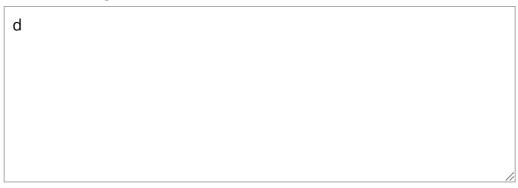


1/1 points

1.

4-SUM. Given an array $a[\]$ of n integers, the 4-SUM problem is to determine if there exist distinct indices i,j,k, and l such that a[i]+a[j]=a[k]+a[l]. Design an algorithm for the 4-SUM problem that takes time proportional to n^2 (under suitable technical assumptions).

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



Your answer cannot be more than 10000 characters.

Thank you for your response.

Hint: create a hash table with $\binom{n}{2}$ key-value pairs.



1/1 points

2.

Hashing with wrong hashCode() or equals(). Suppose that you implement a data type OlympicAthlete for use in a java.util.HashMap.

- Describe what happens if you override **hashCode()** but not **equals()**.
- Describe what happens if you override equals() but not hashCode().
- Describe what happens if you override hashCode() but implement public boolean equals(OlympicAthlete that) instead of public boolean equals(Object that).

d		

Your answer cannot be more than 10000 characters.

Thank you for your response.

Hint: it's code—try it and see!