

# Internship Interview Experience

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## About Me:

I am a B.Tech undergraduate final year student at IIIT Hyderabad pursuing Computer Science Engineering. I am a passionate algorithmic coder and problem solving is my life.

My path of finding a summer internship was not that easy - I sat in more than 17 coding rounds of tier-1 software companies, faced 12 interviews in total, got rejected in the first 10 of them. But I learnt tremendously from each experience leading to smooth selections in the last 2 - OnePlus R&D and a Silicon Valley based Stealth Startup, latter is where I decided to join.

I am creating this document to share my journey with all the ambitious students out there, giving a sneak peak into the corporate world. I hope this helps and guides you in your interview process.

Good luck to all!

## Special Thanks:

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*"Everything comes to him who hustles while he waits." -Edison*

## **Goldman Sachs**

- Coding Round
  - MCQs (aptitude+advanced probability+os+dbms+coding) + 2 coding questions + 1 situation based question on hackerrank
  - Probability questions were challenging. Rest were pretty straight forward. Coding questions included 1 easy question(arrays) and 1 difficult question (graphs).
  - Roles offered were Quant and CS. Quant role required good performance in the MCQs and CS role required good performance in the coding questions. If you perform well in both, they'll shortlist you for both.
- Interview Round 1 (CS role)
  - Resume + OOPs concepts + 1 question related to sorting an array
  - Interviewer was from a Java background and was more focussed on OOPs concepts and methodologies. I gave him answers for the Python language which he accepted.
- Interview Round 2 (CS role)
  - 1 question based on infinite input sequence of integers (in most standard cases heaps/queues are the solutions)
  - 1 standard question on binary search tree
  - I didn't answer any of these questions perfectly.
- Final verdict - Not selected

## **Uber**

- Coding Round
  - 3 coding questions (1 was array based bit manipulation, 2 were dp based)
- Interview Round 1
  - Purely CP based (on codepair platform)
  - 1 question on a 2-D array traversal featuring obstacles (was quite easy, kind of basic BFS)
  - 1 question on Minimum spanning tree

*“Genius is one percent inspiration and ninety-nine percent perspiration” -Edison*

- Interview Round 2
  - CP+Design (on codepair platform)
  - 1 question to design amazon book service (insert, update, delete in DB) - Heap was all they wanted - I struggled to write the heapify function. Interviewer helped a bit.
  - 1 question on arrays. (in particular, lower bound) - This was kind of a second chance for me to proceed for further rounds. I was able to code it well within time, which somehow managed to cover the mistakes made in the previous question.
- Interview Round 3
  - Resume(projects in detail)+CP
  - Interviewer asked only one project but in depth. It is therefore very important that you must know (in detail) every single line mentioned in your CV.
  - 1 question on string - Given two strings s and t. Find the length of the smallest substring in t which contains the same frequency of letters as in s. I gave him the  $O(n)$  solution, which he queried a bit (maybe because the code I wrote was a bit crappy; minus point for me).
  - 1 question to find k maximum elements in an infinite input sequence of numbers (heap was all he wanted but I didn't use at all)
  - Total 6 people were invited for this round, out of which they took 3 due to position constraints.
- Final verdict - Not selected

### **Alphagrep**

- Coding Round
  - 3 coding questions (1 was greedy, 1 was math, 1 was DP)
  - 6 people were shortlisted
- Interview Round 1
  - Resume + 1 project in detail
  - 1 puzzle (number theory) which was common to all candidates.
  - Interviewer had a look at the coding round codes.

*"It's fine to celebrate success but it is more important to heed the lessons of failure."*

*-Bill Gates*

- Didn't qualify for the next round (which was resume based and more projects were discussed with the 2 shortlisted candidates).
- Final verdict - Not selected

### MotorQ

- Coding Round
  - 2 moderate level coding questions (1 was greedy and 1 was math)
- Interview Round 1
  - Purely CP based.
  - 1 standard question - To find the median of two sorted arrays when combined together and sorted. **Standard solution with complexity  $O(\log(\min(M,N)))$  is the only acceptable solution when this problem is asked in interviews. Even  $O(\log M \cdot \log N)$  shall not be entertained.**
- Interview Round 2
  - Purely CP based.
  - He asked me to code upper bound and lower bound functions i.e. write binary search codes for each of them.
  - Next he asked a question based on Floyd's algorithm (not Floyd Warshall but a cycle finding algorithm), which I didn't know.
  - Few people were shortlisted for the next round (not me), which was the combined form of technical and HR round. Questions varied from System Design to LRU in OS.
- Final verdict - Not selected

### Google (Tanuj)

- Resume shortlisting
  - Google did not have a coding round. They shortlisted approximately 15 people based on their resumes out of ~100 people.
  - Main things they looked at in the resume (according to me) are - CGPA, competitive coding profile and participation in google kickstarts/codejam.

- Two interview rounds happened for all the candidates. Third round happened for some of the candidates for which Google thought they needed more information. 2 people were selected after 2 rounds and one after the 3 rounds.
- Interview Round 1
  - 2 very simple questions, one related to bit manipulation and other graphs (vanilla dfs).
  - Interviewer focused on small optimizations in standard solutions. He asked a lot of counter questions in vanilla dfs.
  - The 2nd question was very simple, but was phrased in a weird way.
  - It is okay if you do not know anything specific to language. For example I did not know the difference between map and unordered\_map in C++, but I did know the concept of hashing.
- Interview Round 2
  - This was harder than the previous one (this is not the case for everybody).
  - Both questions were related to binary trees.
  - I took a lot of time in the first question (20-30 minute as I remember), it had a simpler solution but my solution was a little complicated.
  - I could not give a concrete logic of the second question in time. Interviewer gave me a hint in the end to use the solution of the previous question as a blackbox, and then it struck me and I gave him the correct logic. I could not implement that in time.
- Final verdict - Selected :D

## **Microsoft**

- Coding Round
  - 2 parts - 1 for SE role, 1 for ML role
  - SE
    - 3 easy questions were asked based on arrays, strings and math.
    - Multiple sets were there.

*“All you need in this life is ignorance and confidence, and then success is sure.” -Mark Twain*

- ML
  - Multiple choice questions related to *Probability* and *Statistical Methods in AI* were asked.
- I was shortlisted for the SE profile.
- Group fly round
  - 2 questions were asked and were common to all people. 1 was regarding binary search and 1 regarding lowest common ancestor. It was kind of luck based because there were few people who solved both questions correctly but didn't qualify for the next round and vice versa.
  - Around 60 people were shortlisted from this round
- Interview Round 1
  - CP
  - 1 question to implement the code to rotate the matrix spirally.
  - 1 question to implement functioning of head and tail commands.
- Interview Round 2
  - Resume + CP
  - Interviewer asked about my interests in Computer Science, to which I replied 'Machine Learning'. Then he discussed a few of my projects in detail along with the related coursework.
  - 1 question based on strings was asked. Question was quite controversial, and I discussed a lot with him to confirm what I understood was right. The interviewer was not from a CP background, what he wanted to judge here was if I am comfortable with functions in C++ or not.
- Interview Round 3
  - CP
  - 1 question based on 2-D sorted matrix search was asked.
  - 1 question based on bit overflow.
- Final verdict - Not selected (Felt unlucky, results seemed quite random)

*"Our greatest weakness lies in giving up. The most certain way to succeed is always to try just one more time." -Edison*

## Sprinklr

- Coding Round
  - 3 questions - 2 were based on greedy and strings
- Interview Round 1
  - Varied a lot from people to people
  - For me, it was mostly CP based, whereas for some, it was more like a resume round.
  - Interviewer started with some key projects in the resume. He was impressed by one of them as it was based on the topic he was currently working on and discussed that in detail.
  - After that, 1 standard question was asked - To find the median of two sorted arrays when combined together and sorted.  
***This was the second time this question was asked to me, but due to my carelessness, I still didn't know the solution this time too. So, it's strongly advisable to note the questions after each interview and revise them before going into the next.***
  - 6 people (not me) were selected for the next round. Again the kind of questions varied a lot from interviewer to interviewer. Finally 2 people were selected.
- Final verdict - Not selected

## E&Y

- Coding + English Round
  - Multiple choice questions based on English (synonyms, antonyms, comprehensions), Aptitude, Data structures and algorithms, basic probability were asked.
  - Pen paper round - Writing skills - Topic: Email to HR querying about a particular job position in about 150 words.
  - There were two roles - Applied Engineering and Artificial Intelligence, out of which we had to opt for one, I opted for AI.

*"My reputation grows with every failure." -George Bernard Shaw*

- Group fly round
  - 2 questions were asked. Different sets were used for different people. For me, 1 question was greedy and 1 was string based.
  - 20 people were shortlisted at first - 7 in AI, 13 in AE. 7 people (including me) were called next, adding the count to 27.
- Interview Round 1
  - Interviewer moved on to the question directly without any introduction (looked in haste).
  - 1 question he asked was based on recursion over a string, the solution to which he didn't understand (minus point for me). 1 more question, this time on arrays.
  - Next he asked me about DFS and BFS and their applications.
- Interview Round 2
  - Since I filled in for AI, this was a more topic oriented round.
  - Interviewer discussed my ML projects in detail. At that time, I had only one on my resume, but I described him about one more that I was currently working on.
  - He went into details regarding deep learning and neural networks, and required an ideal candidate to have thorough knowledge about neural networks (which I didn't have at that time).
  - This round went for about 40 minutes.
- Interview Round 3 (HR Round)
  - Started with the introduction of HR, followed by mine.
  - HR asked some conditional questions like regarding the work environment, preferred team, etc. She confirmed if I was comfortable working in Bengaluru for three months. I thought I was selected till the time she said "You are not selected till now, although it's positive, we'll discuss and let you know soon."
- Final verdict - Not selected (after so much hope)

*"Many of life's failures are people who did not realize how close they were to success when they gave up." -Edison*



## **AppDynamics**

- Coding Round
  - 1 advanced level and 2 moderate level coding questions (1 was DP, 1 was strings, 1 was implementation based brute force). 22 people were shortlisted after this round.
- Interview Round 1
  - This round was mostly CP based including 2 standard questions, one on DP and other on graphs. Starting with the basic introduction, the interviewer went and discussed the resume briefly, moving on to the questions. After discussing the idea to solve the problem, I was asked to write code on a sheet of paper.
  - This round went for about 45 minutes.
- Interview Round 2
  - After a brief introduction, the interviewer started with a standard question - designing and implementing efficient LRU cache (customised). My approach to the problem was based on STL sets and maps. It was evident that the answer expected was using doubly linked lists, and the interviewer wasn't aware of the properties of sets and maps (disadvantage for me).
  - This round was a bit quick and took less than even 25 minutes to end.
- These two rounds were common to almost all shortlisted candidates. Next, 2 candidates were called for the HR round and both got selected.
- Final verdict - Not selected

## **Salesforce**

- Coding Round
  - 3 coding questions (2 were moderate level implementation based and 1 was basic BFS)
- Interview Round 1
  - Resume + CP round

*“Success comes from knowing that you did your best to become the best that you are capable of becoming.” -John Wooden*

- The interviewer discussed the resume in detail, mainly focussing on one of the projects, which he went into detail (discussed word2vec and gloVe in depth - on which that project was based). This took around 30 minutes. Next, he moved to a standard array problem.
- Some time was left, so the interviewer asked some off-topic behavioral and general questions. This round took exactly 45 minutes to finish, and overall went good.
- Interview Round 2
  - CP+Design
  - 1 question to design a game (not exactly a game) where a stream of input is entered line by line (each line may have more than one character), along with the last line getting deleted simultaneously. Some customisations were applied to this to orient the question towards CP.
  - Key components which the interviewer was looking for were (which I discussed with him after the round):
    - Did I handle base cases and edge cases properly?
    - Can I write clean and modular code?
    - Problem solving skill
- Interview Round 3 (HR Round)
  - 8 people were called for this round, out of which 4 got selected.
  - This is where I first learnt the fact that if you have been asked “*Tell me about yourself*”, never read out your resume.
  - The manager briefly went through the resume, and asked some behavioral questions.
  - Quick round - Didn't even take 15 mins to finish.
- Final verdict - Not selected

### **Kivi Capital**

- Initial shortlisting was done based on the resume. 16 people were shortlisted for the interview.

*“Let me tell you the secret that has led me to my goal. My strength lies solely in my tenacity.” -Louis Pasteur*

- Interview Round 1 (Telephonic)
  - 2 CP based questions were asked. 1 was based on graphs (moderate level) and 1 was based on DP (easy level).
  - I struggled to answer the DP question. The interviewer helped a bit to reach the final solution. Since the round was telephonic, he asked me to write the pseudo code on a piece of paper and explain the steps.
- Interview Round 2 (Telephonic)
  - Projects were discussed in detail. It therefore becomes very important that you are thorough and honest with your resume. This round went well.
- HR Round (Telephonic)
  - 3 people were selected for this round. All of us had it simultaneously with 3 different senior employees in the company. The interviewer started with a basic introduction of the company and asked me some generic questions (including behavioural).
- Final verdict - Not selected

## **OnePlus**

- Coding Round
  - Around 50 questions based on C, Java, android OS.
  - 2 easy-moderate level coding questions, both based on arrays
- Interview Round 1
  - Interviewer went through the resume thoroughly and discussed almost every project briefly. He was impressed by the ML project and discussed that in detail.
  - Next, the interviewer discussed their current projects, and asked some out-of-the-box questions based on image processing. The discussion was positive for me, and he looked impressed by the responses.

*“In order to succeed you must fail, so that you know what not to do the next time.”*  
*-Anthony J. D'Angelo*

- No CP related questions were asked in this round. However, it varied, some people were asked basic questions based on merge sort tree, sorting algos, etc.
- HR Round
  - General behavioural questions were asked in this round. HR asked about my background and how I developed interest in CS. Some more questions regarding the expected work environment and culture were also asked.
- Final verdict - Selected :D

### **Stealth-mode Startup**

- Resume shortlisting
- Interview Round 1
  - Resume round. Projects were discussed in brief.
  - Most of the discussion was based on the things which were related to the company's work.
- Interview Round 2
  - 1 task - To build a basic REST API web app backend from scratch. I was comfortable using Python, and we mutually agreed over it, so I followed that.
  - 2 questions based on CP - 1 based on merge sort and other on C++(STL) Sets.
- Final verdict - Selected :D (Currently working as an intern)

*“It's not that I'm so smart, it's just that I stay with problems longer.” -Albert Einstein*

## Some general tips and tricks

- Whenever you are asked “Tell me about yourself”, tell the things that are not mentioned on your resume. Personal opinion: Always start talking about your background, your journey in the field of interest. Slowly move on to the things relevant to the job, like if it’s related to machine learning, then explain how you get introduced to ML, and how it attracted you toward itself. Your answer must not be as short as a 10 seconds slogan, nor it should be long as 10 mins speech. Somewhere around 3-5 minutes will work
- **Do you have any questions for us?** - Mostly every second interviewer will ask you this question. You must have (or will) read from various sources, “Always ask a question, this shows your interest in their company”. You must know that the person sitting in front of you has also faced interviews, and must have interviewed many too. So, be yourself, no need to ask unnecessary questions. If you are comfortable (have no doubts), state clear to him/her about your thoughts and show how crystal clear you are about this role.
- When you mention competitive programming as your interests, it may sometimes become negative as the interviewer may not be a big fan of it. You’ll get to know if he’s enjoying the verse or not. It’s advisable to divert away from CP in case he/she doesn’t like it.
- Type of questions asked in the coding rounds are different from those asked in the interviews. It is therefore very important that you practice the standard interview problems. Even if you are proficient in competitive programming, I’ll recommend to go through the standard problems at least once before sitting in the interview.
- In case, you face rejection in any interview, jot down and analyse the mistakes you made that day, and go through it before attending the next interview. It will surely give you confidence and you won’t make the same mistakes ever.
- In almost every technical round where you are asked a problem, you’ll be asked to code it down, that too on a piece of paper. Try to keep the code modular, and if possible, label comments over each function. What matters the most is the logic to solve that problem, but following this shall grant you some bonus points.

**Thank you for giving this a read. I believe it will prove to be helpful. All the best!**

*"Rejection does not mean you aren't good enough. It just means the other person failed to realize what you have to offer." -Mark Amend*