Algorithms Interview Questions

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1. Define the concept of an algorithm.

An algorithm is any well-defined computational procedure that takes some value (or set of values) as input and produces so short, it can be seen as a sequence of computational steps that transform the input into the output.

2.What are the arguments present in pattern matching algorithms?

These are the following arguments which are present in pattern matching Algorithms.
1) Subject,
2) Pattern
3) Cursor
4) MATCH_STR
5) REPLACE_STR
6) REPLACE_FLAG

3. Explain the function SUB in algorithmic notation?

In the algorithmic notation rather than using special marker symbols, generally people use the cursor position plus a substrir the function is SUB.
SUB returns a value the sub string of SUBJECT that is specified by the parameters i and j and an assumed value of j.

4. In Algorithmic context how would you define book keeping operations?

Usually when a user wants to estimate time he isolates the specific function and brands it as active operation. The other ope the manipulations of the index and the accessing of a value in the vector, occur no more often than the addition of vector val as 〔book keeping operations〕.

5. Define and describe an iterative process with general steps of flow chart?

There are four parts in the iterative process they are
Initialization: -The decision parameter is used to determine when to exit from the loop.
Decision: -The decision parameter is used to determine whether to remain in the loop or not.
Computation: - The required computation is performed in this part.
Update: - The decision parameter is updated and a transfer to the next iteration results.

6. State recursion and its different types?

Recursion is the name given to the technique of defining a set or a process in terms of itself. There are essentially two types recursively defined function and the second type of recursion is the recursive use of a procedure.

7. Define and state the importance of sub algorithm in computation and its relation ship with main algorithm?

A sub algorithm is an independent component of an algorithm and for this reason is defined separately from the main algorit perform some computation when required, under control of the main algorithm. This computation may be performed on zero routine.

8. Name any three skills which are very important in order to work with generating functions.

The three most important skills which are used extensively while working with generating functions are
1)Manipulate summation expressions and their indices.
2)Solve algebraic equations and manipulate algebraic expressions, including partial function decompositions.
3)Identify sequences with their generating functions

9. What is the general strategy for Markov Algorithm?

The general strategy in a Markov Algorithm is to take as input a string x and, through a number of steps in the algorithm, tra
transformation process is generally performed in computers for text editing or program compilation.

10. Define string in an algorithmic notation and an example to support it?

In the algorithmic notation, a string is expressed as any sequence of characters enclosed in single quote marks.

11. How to find median of a BST?

Find the no. of elements on the left side.
If it is n-1 the root is the median.
If it is more than n-1, then it has already been found in the left subtree.
Else it should be in the right subtree

12. What is Diffie-Hellman?

It is a method by which a key can be securely shared by two users without any actual exchange.

13. What is the goal of the shortest distance algorithm?
The goal is completely fill the distance array so that for each vertex v, the value of distance[v] is the weight of the shortest pa

14. Explain the depth of recursion?

This is another recursion procedure which is the number of times the procedure is called recursively in the process of enlarg
this quantity is not obvious except in the case of extremely simple recursive functions, such as FACTORIAL (N), for which th

15. Explain about the algorithm ORD_WORDS?

This algorithm constructs the vectors TITLE, KEYWORD and T_INDEX.

16. Which are the sorting algorithms categories?

Sorting algorithms can be divided into five categories:
a) insertion sorts
b) exchange sorts
c) selection sorts
d) merge sorts
e) distribution sorts

17.Define a brute-force algorithm. Give a short example.

A brute force algorithm is a type of algorithm that proceeds in a simple and obvious way, but requires a huge number of step find out the factors of a given number N, using this sort of algorithm will require to get one by one all the possible number co

18. What is a greedy algorithm? Give examples of problems solved using greedy algorithms.

A greedy algorithm is any algorithm that makes the local optimal choice at each stage with the hope of finding the global opt solved using a greedy strategy is the traveling salesman problem. Another problems that can be solved using greedy algorit the NP-complete problems.

19. What is a backtracking algorithm? Provide several examples.

It is an algorithm that considers systematically all possible outcomes for each decision. Examples of backtracking algorithms permutations of a given sequence.

20. What is the difference between a backtracking algorithm and a brute-force one?

Due to the fact that a backtracking algorithm takes all the possible outcomes for a decision, it is similar from this point of view difference consists in the fact that sometimes a backtracking algorithm can detect that an exhaustive search is unnecessary

21. Describe divide and conquer paradigm.

When a problem is solved using a divide and conquer algorithm, it is subdivided into one or more subproblems which are all that each of the subproblems can be solved independently. In the end, the solutions to the subproblems are combined in ord problem.

22. Describe on short an insertion sorting algorithm.

An algorithm that sorts by insertion takes the initial, unsorted sequence and computes a series of sorted sequences using th
a) the first sequence in the series is the empty sequence
b) given a sequence S(i) in the series, for 0<=i

23. Which are the advantages provided by insertion sort?

Insertion sort provides several advantages:
a) simple implementation
b) efficient for small data sets
c) adaptive - efficient for data sets that are already substantially sorted: the time complexity is O(n + d), where d is the numb
d) more efficient in practice than most other simple quadratic, i.e. O(n2) algorithms such as selection sort or bubble sort; the
e) stable - does not change the relative order of elements with equal keys
f) in-place - only requires a constant amount O(1) of additional memory space
g) online - can sort a list as it receives it

24. Shortly describe the quicksort algorithm.

In quicksort, the steps performed are the following:
a) pick an element, called a pivot, from the list
b) reorder the list so that all elements with values less than the pivot come before the pivot, while all elements with values gr

values can go either way)
c) recursively sort the sub-list of lesser elements and the sub-list of greater elements

25. What is the difference between selection and insertion sorting?

In insertion sorting elements are added to the sorted sequence in an arbitrary order. In selection sorting, the elements are ad
are always added at one end.

26. What is merge sorting?

Merging is the sorting algorithm which combines two or more sorted sequences into a single sorted sequence. It is a divide a
comparison-based sorting algorithm. Most implementations produce a stable sort, meaning that the implementation preserve
sorted output.

27. Which are the main steps of a merge sorting algorithm?

Sorting by merging is a recursive, divide-and-conquer strategy. The basic steps to perform are the following:
a) divide the sequence into two sequences of length
b) recursively sort each of the two subsequences
c) merge the sorted subsequences to obtain the final result

28. Provide a short description of binary search algorithm.

Binary search algorithm always chooses the middle of the remaining search space, discarding one half or the other, again de
key value found at the estimated position and the key value sought. The remaining search space is reduced to the part befo

29. What is the linear search algorithm?

Linear search is a method for finding a particular value in a list which consists of checking every one of its elements, one at a
is found. It is the simplest search algorithm, a special case of brute-force search. Its worst case cost is proportional to the nu
expected cost, if all list elements are equally likely to be searched for. Therefore, if the list has more than a few elements, otl
hashing) may be much more efficient.

30. What is best-first search algorithm?

It is a search algorithm that considers the estimated best partial solution next. This is typically implemented with priority queu

31. What is Huffman coding?

In computer science and information theory, Huffman coding is an entropy encoding algorithm used for lossless data compre
variable-length code table for encoding a source symbol (such as a character in a file) where the variable-length code table
on the estimated probability of occurrence for each possible value of the source symbol.