The Ultimate Preparation Strategy For Coding Interviews

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Overview

Resume Guidelines

Important things to include in Resume

- ▶ Name, Email, Phone
- ▶ Experience
- ▶ Education [only the highlights]
- ▶ Projects [Include 1-liner explanation for your projects,Mention technologies used]
- ▶ Technical Skills
- ▶ Achievements

Resume Guidelines (cont.)

Formatting

- ▶ Font: Times New Roman
- ▶ Fontsize:10-12px

Ideal Resume length:1 page
Remove irrelevant information

- ▶ Objective/Career Objective
- ▶ Summary/Personal Summary
- ▶ Personal Information: Address, Qualities/Traits, Mother/Father Name, DOB etc.
- ▶ Declaration [Place/Date etc]
- ▶ Remove Personal Pronouns

Resume Guidelines (cont.)

Things to Strengthen Resume

- ▶ Open Source Contribution

- ▶ High CGPA/Grades

- ▶ Good projects

- ▶ Good company in your work profile

- ▶ Competitive Programmer

- ▶ ACM-ICPC Experience

- ▶ Regular blogs on technical topics

- ▶ Apps with large number of users

Resume Guidelines (cont.)

2 Commonly Used Resume Templates

▶ Careercup Resume

▶ Deedy Resume

Resume Guidelines (cont.)

Few Important Points

▶ Use Google's XYZ formula["Accomplished X as measured by Y, by doing Z"]

What the resume says: "Increased server query response time."

What the Googlers suggest: "Increased server query response time by 15 percent by restructuring our API."

▶ Explain why your wins are impressive

What the resume says: "Won second place in Hackathon."

What the Googlers method suggests: "Won second place out of 50 teams in hackathon by working with two colleagues to develop an app that synchronizes mobile calendars."

Resume Guidelines (cont.)

- ▶ Show how you stand out

  What the resume says: "Member of Leadership for Tomorrow Society"

  What the Googlers suggest: "Selected as one of 275 participants nationwide for this 12-month professional development program for high-achieving diverse talent based on leadership potential and academic success."

- ▶ Use Strong Action Verbs(Created,Managed,Spearheaded)

- ▶ Use Specific Numbers not Fillers(Change implemented various features to implemented $10+$ features)

- ▶ Match skills and keywords from the job description

Resume Guidelines (cont.)

Resume Evaluation Platforms

► Topresume.com

► Resumeworded.com

80-20 Rule for Coding Interviews

20% effort gives 80% of the results

3 Important Topics for Coding Interviews

- ▶ Arrays and Strings
- ▶ Recursion and Dynamic Programming
- ▶ Trees and Graphs

The 3 Circles of Coding Interviews

- ▶ Data Structures

- ▶ Coding Interview Patterns

- ▶ Compound Algorithms

Coding Interview Patterns

- ▶ Sliding window(Acquire-Settle-Release Method)
- ▶ Two pointers
- ▶ Fast and slow Pointers
- ▶ Merge Intervals(Linesweep Technique)
- ▶ Cyclic Sort
- ▶ In-place Reversal of a LinkedList
- ▶ BFS ,DFS and topological Sort
- ▶ 2 Heaps
- ▶ Binary Search(save and move trick)
- ▶ Bitwise XOR
- ▶ Top K elements
- ▶ Sorting Algorithms

Coding Interview Patterns (cont.)

- ▶ K-way Merge
- ▶ Prefix Sum Method
- ▶ Backtracking Method
- ▶ Monotonic Queue Algorithm
- ▶ Dutch National Flag Pattern
- ▶ Auxillary Buffer Method
- ▶ Bipartite Graph
- ▶ Connected Components
- ▶ Bracket based Questions
- ▶ Next Greater Element Based Questions
- ▶ Bitmasking Based Questions
- ▶ Stock problem Pattern

Coding Interview Patterns (cont.)

- ▶ String Comparison,Alignment and Matching

- ▶ Using 256 Integer array for String Problems

- ▶ Layering method for 2d arrays

- ▶ Meet in the Middle Technique

Recursion Patterns

- Iteration
- Subproblems
- Selections
- Ordering
- Divide and Conquer

Dynamic Programming Patterns

- ▶ 0/1 Knapsack
- ▶ Unbounded Knapsack
- ▶ Fibonacci Numbers
- ▶ Palindromic Subsequence
- ▶ Longest Common Substring
- ▶ Minimum Cost Path
- ▶ Minimum Jumps
- ▶ Catalan Number Based Questions
- ▶ Cuts Based Questions
- ▶ Include Exclude Array Strategy Based Questions

The CTBPO method for approaching coding interview Questions

- ▶ Clarify the requirements
- ▶ Test Cases
- ▶ Bruteforce
- ▶ Pattern Recognition
- ▶ Optimize(BUD,DIY,Simply and Generalize,Make a base and step up,Datastructure marathon)

Strategy for low level Design Interviews

- ▶ Gather requirements
- ▶ Define core classes ad objects
- ▶ Relationships between the classes
- ▶ Try to fulfill all the requirements
- ▶ Apply OOPS principles
- ▶ Good to know SOLID Principles

Low level Design Interview Questions

- Design ATM

- Design Parking Lot

- Design Movie Ticket Booking System

- Design Elevator

- Design Hotel Management System

- Design Library Management System

Strategy for behavioral Interviews

▶ Use STAR framework(Situation-Task-Action-Result)

▶ or Use SPSIL framework(Situation-Problem-Solution-Impact-Lessons)

▶ Maximum Answer time =2mins

▶ Use I instead of We

▶ Prepare Answers before and write them down

Some Behavorial Questions

► Tell me about a project that you're most proud about

► Tell me about a time that you failed

► Tell me about a time when you had to resolve a conflict

► Tell me about a time when you led a team

Resource Suggestons

- ▶ Grokking Coding Interview
- ▶ Grokking Dynamic Programming
- ▶ Grokking Object Oriented Design
- ▶ Competitive programmers Handbook
- ▶ Cracking the coding Interviews
- ▶ Elements of Programming Interviews
- ▶ Tech Interview Handbook
- ▶ Leetcode Course book
- ▶ Programcreek book
- ▶ Dynamic Programming Course by Coding Blocks
- ▶ Algoexpert

Resource Suggestons (cont.)

Recommended Platform:Leetcode
Recommended no of problems: 300-500problems.
Language:C++,Java,Python Interviewers typically select their questions
from the LeetCode question database
Write clean code
Write helper functions
Smartly selecting leetcode Questions

▶ Teamblind's 75 leetcode Questions

▶ 30 Days to your Dream Company by take U Forward

▶ 170+ leetcode Questions by Sean Prasad

▶ Pepcoding's 500 Problems List and Notes

▶ Afteracademy Interview Preparation Kit Questions

▶ Byte by Byte 50 Questions

▶ Leetcode preparation Plan by interviewhelp.io

Resource Suggestons (cont.)

Tricks to get better

- ▶ Upsolving(Read most voted and look geeksforgeeks.org)
- ▶ Spaced Repetition(First time-Struggle,Second time-comfortable Third time-second nature)
- ▶ Consistency is the key
- ▶ Dry run the code and submit code once
- ▶ Speak while practicing
- ▶ Practice problem by hand
- ▶ After each question,write down what you could have done to make the problem solving easier

Resource Suggestons (cont.)

Interview Evaluation

▶ Coding-Good code quality,cover edge/boundary cases,Dry run the code

▶ Data Structure and algorithms-Why that particular datastructure,propose multiple approaches,analyse time and space complexities

▶ How long did you take to reach the optimal solution

▶ Your thought process

▶ How you communicate

Resource Suggestons (cont.)

Remote Jobs

- ▶ Toptal
- ▶ Gigster
- ▶ Arc
- ▶ GoRemote
- ▶ remoteok.io
- ▶ weworkremotely.com
- ▶ nodesk.co
- ▶ Use Hunter
- ▶ Upwork
- ▶ Fiverr

Resource Suggestons (cont.)

Offcampus Jobs

- ▶ Shredskerala
- ▶ AMCAT,Cocubes,Elitmus test
- ▶ Linkedin Groups
- ▶ Facebook Groups
- ▶ Career pages
- ▶ Telegram Groups
- ▶ Naukri,cutshort.io,monsterindia,instahyre,indeed
- ▶ geeksgod and Freshersworld

Resource Suggestons (cont.)

Recommended Youtube Channels

- ▶ Errichto
- ▶ Pepcoding
- ▶ Take U forward
- ▶ Stable Sort
- ▶ Gate lectures by Ravindrababu Ravula(Algorithms)
- ▶ Abdul Bari
- ▶ Aditya Verma
- ▶ Tushar Roy
- ▶ Silicon Valley Codecamp
- ▶ interviewing.io
- ▶ Programming Pathshala

Resource Suggestons (cont.)

- Interview Kickstart
- Coding Blocks
- Coding Ninjas
- Scalar Academy
- appliedaicourse
- Apna College
- William Fiset
- Nick White
- Backtobackswe
- Kevin Naughton
- Rachit Jain
- TECH DOSE

Resource Suggestons (cont.)

- ▶ Gaurav Sen
- ▶ CodeBuddy Official
- ▶ Soumyajit Bhattacharyay
- ▶ Udit Agarwal
- ▶ TechDummies
- ▶ Tech Interview Guide
- ▶ CodeKarle
- ▶ CodeNCode
- ▶ glider.ai

Resource Suggestons (cont.)

Recommended Reads

- ▶ engineerseekingfire.com
- ▶ igotanoffer.com
- ▶ https://4tee-learn.blogspot.com
- ▶ Important and useful links from allover leetcode
- ▶ workat.tech
- ▶ bytebybyte.com
- ▶ algodaily.com
- ▶ geeksforgeeks.org
- ▶ blog.interviewcamp.io
- ▶ interviewhelp.io/blog
- ▶ interviewcake.com

Resource Suggestons (cont.)

- ▶ Dynamic programming patterns leetcode
- ▶ SOAI_KOLLAM Telegram Channel
- ▶ A to Z Resources for Students
- ▶ https://medium.com/@vikramatic/interview-questions-that-leave-you-sweating-8e7a12f793db
- ▶ https://stackoverflow.blog/2017/04/27/how-to-talk-about-yourself-in-an-interview/

Resource Suggestons (cont.)

Mock Interview Platforms

- Interviewing.io

- Gainlo

- Pramp

Resource Suggestons (cont.)

Referrals

- ▶ refsy.io

- ▶ repher.me

- ▶ Triplebyte.com

- ▶ Networking(Linkedin,Goodwall)

- ▶ Alumni

- ▶ Cold mail(massapply.com)

Resource Suggestons (cont.)

Important Coding Competitions

▶ Microsoft Techsetgo-November or December

▶ Codenation's Codeagon -August

▶ Amazon's WOW-January

▶ Google Kickstart and CodeJam

Resource Suggestons (cont.)

Analysing Time constraints
How to approach a problem in competitive programming contest by
Coding Ninjas

- ▶ N 10**8 O(N)
- ▶ N 10**4 O(N**2)
- ▶ N 10**7 O(Nlog N)
- ▶ N 10**18 O(log N)
- ▶ N 20 O(2**N)

Ways to get Unstuck during Coding Interviews

- ▶ Fully understand the problem
- ▶ Work through problem by hand
- ▶ Find bruteforce Solution
- ▶ Simplify the problem
- ▶ break down problem into subproblems.
- ▶ Make it clear where you are
- ▶ Pay Attention to your interviewer
- ▶ Ask for hint

Commonly Asked Questions

Operation System Questions

- ▶ Difference b/w thread and process
- ▶ Difference b/w semaphore and mutex
- ▶ Scheduling algorithms
- ▶ Paging and Segmentation
- ▶ Critical section
- ▶ Deadlock

Commonly Asked Questions (cont.)

Important DBMS Questions

▶ Relational Constraints like domain,key,entity integrity,referential integrity

▶ Difference b/w truncate and delete

▶ Types of joins

▶ Acid Properties

▶ Lost Update and Dirty Read

▶ Types of Normalisation

▶ Trivial and Non Trivial Dependencies

▶ Insert,Delete and Update Anomalies

▶ SQL Queries,SQL Functions,SQL vs NoSQL

Commonly Asked Questions (cont.)

How to present your work?

- ▶ Notecard-Write down the feature you worked on or project you managed

- ▶ Notecard-Write down things you tried and failed(3-5)

- ▶ Notecard-Write down things that ended up working

- ▶ Flippedcard-Most valuable thing learned from this project

- ▶ Flippedcard-One line about where this idea came from

- ▶ Flippedcard-Most recent insight if you havent solved the problem

- ▶ Have a good developer tale-Be specific,start with a punchline,Talk backwards

Commonly Asked Questions (cont.)

How to talk about yourself in an interview?

- ▶ Dont rehash your resume and give summary of it in few lines

- ▶ Explain why you are excited to be considered for the role and why you are the best candidate for it. Match your answer to the job description.

- ▶ Showcase one or two major accomplishments you may have had

- ▶ Pick ONE interesting point from your resume and build on it

- ▶ End answer shoulde be super strong and positive. Explain why the role interests you for among all the other job opportunities out there, and how delighted you are to be at the interview.

Commonly Asked Questions (cont.)

Important CS Fundamental Questions

- ▶ Explain OOPS Concept with examples

- ▶ List,Arraylist,Hashmap and Hashset

- ▶ Abstract Class and Interface

- ▶ Function Overloading vs Overriding

- ▶ Constructor and Destructor

- ▶ Big Data,AI,Cloud Computing,Machine learning

Questions to ask interviewer-Genuine,Insightful and Passion

Thank You and Suggestions

- ▶ Interview is a game
- ▶ The harder you work the luckier you get
- ▶ Conquer your fears
- ▶ Dont be afraid to fail
- ▶ Rewind the game
- ▶ Every rejection redirects you to something better
- ▶ Read rejected.us
- ▶ Your competition is in the mirror
- ▶ Interview is like a box of chocolates
- ▶ To get something you never had,you have to do something you never did