CISCO
Data Engineering
Interview
Questions

Ankita Gulati   Shubh Goyal

Job Details

- **Position:** Senior Data Engineer
- **Experience:** 4 years
- **Location:** Bangalore
- **Work mode:** Hybrid
- **Compensation:** ₹20+ LPA
- **Total Rounds:** 5
- **Top Required Skills:**

1. SQL
2. PySpark / Python
3. Cloud Data Engineering
4. ETL / Data Modeling
5. Big Data & Streaming
6. System Design

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Round 1
Online Assessment

1. **Python** – List Manipulation: Given a list of integers, write a function to return the sum of all even numbers.

2. **Regex** – Email Validation: Write a regular expression to validate email addresses.

3. **SQL** – Aggregation: Write a query to find the second-highest salary within each department.

4. **SQL** – Joins & Subqueries: Retrieve employees who earn more than the average salary of their department.

5. **SQL** – GROUP BY: Find the total sales per region and filter regions where total sales exceed 1M.

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Round 2
Technical Telephonic Interview

1. Explain the difference between ROW_NUMBER(), RANK(), and DENSE_RANK() in SQL.

2. How would you process large-scale datasets using Apache Spark?

3. What are the advantages of Cassandra over relational databases?

4. Describe the differences between Spark RDDs and DataFrames.

5. What are common use cases for Cassandra in real-time data engineering?

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Round 3
Machine Coding

Format: Cloud-based environment with PySpark coding on real datasets.

Task:
 • Given F1 race data in CSV format, perform:
 1. Data cleaning (handle nulls, inconsistent values).
 2. Data transformation (e.g., extract race year, team stats).
 3. Aggregation (e.g., total points per driver per season).

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Round 4
Technical Discussion

1. **SQL Optimization**: Given a table of user activity, write an optimized query to find the top 5 most active users.

2. **DSA** – Linked List: Implement an algorithm to detect a cycle in a singly linked list.

3. **DSA** – Trees: Given a sorted array, write a function to construct a balanced Binary Search Tree (BST).

4. Explain how you would optimize a slow-running SQL query on a table with 50M+ rows.

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Round 5
Behavioral / Managerial

1. Describe a time when you had to lead a team through a challenging project.

2. How do you approach problem-solving in ambiguous situations?

3. A client reports data quality issues in dashboards. How would you debug and resolve them?

4. How do you handle conflict or disagreement within your team?

5. What motivates you to join Cisco, and how do you see your role evolving here?

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Thank You

Best of luck with your upcoming interviews – you've got this!

HIRED

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