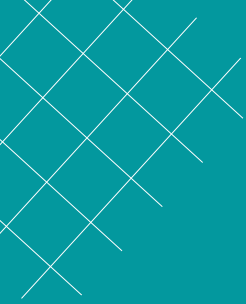




System Design Interviews

A step by step guide



- ➡ **System Design Interviews (SDIs) are unstructured.**
- ➡ **In SDIs, people are asked to answer open-ended design questions.**
- ➡ **What could be a good strategy to answer a system design question?**
- ➡ **Follow these seven steps.**

Step 1: Requirements clarifications

- ➔ Make sure you know the exact scope of the system by asking questions.
- ➔ Start the interview by asking a few questions.
- ➔ Not all things can be clarified at the beginning; keep asking clarifying questions throughout the interview.



Step 2: Back-of-the-envelope Estimation

- ➡ Establish a reasonable estimate of the size of the system you wish to design.
- ➡ Try estimating the resources (storage, CPU, memory, network, etc.) required to build the system.
- ➡ Later, this will help when you focus on scaling, partitioning, load balancing, caching, etc.

Step 3: System Interface Definition

- ➡ Describe the interfaces of the system.
- ➡ Define what APIs are expected from the system.
- ➡ This will not only establish the exact contract expected from the system but also ensure that you have not gotten any requirements wrong.



Step 4: Define Data Model

- ➡ Define the data model, what tables the system will have and what fields each table will contain.
- ➡ Defining the data model will also clarify how data will flow between different components.
- ➡ Later, this will guide the partitioning and management of data.

Step 5: High-level Design

- ➡ Draw a block diagram with 5–6 boxes representing the core components of your system.
- ➡ Identify enough components that are needed to solve the design problem from end to end.



Step 6: Detailed Design

- ➡ Dig deeper into 2–3 major components.
- ➡ Interviewer's feedback should always guide you towards which parts of the system you should explain further.
- ➡ Describe various options, their pros and cons, and why you chose one over the other.

Step 7: Identifying and Resolving Bottlenecks

- ➔ Identify and discuss as many bottlenecks as possible.
- ➔ A few examples of bottlenecks are the single point of failure, network transfer rate, I/O rate, CPU and memory limits, etc.
- ➔ Describe different ways to mitigate the bottlenecks.



➡ Prepare well and stay organized during the system design interview.

➡ To distinguish yourself from others, follow the above steps! See more details on SDIs in "**Grokking the System Design Interview**" on **DesignGurus.org**