

System requirements

functional

define system **behavior**
what a system is supposed to do

example:

the system must allow applications to exchange messages

non-functional

define **qualities** of a system
how a system is supposed to be

example:

scalable, highly available, fast

System requirements

Let me state the problem ambiguously and see how the candidate approaches it.



interviewer

The problem seems too big. I should try to define specific functions and reduce the scope.



software
engineer
(candidate)

Also, I need to figure out non-functional requirements and use my knowledge of system design concepts and patterns to address each requirement.

System requirements

scale writes

scale reads

hash-based partitioning

bounded queue

append-only log

embedded database

B-tree database

LSM-tree database

push vs pull

long polling

leader-based replication

leaderless replication

Hmmm... Let me think...
Here are some fundamental concepts
that help design scalable, highly
available, and fast systems.



software
engineer

leader election

coordination service

strong consistency

load shedding

rate limiting

shuffle sharding

reverse proxy

service discovery

request routing

batching

compression

network protocols

System requirements

I will help you define requirements.



interviewer

My goal is to collect data points, not see you get stuck and suffer.



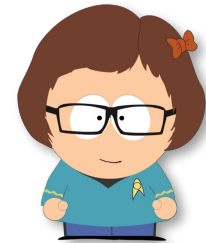
interviewer

I do interviews to hire, not reject.



interviewer

I may have a bad day :(



interviewer

System requirements

When writing a system design document, we also...



software
engineer

- Define functional requirements and scope.
- Define non-functional requirements.
- Order non-functional requirements according to their importance.
- Use this list as a tiebreaker when considering multiple design options and trade-offs.