses $n \log n$ compares (probabilistically).

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

What do you think?

Your answer cannot be more than 10000 characters.

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1 point

2.

Selection in two sorted arrays. Given two sorted arrays $a[\ ]$ and $b[\ ]$, of sizes n_1 and n_2, respectively, design an algorithm to find the k^{th} largest key. The order of growth of the worst case running time of your algorithm should be $\log n$, where $n = n_1 + n_2$.

- Version 1: $n_1 = n_2$ and $k = n/2$
- Version 2: $k = n/2$
- Version 3: no restrictions

Interview Questions (optional)

Practice Quiz, 3 questions

What do you think?

Your answer cannot be more than 10000 characters.

1 point

3.

Decimal dominants. Given an array with n keys, design an algorithm to find all values that occur more than $n/10$ times. The expected running time of your algorithm should be linear.

What do you think?

Your answer cannot be more than 10000 characters.

Submit Quiz