

AMAZON PAPER ON 19th JUNE 2012

Interview Questions :

1. Given a Binary Search Tree, write a program to print the kth smallest element without using any static/global variable. You can't pass the value k to any function also.
2. What are the 4 basics of OOP?
3. Define Data Abstraction. What is its importance?
4. Given an array of size n. It contains numbers in the range 1 to n. Each number is present at least once except for 2 numbers. Find the missing numbers.
5. Given an array of size n. It contains numbers in the range 1 to n. Find the numbers which aren't present.
6. Given a string, find the first un-repeated character in it? Give some test cases
7. You are given a dictionary of all valid words. You have the following 3 operations permitted on a word: delete a character, insert a character, replace a character. Now given two words - word1 and word2 - find the minimum number of steps required to convert word1 to word2. (one operation counts as 1 step.)
8. Given a cube of size $n*n*n$ (i.e made up of n^3 smaller cubes), find the number of smaller cubes on the surface. Extend this to k-dimension.
9. What is a C array and illustrate the how is it different from a list.
10. What is the time and space complexities of merge sort and when is it preferred over quick sort?
11. Write a function which takes as parameters one regular expression (only ? and * are the special characters) and a string and returns whether the string matched the regular expression.
12. Given n red balls and m blue balls and some containers, how would you distribute those balls among the containers such that the probability of picking a red ball is maximized, assuming that the user randomly chooses a container and then randomly picks a ball from that.
13. Find the second largest element in an array with minimum no of comparisons and give the minimum no of comparisons needed on an array of size N to do the same.
14. Given an array of size n, containing every element from 1 to n+1, except one. Find the missing element.
15. How do you convert a decimal number to its hexa-decimal equivalent. Give a C code to do the same
16. Explain polymorphism. Provide an example.
17. Given an array all of whose elements are positive numbers, find the maximum sum of a subsequence with the constraint that no 2 numbers in the sequence should be adjacent in the array. So 3 2 7 10 should return 13 (sum of 3 and 10) or 3 2 5 10 7 should return 15 (sum of 3, 5 and 7)

18. You are given some denominations of coins in an array (`int denom[]`) and infinite supply of all of them. Given an amount (`int amount`), find the minimum number of coins required to get the exact amount. What is the method called?

19. Given an array of size n . It contains numbers in the range 1 to n . Each number is present at least once except for 1 number. Find the missing number

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