Amazon 17 paages

UVA online judge, Topcoder or Hackerrank, InterviewStreet. T

*https://www.glassdoor.com/Interview/Amazon-com-Software-Development-Engineer-Interview-Questions-EI\_IE6036.0,10\_KO11,40\_IP40.htm*Learn Dynamic programming

Design Patterns (Singleton),

Singleton thread protected except interviewer did not want to include Synchronized block in there.

Design patterns like Strategy pattern and other commonly used patterns

string Design Pattern Factory and singleton

corner cases.

*Core Java:*

1. X==NULL and NULL==x, what is the difference

No difference>

1. What is the difference between C and Java? And which do you prefer? Why?

http://www.durofy.com/10-major-differences-between-c-and-java/

1. What is functional programming?
2. Hex to decimal
3. What is the difference between an int that is initialized and uninitialized?
4. How does a float stored in memory?

Sign Bit,Exponent,Mantissa.

1. Stack vs heap in memory
2. LRU cache code

http://www.journaldev.com/4098/java-heap-memory-vs-stack-memory-difference

1. difference between c++ and java

<http://www.dickbaldwin.com/java/Java008.htm>

http://cs-fundamentals.com/tech-interview/java/differences-between-java-and-cpp.php

1. Tell me about MVC architecture?

http://www.codeproject.com/Articles/879896/Programming-in-Java-using-the-MVC-architecture

1. How will you identify references to an object in java api
2. Java multithreading, locking, Java design pattern.
3. concurrency in java
4. byte manipulation.
5. What is the difference between import java.lang.\* and import java.lang.String?
6. How to avoid deadlock?
7. How does the garbage collector know if an object can be collected?
8. ssked something about java memory questions. How to handle out of memory error?
9. Can you place a set inside a map
10. If I mark an arraylist as final, can i add more elements to it?
11. weak hash map
12. thread local, java debugger
13. What is the difference between Java and Java Enterprise Edition?
14. how can you instantiate object in more than one way.
15. Array Implementation of a Hashmap 2
16. object references and actual objects
17. What is a object reference, how is it difference from a physical object?
18. handling concurrent sessions
19. Immutable classes in Java
20. Memory Management, Web application performance.
21. What if the main method is declared private?
22. What is the difference between == and .equals()
23. What design pattern would you use to design connection pooling?
24. what is deadlock and also asked for a tool or way to identify dead lock. ( basically the guy had no idea what he is asking for)
25. Are abstract methods faster than the methods of an interface
26. How oracle stores the indexes?
27. How to implement a class without instance..?
28. stream classses in java jdbc
29. How will you start a project java.util ??
30. what is difference between Arraylist a = new Arraylist (); and List a = new Arraylist () ?
31. How to reverse a tree map:

Map<String, String> treemap = new TreeMap<String, String>(Collections.reverseOrder());

Write an asynchronous method call in java.

How do you declare a Dynamic SQL object in JAVA ?

complexity of Hashmaps, Linked List and arrays. Implementation of Hashmaps etc

Compare hash map with binary search tre

What if there are some boundary cases

What is difference between int & Integer.

 situation in Binary Search Trees where duplicates are possible

1. Strings a="hello"; b="hello"; c=new String("hello"); d=c; e=new String("hello"); Tell me the result a) a==b b)a.equals(b) c)a==c d)c==d e)c.equals d f) c==e g)c.equals e 3

Unix:

How to retrieve a file with a specific string or keyword using UNIX command line

Rest:

1. How would you reduce the size of the cookies in browser?
2. What is the difference of session, cookie and cache?
3. what are web services how to decrease latency for web service
4. Diff between distributed and parallel computing
5. How to control concurrency in web application

Data Structures:

1. Time complexity of sorting algorithms
2. How would you represent a graph with million nodes
3. Asked about merge sort vs Quick sort / time complexities /when to use which. (
4. Describe a hash table, How to handle collisions in a hash table
5. How would you implement an Autocomplete feature and what data structures would you use to do so?
6. what data structure to use in case of a load balancer
7. How would you implement a hash table in Java?
8. which ds is used for maintaining connection pooling mechanism
9. "What data structure would you use for a browser's BACK & FORWARD ability" ?Stack
10. explain priority queues
11. What complexity (big O notation) is reversing a linked list?
12. Given a undirected graph check whether it is a tree or not(
13. difference between a directed acyclic graph and binary search tree.
14. Implementation of heap
15. Java vs c++
16. Java vs python
17. What data structures you would like to use to store texts of a text editor that you can do some operations like insert, modify and remove.
18. How to find duplicate values in BST

Programming

String

1. Find min distance between two character in a string ex. a x c a e r r a d e min dis between a and e is 1
2. Given a pattern and a string - find if the string follows the same pattern Eg: Pattern : [a b b a], String : cat dog dog cat "
3. Write a program to find a string in a page of text.
4. Rearrange a string such that duplicate characters are at least k positions away.

Function:

[Given a CSV of names and ages, perhaps:   
  
Alice, 30   
Bob, 17   
Clyde, 49   
  
Sort the names by age.](http://www.careercup.com/question?id=5094313077768192)

1. write a function that takes in an int and returns a string that would be how one would say that number (ex: 123 -&gt; one hundred twenty three; 50019 -&gt; five thousand nineteen).
2. Given a set of points (x,y) and an integer "n", return n number of points which are close to the origin
3. Given a triangle of integers, find the path of the largest sum without skipping.
4. You are given two version numbers of a software, like Version 10.3.4 and Version 10.3.41. Write a program to find out which of the version numbers are the latest. If version 1 is latest output -1, if version number 2 is latest output +1 else output 0 if same version. Both the version numbers are taken as string. He also asks to make the program of minimum time complexity as
5. write a function that, given a particular filename ending, returns a list of all files with this extension with a language of choice.
6. given a rand5() function which provide a random number between 1-5 at equal probability. Write a rand7() fuction to provide a random number between 1-7 with equal probability...
7. Implement atoi function with all exception handling and same behavior as C++ inbuilt atoi.
8. How would you identify phone numbers from a file containing employee data.
9. return Intersection of two lists (should handle duplicates)

[Input is a string of Bytes E.g.341B   
Convert it to human readable form: 3 characters long (excluding decimal)   
No trailing or leading zeros   
E.g:   
Input 341B   
Output 341B   
Input 12345B   
Output 12.3K   
Input 1234567B   
Output 1.23M   
Input 1000000000B   
Output 1G   
  
Do not round off   
Assume input will not be more than 1G   
For this problem 1000B = 1K, so on and so forth](http://www.careercup.com/question?id=5651177001713664)

Given a log file which consists of timestamp, customer ID, page id visited by that particular customer. Write a function to return all customers who have visited 5 unique pages in last 30 mins

Array

1. Merge 2 sorted arrays without having duplicates
2. Given thousand lists, find the longest common sublis
3. How to keep track of max and min numbers from a continuous stream of numbers
4. Given an array, find first instance of local maxima
5. In an array you have all the numbers from 1 through n (not in order) with one number missing. Find that number. Now, you have two numbers missing. Find both the numbers. Notes: O(n) time solution, O(1) extra space. n may be very large, so beware of overflows!
6. Log file contains UserId.Every day has new log file.Given range of n days find top 10 users?
7. Converting two D char array to a int
8. Rotate a 2D array 90 degrees
9. generate random numbers.
10. Given a set of pairs e.g (5,4) (6,2) (9,3) (2,5) (4,9) .write a function to find the K biggest elements in the array, and return the sum in linear time
11. .Number (like 157, you can find a number 144 + 1 + 5 + 7 = 153), then 144 is a number of 153. find all of possible number in given a N.
12. Find the maximum length of consecutive ones in a nxm matrix which has only 0's and 1's.
13. You have a list of numbers from 1-1000, each number only exists once and they are in random order. You randomly take one out. How do you know which is the missing number?
14. Find the maximum sum subset for a given array .
15. Given a N\*N array where N is even such as 4, 8 and so on . Print the array from the center. a= [1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16] the output should be [6 10 12 7 3 2 1 5 9 13 14 15 16 12 8 4 ]
16. merge array
17. Find 4 numbers in an integer array and they sum zero
18. .Find all the subsets of an array
19. Median of two sorted array
20. Find top k largest numbers in array in O(n) time
21. Given an array of integers find the element for which the sum of left = sum of right. example -1 100 1 98 1 should return index of 1 i.e 2 Answer: First told him about Brute Force approach and then told him if we can iterate once and get the total sum
22. Given a list of integers as input (ex. {1, 4, 5, 2, 6, 7, 1, 4, 2}), return the biggest sequence of ascending numbers (ex {2, 6, 7}).
23. You are given a 2D Array that contains only 0s and 1s in sorted order. i.e. First Os and then 1s.

Array:

0 0 0 1

1 1 1 1

0 0 1 1

0 1 1 1

You have to figure out the row that contains maximum number of 1s.

e.g. in above case we have row 2 as the answer.

http://www.careercup.com/question?id=5652423706148864

Linked list

1. Implement a function that merges two sorted lists into one sorted list
2. Write a function to remove the nth last element from a singly linked list
3. sort a linked list which has mangled pointers
4. Design algorithm to split linked list into two smaller lists such that first list contains only odd elements and second list only even elements of original linked list;
5. For any positive integer n, define d(n) to be n plus the sum of the digits of n. For example, d(75) = 75 + 7 + 5 = 87. The number n is called a generator of d(n). Some numbers have more than one generator: for example, 101 has two generators, 91 and 100. A number with no generators is a self-number. There are thirteen self-numbers less than 100: 1, 3, 5, 7, 9, 20, 31, 42, 53, 64, 75, 86, and 97. Write a function that returns the number of positive self-numbers less than a number, threshold.
6. Given a Linked List, split this linked list into 2 lists such that one list contains only odd numbers and the other one contains only even numbers

Stack, Queue:

1. implement a stack that could return the largest number in the stack at anytime.
2. Smallest element in a Queue in O(1) time
3. implement stack using quque
4. implement queue using stack

Tree

1. Asked me write code about to check whether tree is symmetric.
2. Implement function to find longest path in a tree
3. Find the longest path that exists between any two nodes inside a binary tree given only the root of that binary tree.
4. Check  if two binary trees are equal
5. how would you find the element of the tree at a particular "index", where index is defined as the position in the tree's ordering.
6. Given two binary trees check if one is subtree of other.
7. Given a tree and a number N, construct another tree such that each node of the tree has either 0 or N elements,except for one node which has between 0 to N elements.Only other constraint is that ancestry is preserved in the new tree.
8. Given a BS tree, give the median number in the tree with O(1) space.
9. mplement an n-ary tree
10. Convert each level of Binary tree into a linkedin list.

[Write a program to calculate height of a binary tree non - recursively. USE ONLY STACK , not using BFS.   
Then he asked to implement it for n-ary tree.](http://www.careercup.com/question?id=5073763695591424)

Sorting:

http://www.careercup.com/question?id=5183920823861248

Bit Manipul;ation:

1. Given a list of numbers, return a list of all possible permutations. eg. given {1,2,3}, return {{},{1},{2},{3},{1,2},...,{1,2,3}} Had to use bit manipulation where I fumbled.
2. How do you check if the 5th bit is a 1 in a binary number

Graph

1. Find the youngest common ancestor in a directed graph, where you can only go to a node's parent and cannot go back
2. Compute number and print all possible paths from (0,0) to (7,7) in a chess board. you can either move down or right
3. Graph coding question regarding showing all the possible movies that contain the same themes.
4. Social Graph : In this problem, we want to parse a members social graup on the hot new social network. For the unfamiliar, each member in the network has n-many friends. Each of those friends has n-many more friends an on and on and on. We would like to write a program that given a socal graph, outputs each level of friends. Each friend should only be output once, at the first level they are encountered. The root friend should not be output. Input will consists of serveral lines, where each line represents a member and their friends. The final line will be the student of whom we will begin our traversal. For instance, a member and their friends will be represented as a string: A:B,C,D Where A is the member and B, C and D are the friends of A. If a member is listed without a colon, you can assume they have no friends of their own. Input 4 A:B,C,D B:A,D,E C:E,B A output: B:C,D E
5. word ladder I. (I used BFS)
6. implement a trie tree
7. How to decide if a graph is acyclic

System:

Design a parking garage

scalable system design of Amazon.com's order number generation service.

check whether a hand of cards was a full house (in Poker) or not.

Asked to implement the game Fuzz buzz

one question is to find a path in a maze

OS:

1 ) Implement a cache and write code for it.

1. What is virtual memory? What types of scheduling are you aware of?
2. what is os, paging, segmentation, virtual memory, i/o mgmt, deadlocks, synchronization –
3. Explain Collaborative Caching

Others

1. functions that implement auto prediction feature when user input a few letters in search box.
2. Design a cache system
3. implement Sudoku.
4. Implement poker
5. game of life game design
6. tic tac toe game
7. ow would you design a Zoo class using OO design?
8. design a chess game.
9. puzzles:
10. 5th Interview Director tech Asked two puzzles 1.3 bulbs and switch board outside room.Find which switch belongs to which bulb in one pass 2.10 Bags with 100 gold coins each. Each coin weighs 10 gms in 9 bags and each coin weighs 9 gms in one bag find out which bag has coins of 9 gms in one weight? '
11. : I have 25 horses and I want to find the fastest amongst them. The contraint is that I do not have any time measuring device. I am given a circular racecourse wherein a max of 5 horses can run in parallel at a given instance of time. How will you find the fastest one.

**Interview Questions**

* Tell us about a recent project you've worked on that excited you. What was your role? What did you find challenging about it? Most importantly, why was it exciting?
* did you pick Software Engineering as a Career?
* What has been the biggest challenge you’ve had to overcome in either your career or schooling? What did you take away from this experience?
* what is your strength?
* what is your weakness?
* what's your hobby?
* what do you think is the most challenge part in XX project? 5. what do you want to get from the internship?
* how will you find out a bug in the program
* tell me about a time you failed, what did you learn?" "tell me about your most difficult success, what techniques did you use to succeed?" "tell me about a time you had an interpersonal problem, how did you resolve it?"