1. Write code to reverse a linked list, if you able to do it using loops, try to solve with recursion.(solution) and also reverse a string using the recursion method.

<https://www.youtube.com/watch?v=tQur3kprZQ>

<https://www.geeksforgeeks.org/reverse-a-linked-list/>

<https://www.youtube.com/watch?v=O0By4Zq0OFc>

<https://www.geeksforgeeks.org/reverse-a-string-using-recursion/>

2) How to rotate an array by K? (solution)

<https://www.geeksforgeeks.org/array-rotation/>

3) Given an array which contains N-2 numbers in unsorted order, find two missing numbers? ([solution](http://java67.blogspot.com/2014/12/how-to-find-missing-number-in-sorted.html))

<https://www.geeksforgeeks.org/find-two-missing-numbers-set-1-an-interesting-linear-time-solution/>

4) Given an array which has a number in the majority (a number appears more than 50% in the array), find that number? (solution) [High]  
  
5) How to detect a loop in singly linked list? If you are able to detect loop then find the size of linked list? ([solution](http://javarevisited.blogspot.com/2013/05/find-if-linked-list-contains-loops-cycle-cyclic-circular-check.html))  
  
6) Given N steps to climb to reach a floor, a person can take 1 or 2 step at a time to climb. Find the number of ways to reach nth step? (discussion)

<https://www.geeksforgeeks.org/count-ways-reach-nth-stair/>

<https://www.geeksforgeeks.org/count-ways-reach-nth-stair-using-step-1-2-3/>

7) Design Snake and Ladder Game by using Object Oriented analysis and design technique. Explain the reasoning behind interface and class structure? (discussion)  
  
8) How to merge two sorted linked list, write a program in your favorite programming language e.g. Java, C++, or Python.[High]  
  
9) Write a Program which checks if two Strings are Anagram or not? ([solution](http://javarevisited.blogspot.com/2013/03/Anagram-how-to-check-if-two-string-are-anagrams-example-tutorial.html))

<https://www.geeksforgeeks.org/check-whether-two-strings-are-anagram-of-each-other/>

10) How to print all permutations of a given String using recursion? ([solution](http://javarevisited.blogspot.com/2015/08/how-to-find-all-permutations-of-string-java-example.html))

Permutation of all.

Permutation of any string will be total combination of !<string length> (factorial of string length)

<https://www.geeksforgeeks.org/write-a-c-program-to-print-all-permutations-of-a-given-string/>

11) How to check if a binary tree is balanced or not? (solution) [High]  
  
12) How to swap two numbers without using a temp variable, write code which is free from Integer overflow? ([solution](http://java67.blogspot.com/2015/08/how-to-swap-two-integers-without-using.html)) [High]  
  
13) How to find all pairs of elements in an integer array, whose sum is equal to a given number? ([solution](http://javarevisited.blogspot.com/2014/08/how-to-find-all-pairs-in-array-of-integers-whose-sum-equal-given-number-java.html)) [High]  
  
14) Write a program to check if a binary tree is BST or not? (solution) [High]  
  
15) Write a function to print nth number in Fibonacci series? ([answer](http://javarevisited.blogspot.com/2015/01/print-fibonacci-series-in-java-using.html))

<https://www.geeksforgeeks.org/program-for-nth-fibonacci-number/>

Two way we can write this programme, using recursion and dynamic progrvvaming.

17) Write a function to count a total number of set bits in a 32 bit Integer? ([solution](http://javarevisited.blogspot.com/2014/06/how-to-count-number-of-set-bits-or-1s.html))  
  
18) Write code to implement an LRU cache? (solution)  
  
19) Write a function to remove duplicate characters from String? ([solution](http://java67.blogspot.com/2014/03/how-to-find-duplicate-characters-in-String-Java-program.html)) [High]  
  
20) How to find the 3rd element from end, in a singly linked, in a single pass? ([solution](http://javarevisited.blogspot.com/2012/12/how-to-find-middle-element-of-linked-list-one-pass.html))[High]

21) Write an algorithm such that if an element in an M\*N matrix is 0, its entire row and column are set to 0.[High]

22) Given an image represented by an N\*N matrix, where each pixel in the image is 4 bytes, write a method to rotate the image by 90 degrees. Can you do this in place. [High].

23) Let’s say I have some spender which spend some amount find out the maximum amount spender name.

Nikhil = 90

Bob =70

Seikh=30 [Amazon]

24. Sort a list if list have object type data. Collections.sort() to sort the list which algorithm use to sort the list[High] [Amazon]

<https://www.geeksforgeeks.org/collections-sort-java-examples/>

25.Iterate hasMap and what is sortedMap?

Read more: <https://javarevisited.blogspot.com/2016/01/top-20-amazon-and-google-programming-interview-questions.html#ixzz5WC6KMIfS>.

1. Determine if a string have all unique characters? Without using any data structure.

<https://www.geeksforgeeks.org/determine-string-unique-characters/>

we have four approaches to solve this problem.

1. Brute Force Technique: time complexity of this approach is O(n^2), in this approach we use two loop, and compare each character to adjacent character of the string.
2. Sorting Technique: time complexity of this approach is O(nlogn) which internally uses binary sort.

In this approach we convert all the characters of the string into the char array and then sort it. And using single loop we checked if each character is different to its adjacent character and then return accordingly.

1. Use of extra data structure :this technique use ASCII char set (8 bits). It is for to maintain the Boolean array for the characters. The 256 indices indicates 256 characters. All the array elements initially set to false.

As we iterate over the string, set true at the index equal to the int value of the character. If at any time, we encounter that the array value is already true, it means the character with that int value is repeated.

1. Without extra data structure: this technique is valid for string having only alphabets.
2. Given two string find out the one string is a permutation of other string?

<https://www.geeksforgeeks.org/check-if-two-strings-are-permutation-of-each-other/>

1. URLify a given string

<https://www.geeksforgeeks.org/urlify-given-string-replace-spaces/>

1. Palindrome Permutation

<https://leetcode.com/articles/palindrome-permutation/>

Oracle related question

<https://stackoverflow.com/questions/20091125/nth-max-salary-in-oracle>

We can find out using the rank(), row\_number() in sub query and others also.

**Sorting Algorithm:**

Merge Sort:

<https://www.geeksforgeeks.org/merge-sort/>

Merge sort is useful in linked list. Time complexity of the merge sort is O(n Log n) in all 3 cases (worst, average and best)

**Programming Coding questions Link**

<https://www.geeksforgeeks.org/must-do-coding-questions-for-companies-like-amazon-microsoft-adobe/>

* In a Student table there are few records, some of duplicate records, remove the duplicate records based on student name?

Using the self join we can remove the duplicate records.

1. **Delete** Student **where** Id in(
2. **Select** s.Id **From** Student s **Inner** Join Student s1
3. **On** s.**Name**=s1.**Name** And s.Age=s1.Age And s.Standard=s1.Standard
4. **Where** s.Id>s1.Id)

Or

Delete from Student a where rowid > (select min(rowid) from Student b where b.name=a.name);

* Singleton double locking: its thread safe singleton, in this first we check instance is null and then synchronize the block and then again instance null check. This process is called double locking check.
* Iterate HashMap: for(Map.Entry<String,String> itr:map.entrySet()){

map.getKey();

map.getValue();

}

Goldman Satch Programming Interview question

1. We have an unsorted integer array, find the k element in the array.?
2. Programming question link

<https://github.com/Java-aid/Interview-Preparations/find/master>.