

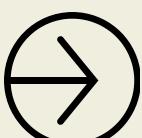


Data Engineering Interview Questions



Ankita Gulati

Shubh Goyal



Job Details

- **Position:** Cloud Data Engineer
- **Experience:** 5+ years
- **Location:** Gurgaon/ Pune/ Bangalore
- **Work mode:** Hybrid
- **Compensation:** ₹32+ LPA
- **Total Rounds:** 6
- **Top Required Skills:**
 1. Data Structures & Algorithms
 2. Advanced SQL
 3. Cloud & Big Data Tools
 4. System Design for Data Engineering
 5. Problem-solving & Cognitive Ability
 6. Behavioral

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Round 1 Recruiter Call

1. Background walkthrough: education, past roles, cloud/data engineering projects.
2. Why Google? – Motivation and alignment with company values.
3. Discussion of skills: experience with data pipelines, cloud tools (GCP/AWS), SQL, Spark/Beam.
4. Outline of process: recruiter explained 4–5 interview rounds.
5. Expectations on coding, SQL, cloud design, and Googliness.

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Round 2

Technical Phone Screen

1. Coding (DSA):
 - a. Given an array of integers, find the longest subsequence with alternating even and odd numbers.
 - b. Optimize to $O(n)$ using sliding window.
2. SQL:
 - a. Write a query to calculate 7-day rolling active users for a product.
 - b. Follow-up: Optimize the query for BigQuery (partitioned tables, avoiding cross joins).
3. Pipeline Design:
 - a. Scenario: Given a stream of user events (login, click, purchase), design a pipeline to deduplicate by session and aggregate actions.
 - b. Expected: Use Pub/Sub → Dataflow (Beam) → BigQuery.
 - c. Discuss handling of late-arriving events.
4. Case Question:
 - a. "Design a 3-seater movie theatre where payment is only cash."
 - b. Test: Candidate's ability to design schema for bookings, constraints for limited seats, and transaction safety (atomic updates).

Round 3

Technical Onsite/Virtual

1. Coding:

- Implement an algorithm to flatten a nested dictionary into key-value pairs.
- Solve binary tree lowest common ancestor problem.

2. SQL:

- Given a table events(user_id, event_time, event_type):
 - Find the first event of each user in a session.
 - Find conversion rate: users who added to cart → purchased within 7 days.
- Follow-up: How to optimize for billions of rows in BigQuery.

Round 4

Technical Onsite/Virtual

1. System Design:

- a. "Design a pipeline to ingest real-time stock market data and make it available for analytics within seconds."
- b. Expected components: Pub/Sub for ingestion, Dataflow for processing, BigQuery for storage, Looker for analytics.
- c. Discuss: batch vs real-time trade-offs, scaling, late events.

2. Warehouse Design:

- a. "Design an Uber-like application Data Warehouse."
- b. Fact table: Trips (trip_id, rider_id, driver_id, start_time, end_time, fare).
- c. Dimensions: Date, Rider, Driver, Location, Payment Method.

3. Optimization Question:

- a. How do you handle OOM in Spark/Dataflow pipelines?
- b. Techniques: partitioning, windowing, checkpointing, state management.

Round 5

Cognitive Ability Round

1. Business Pitch: "How would you sell Google Cloud to a non-technical consumer?"
2. Monetization: "How could Google monetize the Chrome browser beyond ads?"
3. Critical Thinking: If you had to design a data product with half the infra cost, what trade-offs would you make?

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Round 6

Behavioral (Googliness) Interview

- 1.“Tell me about a time you solved a challenging data pipeline issue under pressure.”
- 2.“How do you handle conflicting stakeholders when both demand different data outputs?”
- 3.“Give an example where you introduced an innovation in pipeline design.”
- 4.“Describe a time you mentored juniors or influenced design decisions.”
- 5.Deep dive into past projects: architecture, scale, and challenges.
- 6.Examples of real-time vs batch pipelines you’ve implemented.
- 7.How you optimized queries/pipelines for cost and performance.
- 8.Team collaboration: working with PMs, analysts, data scientists.
- 9.Career aspirations at Google and your role fitment.

Thank You

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



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