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Grokking Modern System Design Interview for Engineers & Managers

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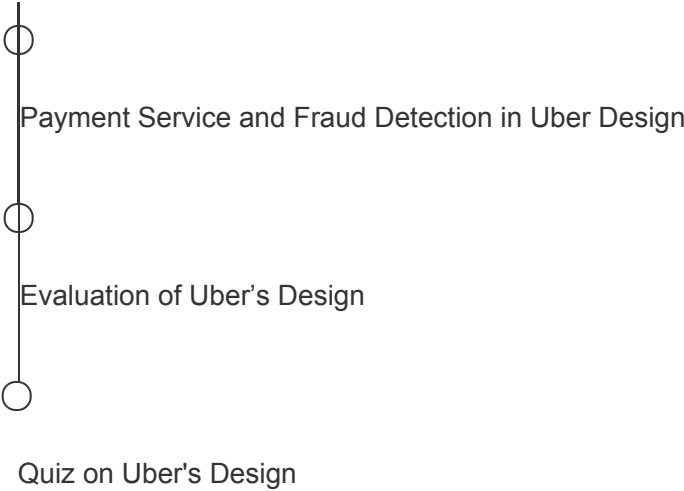
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System Design: Uber

Learn about the basics of designing an Uber service.

We'll cover the following

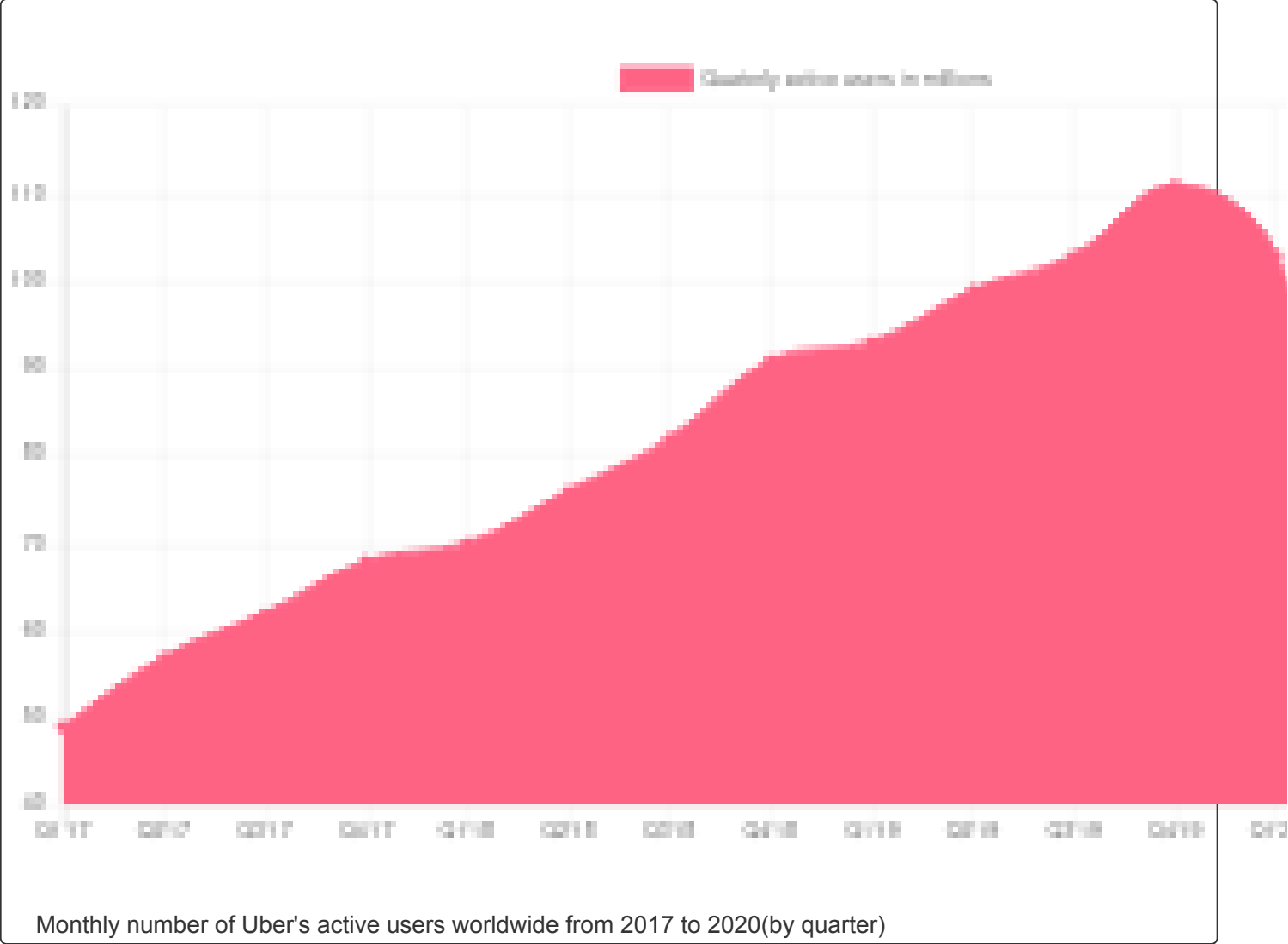- What is Uber?
- How will we design Uber?

What is Uber?#

Uber is an application that provides ride-hailing services to its users. Anyone who needs a ride can register and book a vehicle to travel from source to destination. Anyone who has a vehicle can register as a driver and take riders to their destination. Drivers and riders can communicate through the Uber app on their smartphones.

□

Car en route to get a rider

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The illustration below shows the number of active users of Uber from the start of 2017 to 2020 (source: Statista):

Monthly number of Uber's active users worldwide from 2017 to 2020(by quarter)

How will we design Uber?#

There are many unanswered questions regarding Uber. How does it work? How do drivers connect with riders? These are only two of many. This chapter will design a system like Uber and find the answer to such questions.

We've divided the design of Uber into six sections:

1. **Requirements:** This lesson will describe the functional and non-functional requirements of a system like Uber. We'll also estimate the requirements of multiple aspects of Uber, such as storage, bandwidth, and the computation resources.

2. **High-level Design:** We'll discuss the high-level design of Uber in this lesson. In addition, we'll also briefly explain the API design of the Uber service.

3. **Detailed Design:** We'll explore the detailed design of Uber in this lesson. Moreover, we will also discuss the working of different components used in designing Uber.

4. **Payment Service and Fraud Detection:** We'll learn how the payment system works in Uber design. Moreover, we'll also discuss how we can catch different frauds related to payments in Uber-like systems.

5. **Evaluation:** This lesson will explain how Uber can fulfill all the non-functional requirements through the proposed design.

6. **Quiz:** We'll reinforce major concepts of Uber design via a quiz.

Let's go over the requirements for designing a system like Uber in the next lesson.

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Quiz on Yelp's Design

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Requirements of Uber's Design

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