Ciena Interview Experience (C/C++ Profile)

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ROUND 1 - Online Assessment

There were 2 different assessments set up according to the profile for which the students had applied (One for the C/C++ profile and the other for the Java profile).

- Java Profile assessment consisted of 2 programming questions.
- C/C++ Profile assessment had various sets of assessments, different for each candidate.

I got a single section with 45-50 MCQ questions around Aptitude and Reasoning, C error correction, and C Output questions (Output questions were tricky, whereas aptitude and fundamentals were relatively easy). Some people had coding questions to be solved in C/C++.

This round can be easily cleared with a decent knowledge of Aptitude, Reasoning, and fundamentals.

43 students were selected for the next round.

ROUND 2 - Technical Interview 1 [40 mins]

The interviewer Started with some Ice-breaker questions such as from where I graduated, my marks, family background and all. He asked what subjects I liked from the course, I said CN, OS, and DSA then he started asking some questions. (I may not remember all of them, but I've noted most of them here)

- Some Bit-masking questions (to be coded in C) :
    - Set n^{th} bit: https://www.geeksforgeeks.org/set-k-th-bit-given-number
    - Unset n^{th} bit: https://www.geeksforgeeks.org/program-to-clear-k-th-bit-of-a-number-n
    - Toggle n^{th} bit: https://www.geeksforgeeks.org/toggling-k-th-bit-number

- Some coding questions related to pointers, Double pointers, reference variables everything you can imagine related to pointers, (don't think they were direct questions, these questions were quite tricky but doable if understood carefully).
- Questions about Storage classes in C. Describe all of them, their syntax, and some examples, then he gave me some code snippets and asked what would happen when these codes compile and run.
- Questions about keywords static, final, etc. With explanation code snippets and all.
- He then asked: " What do you mean by a 32-bit machine & 64-bit machine? Where that convention came from." & stretched this topic for a while

He summed up his questions and asked me if I had any (related to company and work).
Here's what I asked:

- What layers of networking do they work on, and exactly how do they deal with them what is the process behind it?
- What types of roles or teams do they have for these various tasks?
- How does their technology exceed that of the competitors in the market?
- Some General questions such as their work culture, benefits, etc.

He found my questions Interesting so we had a conversation over 10-15 minutes about the technologies and exact work done at Ciena, he told me they deal with ports and drivers in layer 1 and layer 2, Many protocols and custom ports, etc. It became a really good conversation about Computer Networking that interested me too towards Ciena.

I was immediately told to go for the next Interview round without even a 2-minute break. **:')**

ROUND 3 - Technical Interview 2 [50-60 mins]

The Interviewer was pretty humble, after some basic Introductions, he asked about how the previous interview went, I replied with my experience of the previous round and the technologies and work at Ciena told by the previous Interviewer. Then he asked about one of My projects that I've done in C.

The Project discussion lasted for around 20 minutes.

- We discussed how the project's components worked Internally and how I managed to use System Calls with it.
- What were the system calls used for?

- How did you use system calls to implement the core features of your command-line application?
- What specific commands and options did you provide for file management, and how did users interact with your program?
- Can you explain how your program handles file creation, reading, writing, and copying?
- How did you collect and display statistics about files, and what types of information were included in these statistics?
- How do you handle error conditions and exceptions in your program, and how are they communicated to users?
- Discussed system calls in detail.
- Discussed new ideas that can be incorporated into the project.
- Discussed the common input conventions followed for the command line argument utilities.

Then he switched to C-language.

- I was given a code snippet to find errors. The code consisted of a macro, some invalid loops and wrong references. I pointed them out and told them the correct syntax and logic. He asked some questions about macros:
    - Their purpose, syntax, and use cases.
    - Where and why they can be used.
    - In what compiler stage are they executed, etc. & some macro-related codes?
- Then I was given some more code snippets about pointer manipulation where I had to predict what the output would be.
- Some code snippers related to strings in C where i was tasked to find errors and tell outputs.

  (NOTE : The code snippets i am talking about were somewhat tricky, so they required a double check)

- Then he gave me a question where it was an error due to the number of arguments, that error question was really easy, but the later questions he had framed for me on that easy one were great. they were:
    - Does the main() function take command line arguments? (yes)
    - If yes, then is it passed as a parameter in the code? (yes, below is how you can do)
        - int main(int args, char* argv[])
    - Does C follows the concept of polymorphism? (No)
    - If no, then how does int main() work if it has parameters passed? (concept of function pointers)
    - How does the C compiler does that? (use of function pointers).
    - Explain function pointers with syntax. (www.geeksforgeeks.org/function-pointer-in-c)
- Then he asked me about little-endian and big-endian machines. and some related questions.
    - Given a hex number (0x32) can you convert it to (0x23) i.e. swap the nibbles of a byte, and code in C? (there could be various approaches but I used bitmasking to do so, try to come up with an approach on your own, it would really help you further).

    - For a given little-endian representation, can you convert it to a big-endian one, code in C ? (there could be various approaches but I again used bitmasking to do so, try to come up with an approach on your own, it would really help you further).
    - Some more questions about the memory representation and stuff.

Then he moved to Operating Systems. These were the questions:

- Explain everything about the Critical section.
- Difference between Mutex and semaphores.
- Give examples of both.
- Is Mutex a Binary Semaphore?
- How do we use a Mutex in C/C++?
- Consider if two Processes P1 & and P2 are running concurrently, P1 enters the critical section and locks the mutex, If the admin explicitly kills the process P1 What will happen? Will P2 be able to access the critical section since the mutex was locked and P1 got terminated before unlocking the mutex? How would you tackle this situation? What would happen if we used semaphores here instead of Mutex?

He was done with his questions and asked me if I had any, we then had a small talk regarding the work culture of Ciena, what he is currently working on, and a few other things. He answered all my questions very nicely. Then We Concluded the interview. I thanked him for such quality questions.

Verdict: Selected for Internship + FTE offer

From both profiles combined 14 students were given an Internship + FTE offer.

Feedback

- Both the interviewers were nice and humble.
- They made me comfortable and frank towards them.
- It was overall a great experience I got!

Tips:

- Study C/C++ to its core, CN to your best, OS to the top, & have a good practice in DSA.
- You should also Know what you've written in your Resume.
- Be Really confident and Humble even if the interviewer is Rude (I consider myself lucky that day both the Interviewers were nice).
- Take time before answering anything. Understand the problem, Talk to the interviewer about any constraints or additional things, and Then communicate the answer properly.
- You Can prepare a mind map about how would you present yourself there. Communication is the key.
- Try to Turn the Interview into a Conversation.
- One of my friends said, Go with a smile on your face. That helped me to tackle tough situations. And rest of the gang hyped me up!
- Before me, most of the candidates had completed both rounds and some of them completed their HR rounds too! It was evening when my turn came. I was tired by that time but when I got the call I pumped myself up as if it was a do-or-die situation and went for it by saying Jai shree ram. **;)**

ALL THE BEST!