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Top 25 System Design Interview Questions and Answers

Following are frequently asked questions in interviews for freshers as well as experienced system designers.

1) What is System Design?

System design is a process of defining the elements of a system such as the architecture, components, modules, and various interfaces.

2) What are the three most essential skills of system designer?

Important skills for system designer are:

- User interaction
- External API call
- Offline processes

3) How to design traffic control software?

To design a system for the traffic control system, as a software engineer, you need to make sure you know how to transition from one state to another. For example, Red to Green and from Green to Orange to Red, etc.

4) What is the benefit of a designing system like Pastebin?

Pastebin helps you design a system to paste code or text. You can share a link to that code anywhere you want. It's not an online code editor, yet you can use this, a tool to store any text.



5) As a system designer, how you can design a universal file sharing and storage apps like Google Drive or Dropbox?

The above mention apps are used to store and share files, photos, and other media. We can design things like allowing users to upload/search/view files or photos. It checks permissions for file sharing and enables multiple users to make changes in the same document.

6) How can you design an ATM system?

An ATM helps a user to deposit and withdraw money. It also allows users to see their account balance. You need to make a design plan to create this system.

7) How can you design a web crawler like Google?

A web crawler visits your website and crawls all your page links and indexes so that it appears in a Google search result.

A crawler should be used for searching a specific file in a set of directories. Designing such a system requires lots of research and time.

8) What are the things you kept in mind while Designing a web crawler tool?

To design this, you need to analyze:

- Finding new web pages.
- Prioritizing web page which changes dynamically
- You also need to ensure that crawler shouldn't be boundlessly attached to the same domain.

9) How can approach to design global cab services like Uber or Ola?

Uber and Ola are two widely used cab provider. It establishes communication between drivers and passengers. You need to create a module for GPS, rate calculation, current location, driver,

and client information.

10) How do you approach to design a message board service sites?

HackerNews, Reddit, Quora are some of the most popular social network sites where users can post questions or share links. This type of system allows other users to answer questions or comment on the shared links.

11) What is the benefit of designing an application like Airbnb?

It helps you to upload rooms for rent and other users to rent them. Other vital features are for

- Publishers
- Admins
- Subscribers

12) How can you design an API Rate Limiter?

Here are the points that you need to keep in mind while designing an API Rate Limiter system:

- Limit the requests which any user can send to an API within a time window, i.e., 15 requests per second.
- The rate-limiting should work according to distributed setup because the APIs are accessible only for a cluster of servers.
- You need to make sure how you would handle throttling.

13) How do you approach system design?

Here are things that you need to keep in mind while designing this system:

- Helps users to search nearby friends or places.
- Check the ranking of place based on distance and user reviews.
- Store location data according to the population of the density of that area.

14) What are the important structured tools?

Important structure tools are:

1) Data Flow Diagrams, 2) Data Dictionary, 3) Decision Trees, 4) Structure English, and 5) Pseudocode.

15) In System Design process, what is Requirements Determination?

A requirement is most important for a new system which includes processing or capturing of data, controlling the activities of a business, producing information and supporting the management.

Requirement determination helps you to study the existing system and to gather details to find out what are the requirements, how it works, and what kind of improvements should be made.

16) How can you design a Twitter Clone?

Twitter is the most popular messaging service which allows you to broadcast message to all the people who are following you.

When you tweet, your follower able to read those messages, they can also retweet or like. To design such type of apps, you should include standard features like followers, tweet, hashtag, etc.

17) How can you design autocomplete functionality?

Here are important things for developing autocomplete functionality:

- Typeahead suggestion to be provided.
- Queries per second handled by the system.
- Support personalization with the suggestions.
- Amount of data to be stored.

18) Which is the primary tool used for structured Design?

Structure charts is a primary tool used for structured Design.

19) What are the important aspects of the System Study?

System study is essential to design any system.

Three most important aspect of System Study are:

- Identifying current issues and establishing new goals.
- Study of an existing system.
- Documenting the existing system.

20) What is the Step by step process to solve specific issues called?

This process is known as an algorithm which plays a significant part for system designing.

21) What is the approach used in top-down analysis and Design?

To approach top-down analysis, you need to identify a top-level function then create a hierarchy of lower-level module and components.

22) Explain the term controller

A controller is a program component which helps you to make decisions and directs other components.

23) Which of the following is not a factor in the failure of the system?

The size of the organization can't be considered as a factor for system development and designing projects.

24) Documentation should be prepared on which state?

Documentation should be prepared at every stage of system designing.

25) In the system design process, where is problem analysis done?

Problem analysis is done at the systems analysis phase.

26) What do you know about the app booking app like book my show?

Book my show allows users to book their ticket for shows, events, movie, or sports. It will enable them to pay and get a refund of movie tickets.

27) What are the Types of Documentation in System Design?

Four types of documentation are:

- Program documentation
- System documentation
- Operations documentation
- User documentation