

## Backend Interview | Uber Engineering

Congrats for making it to the onsite/phone screen interview round(s) at Uber!

To get you fully #pumped for the interview, here are infobits about the company, the technology and Uber India engineering:

### Uber, the Company:

<https://www.uber.com/our-story/>

**Uber Technology** - this is the technology we work on:

<https://eng.uber.com/tech-stack-part-one/>

<https://eng.uber.com/tech-stack-part-two/>

<https://eng.uber.com/mysql-migration/>

<https://eng.uber.com/argos/>

<https://eng.uber.com/engineering-an-efficient-route/>

<https://eng.uber.com/trip-data-squeeze/>

<https://eng.uber.com/schemaless-part-one/>

<https://eng.uber.com/schemaless-part-two/>

<https://eng.uber.com/cherami/>

<https://eng.uber.com/chaperone/>

### Interviewing at Uber:

Uber India Engineering is building the best technology team in the world, bar none. We have engineers who are joining and flocking from the best technology brands in the world including Amazon, Google, Microsoft, Facebook etc. The goal of our interviewing process is to hire truly exceptional people. Every person we hire should make the team better than it was before, is the belief we hold while interviewing candidates.

### Preparation and Practice before the interview:

For you to do well in our interviews, you need to come prepared with sufficient preparation time spent on the competencies described below. You are an ace engineer, however it is important that you brush up on your computer science fundamentals/theory from college days (Big-O complexity/data structures/sorting

algorithms, etc.) as well as practice your design/coding/architecture/problem solving skills on real life problems, a lot, before you come out to interview with us.

Here is the most important suggestion: **Practice**. We cannot stress this enough. Too often we have good candidates coming in to interview but without adequate practice and hence end up not clearing the interviews. Practice coding on whiteboards and coding websites. For architecture questions (which gain in importance the more senior you are), practice system design and architecture on a whiteboard.

## **Interview Core Competencies:**

We typically interview an engineer around 4 key competencies including

1. Machine coding/testing.
2. Problem solving
3. System architecture & software design (distributed systems scale, availability, design patterns, code structuring, OOPs concepts)
4. Culture fit

While interviewing with Uber you would be typically going through 5 different discussions but, not limited to these discussions. Each discussion intends to gather signals for the aforementioned competencies.

### **a) Machine Coding (60 mins):**

We hire engineers who are passionate about the act of coding. Machine Coding is designed to collect signals for your ability to code in a production environment.

You are free to choose your best language & Development Environment (IDE) as per your choice.

Key things to emphasize in your coding exercise are:

1. You should be able to debug your code and identify syntactic + logical errors.
2. List/run test cases to identify edge scenarios.
3. All edge-cases should be handled.
4. Interfaces properly defined.
5. Proper data flow and interaction.
6. Extensibility and ease of maintenance.
7. Use of OOP design principles.
8. Clear understanding of practical coding practices - standard libraries, concurrent programming, parallel execution.

This is not to test how well you memorize them either, so feel free to leverage online resources during the session, but make sure you understand what you are incorporating into your final solution.

At the end of the discussion, don't forget to send compressed code to your interviewer.

## **b) Problem Solving/Data Structure (60 mins):**

We hire engineers who are excellent problem solvers who can effectively capture technical problems and articulate optimal solutions. In this interview, you will be asked to plan out and solve an algorithmic or data structure question on a whiteboard or shared editor in a structured and methodical way. Then, we will together assess and evaluate your proposed solutions and their complexity.

1. Dividing the problem into smaller sub-problems.
2. Using proper Data Structures.
3. Coming up with an algorithm for various parts of the problem.
4. Analysing the Space and Time complexities of solution and seeing room for improvements.

Sample problem: Type Forward suggestions algorithm. Now after a basic dictionary based solution, the problem can be extended to include Marketing, Trends, Demographic etc signals to rank the suggestions.

## **c) Architecture/Design (60 mins):**

We hire engineers who understand the broader context of their work and its impact. This discussion would help us understand your expertise in building scalable distributed systems. During this discussion, interviewer will be looking for a solution that:

1. Designs the entities and relationships.
2. Defines the end-to-end data flow.
3. Breaks down the problem into smaller workable problems.
4. Basic architecture of the solution. Depending on your seniority, we will go deep into architecture aspects.
5. Choose the data-store and define the schema.
6. Basic performance, availability analysis and improvements.
7. Thinking on handling scale/availability/latency/consistency....
8. Persistent Layer, API Design, Communication protocol
9. There may not be a perfect solution, but we enjoy a stimulating discussion on the different approaches and tradeoffs.

Please be ready to clarify the problem with the interviewer, and discuss the tradeoffs you make, just as if you were to start a new project with your colleague in real life.

Sample problem: architecture & design of WhatsApp, Google Maps etc.

## **d) Hiring Manager (60 mins):**

To reiterate, Uber is one of a kind company which expects one of a kind employees to join its cause. In this round, we are assessing your culture fit. We want to know:

1. How pumped are you about Uber? How much do you know about Uber and
2. Uber products? Are you entrepreneurial or a big company person?
3. Are you a team player/collaborator

4. How do you cope up with hard work/stress/chaos?
5. How do you handle conflicts and how do you gain consensus?
6. How do you learn from your experiences?

Example questions around this competency:

- Give an example of when you took a huge risk and failed? Another example when you succeeded?
- Given an example when you had to convince the team of your idea and successfully did so?

## **e) Bar Raiser (60 mins):**

This interview will be given from someone outside of this team. It's a good chance to ensure we are consistent with hiring top performers across the company. The interviewer could be a manager or engineer. The interviewer typically has been with the company for a while or has had a large impact so far, so feel free to ask them great questions about Uber.

This interview is for determining if the candidate is: Fit for the role & Fit for the team & Fit for Uber.

The questions can range from questions about your background, a design question related to problems their team works on, or a combination.

The candidate will get asked questions to determine cultural fit as well as technical fit. A technical deep dive and a high level design question would be used to assess the technical fitment. The non-technical questions are mainly around their previous work experiences, e.g. Describe a time when you had to work simultaneously on both high-priority urgent projects as well as long-term projects. How did you go about handling both?

## **Questions**

In every interview, we'll make sure to leave you about 5-10 minutes towards the end so you can ask any question to your interviewers. Feel free to ask more about their work, projects they're proud of, Uber in general, or really anything you'd like.

We look forward to seeing you at Uber and amazing us with your insights and preparedness! Moreover we hope we can also learn from you during our upcoming discussions.

Wishing you the best for your interviews with us!