Arcesium Interview Experience

Online Round :
Three Sections with 25% negative marking:

1. Quantitative Aptitude 15 Questions 20 minutes 6 Attempted
2. Technical Aptitude 15 Questions 15 minutes 12 Attempted
3. Programming Section 2 Questions 45 minutes
    a. You are given a matrix where '#' represents an island where as '~' represents sea, you always start from 0,0 which is guaranteed to be an island, you can move only horizontally and vertically and change direction only when you are at some island. You need to return maximum number of islands that you can reach.
    I devoted all my time to this question and couldn't completely solved it, but out of 13 test-cases I was able to clear 12 with the brute force approach.
    b. Given a sequence of N integers and a number K, you need to insert operators between all N numbers such that final output is divisible by K, operators allowed were +, -, /. The priority would be + > - > / and expression would be evaluated from left.
    N < 10
    Eg. N: 1 2 3 3 K: 27
    ANS: 1+2*3*3
    Not enough time even to attempt this question.

After this round, only 15 applicants were shortlisted.
For the interviews, 5 panelists came out of which one was HR.
Four panels were setup : 1 HR, Technical panels : 1 panel with two recruiters and the other two with one recruiter each.

Interview Rounds :

1st Technical Round :
The 3 technical panels started taking the interviews parallely.

Questions asked :
Introduce yourself.

1. Is there a limit on the memory capacity of a RAM? (No limit on the money)
    I could not answer the question at that time but the answer is hardware dependent specifically on the number of address lines used in the system.
2. Questions on Polymorphism (Run-time and Compile-time). Does return type have to be the same in order to achieve polymorphism? Is function overloading an example of dynamic binding?

3. What are the steps involved in the compilation of a C program? At what stage in the compilation linking and loading starts?
4. What is swap-space? What is the limit on swap space's memory capacity? What is swappiness? Are swap space and virtual memory same?
   I had a detailed idea of the swap-space workings in Linux and also about the minimum swap space requirement as compared to RAM space.
5. Programming question :
   a. Reverse a Linked List in groups of a given size k :
      https://www.geeksforgeeks.org/reverse-linked-list-groups-given-size-set-2/
      I gave him the solution of O(n) time complexity and memory complexity O(k).

Questions asked by me at the end:
1: Why Amazon web servers are the company's primary choice instead of their high pricing?
2: What are your daily errands at the office?

After 1st technical round, only 6 were selected for the next round.

2nd Technical Round :
The questions were on SQL, DS/ALGO, and Computer Networks.
Questions asked:
1: Write a SQL- query :
   Employee Table: {emp_id, emp_name, salary, manager_id} Display the names of those employees having managers' salaries greater than 2000(given amount). Also, display the managers' names.
   Three Approaches :
   1. Cross product of the table with itself.
   2. Nested SQL Query.
   3. Join Operations.
2: Explain all types of joins in SQL - Used Venn Diagram to explain.
3: What is a candidate key, superkey and primary key?
4: What is indexing in DBMS? What is clustering index?
5: Programming Questions:
   (i) Given a binary matrix, find out the maximum size square sub-matrix with all 1s.
   Link :
   https://www.geeksforgeeks.org/maximum-size-sub-matrix-with-all-1s-in-a-binary-matrix/
   Gave a brute-force approach of O(n^3) time complexity using recursion. I was trying to optimize but he changed the question.
   (ii) Check whether a binary tree is a binary search tree?
   Simple recursion.

6: Differentiate between TCP and UDP? Also, give their applications and justify them.
7: Differentiate between HTTP and HTTPS?

After 2nd technical round, only 5 were selected for the next round.

3rd Technical Round :
This was the last round.
All the questions were from the projects and internships, mentioned in my resume.
1: Introduce yourself.
2: Questions on my internships.
3: One by one they asked questions about the projects mentioned.
Questions were like :
(i) What are your contributions to the project?
(ii) What were your learnings?
(iii) Discussions on the technology stack used -
Are there any alternatives to the technologies used? (If yes then) Why you choose that technology (as in some framework or tools) to develop the application?
(iv) Which database was used in the application? Describe its schema?
(v) Write the code snippet describing how you called the server from the front-end and also how you received the call at the server-end?
(vi) What are the standard coding practices used in the project?
(vii) What was the architecture used?
4: You have five minutes and you have to explain the project in which you have the biggest learnings?
5: What is git? Demonstrate the standard practices used in git?
Questions asked by me:
1: Arcesium is a company, who develops software for the people who are competitors of D.E. Shaw, so is there any securities department for laying all the encryption strategies and security layers on both the desktop application side and on the server-end when they deploy the pods on the AWS?
2: What are their roles in the company?

HR Interview :
My HR interview started right after my 2 technical interviews.
Brief Introduction of yourself.
Questions about family background and parents occupation.
Any previous employment offers ?(If yes) Then, why to leave that offer and join Arcesium?
What you want to achieve in your life?
What you do in your leisure time?
Any location preference for the job?
Who is your role model?
Atlast, she asked any questions. I asked her about the work environment and how is hyderabad like?

Finally, 4 people were recruited.