

16 people were shortlisted for interview after online test.
There were 4 rounds. 3 technical and 1 HR.

Round 1 (Technical/Managerial):

This was the most unexpected round, as I was asked System Design problems (I'm just a kid). I was asked to design metro card system. Later on it evolved in to a lot more - from fare calculation using simple matrix, to building a graph for fares based on distance travelled and time taken by the traveller. I was asked various cases like what to do if user enters and exits from same station, what if user takes a "scenic" route - how should we deal with it. Then I was asked how to increase the system's profit - I said charge more during peak hours (he questioned ethics here), or add more trains so more people travel while keeping costs low (he questioned costs here). After that, I was asked what technology I would use to build such system. It went from RF based card id scanning, to designing and optimizing the database, what database to use (I said use some enterprise dbms like from Oracle. Then he asked why not open source. He asked me about open source licenses - which I answered wrong and accepted when he explained). Then I was asked questions on scaling up the system. Like I said, all this was totally unexpected and overwhelming.

Then I was asked to explain the architecture of all my projects (4 projects on resume). Questions like why I picked particular stack, why not other, explain their working, dependencies used and their working. He asked about my AWS and Google Cloud experience (it was on resume) and all others things on resume.

I was asked "why was I re-inventing the wheel" (in context of a project of mine), to which I replied - I built a better wheel and re-inventing is good from learning perspective.

Then for a "coding" test, I was asked what are my strongest programming languages. I told C++ and JavaScript. Then he asked to code "string reverse" using php. _(ツ)_/

Then a few more questions about projects and GSoC internship, then I left. This round was really stressful.

(Around 50min. Time is 12pm)

Round 2: Technical

After waiting for multiple hours, I was finally called for the technical interview.

First the interviewer asked me about my interests - I told web development. He asked me what happens when you hit enter in the address bar of a browser. I went from dns resolving to complete request-response cycle to browsers rendering the content. He asked me about the protocols - TCP/IP, HTTP(s) but decided to not get into much detail.

Then I was asked how to create a web crawler (and basic search engine).

Then there were ds/algo questions:

Q1. In a stack find the minimum value at any instance in $O(1)$ time (while also keeping push/pop $O(1)$). That's one question which I had done before, but the solution didn't come into my mind at that time. So, I created another approach on the fly, using additional space (single stack).

Q2. Given a $2*N$ grid and N tiles of size $2*1$, find the number of ways we can arrange those tiles (vertically/horizontally) to cover entire grid. I couldn't solve this one. Turns out, it was just the fibonacci number.

Q3. Given a BST, find if there exist two elements whose sum is equal to target value. I gave a $O(nh)$ time approach, then a $O(n)$ time/space approach (converting the BST to a sorted array then running two pointers) and then $O(n)$ time, $O(h)$ space approach running the previous algorithm directly on the BST.

Q4. Given an array with duplicates, make the array unique. Rules:

- You do not have to remove elements from array
- You can only increment the values to make the array unique
- Keep the sum of array minimum.

Example: $\{1,2,3,3,5,5,4\} \Rightarrow \{1,2,3,6,5,7,4\}$

Example: $\{1,5,3,3,3,8\} \Rightarrow \{1,5,3,4,6,8\}$

(Take your time to understand these examples)

I solved this using a counter (map) and a hashset. It was not space efficient, but it worked.

I was not asked to code any problem (I wonder why).

(Around 50min)

Round 3: (Technical/Resume)

I was called for this round really quick, like after 10min of Round 2. The interviewer was a very chilled man.

He asked me about my projects - why I built them, how i built them, what were the outcomes. Then as I had mentioned building "game mods/cheats" in my resume, he asked me about those. It was fun explaining them. Then he asked me about my achievements, followed by my GSoC internship. He was impressed by my diverse stack, projects and accomplishments.

(Around 20min)

Round 4: (HR)

This started just 5min after round 3. Didn't even get a chance to breathe!

I expected general HR questions, but to my surprise, she asked me puzzles. It was an optimization puzzle. I gave the algorithm, but she said it was not optimal (I still think it was the optimal solution!)

Then general HR questions - background check, interests etc. Then for 20min, I asked her questions and she replied. I asked about work from home, company culture, whether they listen to junior devs etc. I asked if the placement contract can be negotiated - which she denied, and I decided to not go further on that. It went all good.

(Around 25min. Time is 7pm)

Results were announced next day.