

Ciena Interview Experience (C – Profile)

Divya Solanki ,MCA

Overview

Ciena held its placement drive offline in department. There were 3 rounds (1 Online Assessment and 2 technical interviews). All rounds were conducted on same day. They collected data through our Placement Coordinators which language we prefer among C and Java. Then all 3 rounds were in the language we chose.

Round – 1 (OA) (75 minutes – on Codility Platform)

Java Profile Assessment had 2 programming questions.

C Profile Assessment had 6 tasks :-

Task – 1 and **Task – 2** (MCQ - Aptitude questions)

Task – 3 (1 Output question in C language)

Task – 4 and **Task – 5** (2 questions – Found and Fix Error)

Task – 6 (Coding Question)

Coding Question :- Write a function that, given an integer N, returns the smallest integer greater than N, the sum of whose digits is twice as big as the sum of digits of N. Examples :-

(a) Given N = 14, the function should return 19. The sum of digits of 19 ($1 + 9 = 10$) is twice as big as sum of digits of 14 ($1 + 4 = 5$).

(b) Given N = 10, the function should return 11.

(c) Given N = 99, the function should return 9999.

We have to provide a correct working solution, there were no space and time constraints.

Some aptitude questions were :-

1. Which number should replace the question mark?

17	8	5	6
13	7	5	4
6	12	6	3
10	6	4	?

2. Which number does not belong?

4	32	144
17	28	122
18	64	188
322	14	202

3. The day before the day before yesterday is three days after Saturday. What day is it today?
4. A fisherman has 5 fishes (namely A, B, C,D, E) each having a different weight. A weighs twice as much as B.B weighs four and a half times as much as C.C weighs half as much as D.D weighs half as much as E. E weighs less than A but more than C. Which of the following is the lightest?
(a) A (b) B (c) C (D) D (e) E
5. What is the next number in the sequence 25,24,22,19,?
6. What is the next term in the sequence 3, 5, 8, 13, 21?
7. What is the next number in sequence 3,10,20,27,44?
8. Identify the next number in the sequence 15, 29, 56, 108, 208, ?
9. What would be the next number in the sequence 52, 56, 48, 64, 32, ___?
- 10.What is the number that is one-half of one-quarter of one-tenth of 480?

(Other aptitude questions were also of easy to medium level.)

Around 40 students were shortlisted for interview rounds.

Round – 2 (Technical Interview – I) (30 - 40 minutes)

The interviewer started the interview by discussing one of my projects which was on Compiler design(html tag parser).Then I explained what I did in my project , how lexical analysis and parsing phase works ,how they are related , how they call each other, how my program stops when it detect an error. Then I explained how to write grammar productions for language $a^n b^n$, then he further asked me to modify production rules to accept strings having space between a and b, between a's and between b's (like aa_bb,a_abb,a_a_aa___bb_b). Then he asked some questions on C programming language like :-

- Difference between C and C++
- Static variable and static functions
- Can we initialize static variable declared in file and use it in another file
- Extern keyword

Then he asked me how good I am in OS to which I replied good at basics ,then he asked questions about the same :-

- Difference between threads and processes
- Semaphores & Types of semaphores (binary and counting)
- Producer-Consumer Problem, Critical section(wait and signal)
- Spinlock

Then he asked about whether I was comfortable in DSA to which I replied yes

- He then asked me to write down code to calculate height of a binary tree , asked me to run some examples on it and explain the time complexity of it.
- General formula to find height of tree.

At last he asked about my hobbies which I mentioned in my resume, sir was our alumni so the experience was quite friendly as well.

All students are qualified for 2nd interview (except some).

Round – 3 (Technical Interview – II) (30 - 40 minutes)

Sir introduce himself and asked me to do the same.

He check out my resume and he found compiler project of his interest, then we had some discussion on it , he asked me to write down the lex file of my project , I explained him the general format of lex and yacc file by taking language $a^n b^n$, and then I told modifications to lex and yacc file for my project. He asked how we compile and run these files.

Then he moved to C programming language questions :-

- Write a program to add 2 numbers in C.
- Difference between C and C++ - give in one line – C++ is OOP language while C is not.
- Arrays vs vectors.
- Arrays vs linked lists.
- Static variable , there usage ,why we require them.
- Give one example of static variable in mobiles (to this I replied we can see “Up time” of a phone as static variable, he said that was good example).
- Can we initialize static variable declared in file and use it in another file.
- Where static variables are stored in stack, heap, data segment, or text segment when you declare them.
- Where local and global variables are stored.
- Malloc and calloc.
- What is mean by `int * p = (int *)malloc(sizeof(int))`, where p is stored.
- Extern variable , write some code segment to explain it.

Then he moved to OS and asked me to rate myself between (1-10),to which I replied between (7-8).

- He asked me to explain all scheduling algorithms which I know – I explained FCFS, SJF, SRTF , priority, round-robin.
- What is starvation, can we resolve it, if yes then how, I told him that we can change priority of all jobs to avoid starvation, he asked me some counter questions on it and also helping me to figure out solution, he told he wants to know my thinking approach.
- What kind of scheduling is used in windows os (round-robin with priority scheduling)
- Difference between threads and processes
- Semaphores and its types
- Mutex, difference between semaphore and mutex.

Then he moved to DSA and asked me to rate myself between (1-10),to which I replied between (7-8).

- Write a code to reverse a string.
Eg. – I like pizza
O/P – azzip ekil I
- Write a code to reverse individual words of a string
Eg. – I like pizza
O/P – pizza like I
- Consider Node definition:-
Struct Node
{
 int data;
 int sum; //sum=curr->data + previous->sum
 Node *next;
 ...
};

Consider following linked list:-

Eg. : (1,1) -> (2,3) -> (1,4) -> (1,5) -> (3,8) -> NULL

Head = (1,1)

(1,1) => Node->data =1,Node->sum=1

(2,3) => Node->data =2,Node->sum=1+2=3

(1,4) => Node->data =1,Node->sum=1+3=4

...

Given head of linked list, Remove all nodes from linked list whose sum is odd and return new head.

O/P : (1,4)->(3,8)->NULL

Head=(1,4)

- One line solution to count number of digits in a number = $\text{floor}(\log_{10}(n) + 1)$
- He asked what are bitwise operators, how to set last unset bit .

At last he asked me about my hobbies and interests and he was done with his set of questions and asked me if I had any, so I asked him about work environment at Ciena, and what are the opportunities I can get and how long will it take to get promoted , sir was in Ciena from 11.5 years, so he explained things very well and then I asked about my feedback to which he replied it was good.

From both profiles combined 12 students were given Intern + FTE offer.