Programming Interview Questions

1) Write code to check a String is palindrome or not? (solution)
Palindrome are those String whose reverse is equal to original.This can be done by using either StringBuffer `reverse()` method or by technique demonstrated in the solution here.

2) Write a method which will remove any given character from a String? (solution)
hint : you can remove a given character from String by converting it into character array and then using `substring()` method for removing them from output string.

3) Print all permutation of String both iterative and Recursive way? (solution)

4) Write a function to find out longest palindrome in a given string? (solution)

5) How to find first non repeated character of a given String? (solution)

6) How to count occurrence of a given character in a String? (solution)

7) How to check if two String are Anagram? (solution)

8) How to convert numeric String to int in Java? (solution)

Some more String related Questions which mostly appear in Java programming interviews:

1) What is difference between String, StringBuilder and StringBuffer in Java? (answer)
Main difference is that String is immutable but both StringBuilder and StringBuffer are mutable. Also StringBuilder is not synchronized like StringBuffer and that's why faster and should be used for temporary String manipulation.

2) Why String is final in Java? (answer)
String is final because of same reason it is immutable. Couple of reasons which I think make sense is implementation of String pool, Security, and Performance. Java designers knows that String will be used heavily in every single Java program, so they optimized it from the start.

3) How to Split String in Java? (answer)
Java API provides several convenient methods to split string based upon any delimiter e.g. comma, semi colon or colon. You can even use regular expression to split a big string into several smaller strings.

4) Why Char array is preferred over String for storing password? (answer)

9) In an array 1-100 numbers are stored, one number is missing how do you find it? (solution)

10) In an array 1-100 exactly one number is duplicate how do you find it? (solution)

11) In an array 1-100 multiple numbers are duplicates, how do you find it? (solution)
One trick in this programming questions is by using HashMap or Hashtable , we can store number as key and its occurrence as value, if number is already present in Hashtable then increment its value or insert value as 1 and later on print all those numbers whose values are more than one.

12) Given two arrays, 1,2,3,4,5 and 2,3,1,0,5 find which number is not present in the second array.
Here is a quick tip to solve this programming question: put the elements of the second array in the Hashtable and for every element of the first array, check whether it's present in the hash or not, O/P all those elements from the first array that are not present in the hash table

13) How do you find second highest number in an integer array? (solution)

14) How to find all pairs in array of integers whose sum is equal to given number? (solution)

15) How to remove duplicate elements from array in Java? (solution)

16) How to find largest and smallest number in array? (solution)

17) How to find top two maximum number in array? (solution)
14) How do you find middle element of a linked list in single pass?
To answer this programming question I would say you start with simple solution on which you traverse the LinkedList until you find the tail of linked list where it points to null to find the length of linked list and then reiterating till middle. After this answer interviewer will ask you find the middle element in single pass and there you can explain that by doing space-time trade-off you can use two pointers one incrementing one step at a time and other incrementing two step a time, so when first pointer reaches end of linked second pointer will point to the middle element.

15) How do you find 3rd element from last in single pass? (solution)
This programming question is similar to above and can be solved by using 2 pointers, start second pointer when first pointer reaches third place.

16) How do you find if there is any loop in singly linked list? How do you find the start of the loop? (solution)
This programming question can also be solved using 2 pointers and if you increase one pointer one step at a time and other as two steps at a time they will meet in some point if there is a loop.

17) How do you reverse a singly linked list? (solution)

18) Difference between linked list and array data structure? (answer)

18) How do you find depth of binary tree?

19) Write code to print InOrder traversal of a tree?

20) Print out all leaf node of a binary tree?

21) Write a method in Java to check if a tree is a binary search tree or not?

22) How to check if a tree is balanced or not in Java?

3) Write a program to sort numbers in place using quick sort ? (solution)

24) Write a program to implement binary search algorithm in Java or C++? (solution)

25) How do you sort Java object using Comparator? (answer)
This is another Java specific programming questions and you can check how to sort Object using Comparator and Comparable for answer.

26) Write code to implement Insertion Sort in Java? (solution)

27) Write code to implement Bubble Sort in Java? (solution)

26) Write code to check whether a no is power of two or not? (solution)

27) Write a program to check whether a number is palindrome or not? (solution)
Check out this post which shows how to reverse number in Java and can be used to find if its palindrome or not.

28) Write code to check whether an integer is Armstrong number or not? (solution)
Here is a Java program to find Armstrong number, you can use same logic to write code in any other programming language like C and C++.

29) Write a program to find all prime number up to a given numbers? (solution)
Here is another Java program to find prime numbers and print them. By using logic demonstrated in this program; you can write similar program in C and C++.

30) Write function to compute Nth Fibonacci number? Both iterative and recursive? (solution)
Check this Java program to print Fibonacci Series using recursion and iteration.

31) How to check if a number is binary? (solution)
For this question, you need to write a function which will accept an integer and return true if it contains only 0 and 1 e.g. if input is 123 then your function will return false, for 101 it should return true.

32) How to reverse an integer in Java? (solution)

33) How to count number of set bits in given integer? (solution)

34) How to find sum of digits of a number using recursion? (solution)

35) How to swap two numbers without using temp variable? (solution)

36) How to find largest of three integers in Java? (solution)

37) Write a program to find prime factors of integer? (solution)

38) How to add two integer without using arithmetic operator? (solution)

31) Write a program to find out if two rectangles R1 and R2 are overlapping?

32) You need to write a function to climb n steps you can climb either 1 step at a time or 2 steps a time, write a function to return number of ways to climb a ladder with n step.

33) Write code for Generate Random No in a range from min to max?

34) Write program for word-wrap which should work on any screen size?

35) Design an algorithm to find the frequency of occurrence of a word in an article?

36) Write a program to implement blocking queue in Java?

37) Write a program for producer-consumer problem? (solution)
This article solves producer consumer problem using BlockingQueue in Java. You can refer it to answer this question.
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Tips

1. If Interviewer asks you to write function then make sure you do some necessary check for bad input e.g. null check or empty check. Most of the time programmer forgets to test for not null, empty, less than 1, greater than 1 or zero input.

2. If you write iterative version of function then Interviewer may ask you to write recursive version or vice-versa so be prepare for that.

3. If you write a recursive function then Interviewer will ask to optimize it, even in case of Iterative version. So remember that you can optimize recursive function by Memorization (caching already calculated value) and by applying some space/time tradeoff principle. For example recursive version of Fibonacci series has O(n2) which can be reduced to O(n) using Memoziation.

4. Interviewer may ask you to calculate Order of complexity for best and worst case of any method so be prepared.

5. Most of the time Interviewer ask how to fix a problem as follow-up question e.g. he will ask how do you find deadlock and then how to fix deadlock in java etc.

Apart from these programming interview questions here are some of other Java programming questions I have already discussed in my blog.

Read more: http://javarevisited.blogspot.com/2011/06/top-programming-interview-questions.html#ixzz46N4qGxMS