Get the data from office and update the study material

--------------------------------------------------------------------------------------------------------------------------

SYSTEM DESIGN

--------------------------------------------------------------------------------------------------------------------------

1. Sharding and Consistent Hashing
2. Micro-services Architecture and basics
3. Load Balancing
4. Scaling out at different layers of an application
5. Service discovery in Microservices (<https://dzone.com/articles/service-discovery-in-a-microservices-architecture>)
6. Client side

The client is responsible for determining the network locations of available service instances and load balancing requests across them. The client queries a service registry, which is a database of available service instances. The client then uses a load-balancing algorithm to select one of the available service instances and makes a request. The network location of a service instance is registered with the service registry when it starts up. It is removed from the service registry when the instance terminates. The service instance’s registration is typically refreshed periodically using a heartbeat mechanism.

1. Server side

The client makes a request to a service via a load balancer. The load balancer queries the service registry and routes each request to an available service instance. As with client-side discovery, service instances are registered and deregistered with the service registry.

1. Replication is for scaling.

Replication -> All writes to one DB(Master) and all reads from another DB(Slave).

This model can be applied when there is more need for reads than writes.

How to synchronise between master and slave?

How to handle consistency in case of Replication in any DB

1. Observer design pattern -> RSS Feed
2. Graph & Graph Algorithms -> FB NewsFeed Algorithm
3. Logging as a Service

**QUESTIONS**

1. Design a Logging System to archive the logs(Application & Server logs) emitted by large number of cluster nodes

How will the decide the message size ?

How will u split the file and convert it to the message?

Wat kinda storage

1. Messaging System like FB / WhatsApp
2. FB Newsfeed Algorithm

* Graphs & Graph DS, Fan out on loading

1. Push Notifications – Cricket scores/RSS Feed

* Observer Design Pattern

1. Design a sync mechanism between client and server.
2. Design an elevator

* Think from elevator’s stand point (Move up, Move down, Load Passenger, Unload Passenger, Alarm)
* (Max Floor, Min Floor, Current Floor)

1. Parking lot
2. Train ticket
3. Chess Game
4. Poker Game
5. <https://www.geeksforgeeks.org/design-scalable-system-like-foursquare/>
6. <https://www.geeksforgeeks.org/design-video-sharing-system-like-youtube/>
7. <https://www.geeksforgeeks.org/design-movie-ticket-booking-system-like-bookmyshow/>
8. <https://www.geeksforgeeks.org/design-online-hotel-booking-system-like-oyo-rooms/>
9. <https://www.geeksforgeeks.org/design-scalable-system-like-instagram/>
10. Design tail command / Implement your own tail (Read last n lines of a huge file)

<https://www.geeksforgeeks.org/implement-your-own-tail-read-last-n-lines-of-a-huge-file/>

1. Design a MP3 Player
2. Design a file conversion tool
3. Design a torrent Client – For down loading files from Internet
4. Design LRU Cache
5. Design a Redbus system
6. Design a Hotel dealing system
7. Design an outlook Scheduling
8. Design a E-mail sync
9. Design an Automatic software system
10. Design an Amazon catalog system
11. Design a TV remote system
12. <https://github.com/shashank88/system_design>
13. <http://careercup.com/page?pid=system-design-interview-questions>
14. <http://careercup.com/page?pid=object-oriented-design-interview-questions>
15. <http://www.careercup.com/page?pid=amazon-interview-questions>
16. Can you compare SQL and NoSQL databases
17. Indexing in DBs?

--------------------------------------------------------------------------------------------------------------------------

DESIGN PATTERNS :-

--------------------------------------------------------------------------------------------------------------------------

1. Factory
2. Singleton
3. Observer
4. Decorative
5. Builder
6. Concurrency Design Pattern

--------------------------------------------------------------------------------------------------------------------------

--------------------------------------------------------------------------------------------------------------------------

BEHAVIOURAL

--------------------------------------------------------------------------------------------------------------------------

1.Can you give an overview about yourself

2. Can you think of a situation where you made an important decision without consulting your manager? What was the outcome?

3. What is the biggest idea you suggested and took it forward?

4. Can you think about the calculated risk you had taken when speed was critical? What was the situation and how did you mitigate the risk? (Leadership Principle: Bias for action)

5. Can you think of a situation where you had to analyze facts, issues and respond immediately?

6. Can you think of a situation where you took something significant outside your area of responsibility (Leadership Principle: Ownership).

7. Can you give me an example where you saw your peer struggling and decided to step in and help? What was the situation and what specific actions did you take? (Leadership Principle: Ownership).

8. Have you ever disagreed with your manager on something you thought it was very important to the business? How did you handle it? (Leadership Principle: Have Backbone Disagree and commit)

9. Was there an instance where you manager asked you to do something and you pushed back?

10. Is there an idea that you submitted to your manager and he did not take action on it? How did you handle it? ((Leadership Principle: Have Backbone Disagree and commit)

11. Have you ever proposed something and your manager rejected it?

12.Can you think of a time where you identified the risk towards a prior commitment that you made and how did you communicate to the stakeholders?

13.What is the one thing you are really proud of in your career?

14.What kind of job you are interested in? What really interests you?

--------------------------------------------------------------------------------------------------------------------------

--------------------------------------------------------------------------------------------------------------------------

DS & ALGO

Point inside polygon

<https://www.geeksforgeeks.org/how-to-check-if-a-given-point-lies-inside-a-polygon/>

<http://www.geeksforgeeks.org/amazon-interview-experience-set-280-on-campus-for-internship/>

<http://www.practice.geeksforgeeks.org/tag-page.php?tag=Amazon&isCmp=1>

<http://www.geeksforgeeks.org/amazon-interview-experience-set-268-experienced/>

<http://www.geeksforgeeks.org/amazon-interview-experience-set-262-for-sde1/>

<http://www.geeksforgeeks.org/dynamic-programming-set-27-max-sum-rectangle-in-a-2d-matrix/>

<http://www.geeksforgeeks.org/dynamic-programming-set-7-coin-change/>

Longest Increasing Subsequence

Longest Common Increasing Subsequence

<http://www.geeksforgeeks.org/largest-subarray-with-equal-number-of-0s-and-1s/>

<http://www.geeksforgeeks.org/cpp-implementation-minesweeper-game/>

<http://introcs.cs.princeton.edu/java/42sort/>

Back-Tracking :-

<http://www.geeksforgeeks.org/find-paths-from-corner-cell-to-middle-cell-in-maze/>

Linked List :-

Starting point of a loop in a SLL

Binary Tree :-

Right View

<http://www.geeksforgeeks.org/print-right-view-binary-tree-2/>

Cousins

<http://www.geeksforgeeks.org/print-cousins-of-a-given-node-in-binary-tree/>

Binary Search Tree :-

Dead end in a BST

DESIGN DATASTRUCTURE :-

DESIGN A DICTIONARY :-

<http://www.geeksforgeeks.org/data-structure-dictionary-spell-checker/>

<http://www.geeksforgeeks.org/find-last-unique-url-long-list-urls-single-traversal/>

<http://www.geeksforgeeks.org/how-to-check-if-a-given-array-represents-a-binary-heap/>

HASHING :-

Birthday Paradox:-

<http://www.geeksforgeeks.org/birthday-paradox/>

Seperate Chaining :-

<http://www.geeksforgeeks.org/implementing-our-own-hash-table-with-separate-chaining-in-java/>

Cukoo Hashing :-

<http://www.geeksforgeeks.org/cuckoo-hashing/>

<http://www.geeksforgeeks.org/count-distinct-elements-in-every-window-of-size-k/>

<http://www.geeksforgeeks.org/find-number-of-employees-under-every-manager/>

Count the maximum repeating element

Print Paths:-

<http://www.geeksforgeeks.org/print-all-possible-paths-from-top-left-to-bottom-right-of-a-mxn-matrix/>

<http://www.geeksforgeeks.org/longest-possible-route-in-a-matrix-with-hurdles/>

TO UNDERSTAND :-

1) Suffix tree

2) Subset pbm

3) LIS

4) Singly Linked List -> Palindrome

-> Reverse without stack

5) Bin Tree :: Boundary Traversal -> Single Traversal

--------------------------------------------------------------------------------------------------------------------------

———————————————————-

KAFKA

———————————————————-

Custom partitioning for Kafka

www.javaworld.com/article/3066873/big-data/big-data-messaging-with-Kafka-part-2.html

harishshan.blogspot.in/2017/03/how-to-create-dynamic-Kafka-topic.html

———————————————————

IPB

———————————————————

Crawling - Indexing - Ranking

1. Filtering based on channel
2. Property on top of Filtering

Sybase version : Adaptive Server Enterprise - 15.0.3

Size of a row in doc table -

———————————————————-

Scope <parent - child>

MVC - CRUD

Row Mapper & Result Set Extractor

Join/wait/sleep/yield

Runtime in multithreading

Custom Exeception handling

Implicit Objects in JSP

doGet in multithreading

Odd-Even Number printing in Multithreading

10 pages to 1 in Angular JS

Cursor/Trigger/View/Index/Join/GroupBy

SOLID principles

———————————————————

AMAZON

———————————————————

Akka cluster

Neo4j

———————————————————

1. Work about current Projects

* Metrics, Table size, etc.,

1. Behavioural Questions

* Real time examples supporting Amazon, leadership principles