PROJECT ASCENSIO

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DSA

Priority Order

1) DP and Graphs
2) Trees, Greedy and miscellaneous (Maths, Arrays, Strings)
3) Binary Search & Divide and Conquer
4) Two Pointers
5) Linked List, Stacks, Queues, etc

Love Babbar
https://drive.google.com/file/d/1FMdN_OCfOI0iAeDlqswCiC2DZzD4nPsb/view
Pepcoding by Sumeet Malik
https://www.pepcoding.com/resources/

LeetCode (Medium at least 80% -> by yourself) + CodeForces Contests

OOPs

Important Topics:

1. Features of OOP (basics, paradigms, importance)
2. Polymorphism types: Overloading(Function and operator), run-time polymorphism(virtual functions)
3. Inheritance: Diamond problem, base and virtual- inheritance rules (vv imp)
4. Pointers and References
5. Call by reference, call by value
6. Constructor, Destructors
7. [Only for JAVA] -> Abstract classes vs interface
8. Friend function and class

-> E. Balaguruswamy : Object Oriented Programming With C++

1) Chapter : 4- 9
2) Chaper : 13

-> Interview Bit : 40+ OOPs Interview Questions and Answers (2021)
-> Google Top OOPs interview Questions.

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OS

-> Bedtime stories : Bedtime Stories on Operating Systems.pdf
-> Important Topics:

1. (Os and kernel) => Types, Functions
2. Process vs Program, States of Process, Scheduling Algorithms
3. Threads, Multithreading
4. Concurrency and Synchronization(Producer-Consumer, Dining Philosopher, Reader-Writer problems)
5. Semaphores and Mutex
6. IPC(Message Passing vs Shared Memory)
7. Memory Management(Partitioning, Fragmentation, Paging, Segmentation), Virtual Memory Management(Thrashing, Demand Paging, Page Allocation Algorithms)
8. Deadlocks(Conditions, Prevention techniques)

-> Interview bit : 40+ Operating System Interview Questions (2021) - Interviewbit
-> Galvin : Book

DBMS

Important Topics to be covered:

1. SQL
2. ACID Properties
3. Normalization and Normal Forms **(Not Numericals)**
4. Types of Keys: Primary, foreign, candidate, super
5. Indexing

Advanced questions (For TRC, DE Shaw, Codenation)

1. ER Models: draw, concept (rarely asked but you should know)
2. Normalization and Normal Forms **(With Numericals)**
3. Decomposition types: Lossless and Lossy
4. B Trees, B+ Trees, Indexing, AVL Trees
5. Concurrency Issues

Sanchit Jain, Knowledge Gate DBMS Playlist
Gate Smashers DBMS Playlist
https://www.interviewbit.com/dbms-interview-questions/
https://www.interviewbit.com/sql-interview-questions/

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System Design:

1) Low Level (Important : Uber, Flipkart, Visa, Microsoft, etc.):
    a) Parking Lot : https://www.youtube.com/watch?v=DSGsa0pu8-k&t=5s
    b) Elevator System: https://www.youtube.com/watch?v=siqiJAJWUVg
    c) Tic-Tac-Toe: https://www.youtube.com/watch?v=gktZsX9Z8Kw
    d) Chess : https://www.youtube.com/watch?v=koqj7xlkPNQ

2) High Level (Only for companies like : CodeNation, Bloomberg London, Startups):
    a) URL Shortener
    b) WhatsApp, Messenger (Chat)
    c) Facebook, Instagram (Social Media)

https://www.freecodecamp.org/news/systems-design-for-interviews/
https://www.youtube.com/playlist?list=PLMCXHnjXnTnvo6alSjVkgxV-VH6EPyvoX
https://www.youtube.com/playlist?list=PLkQkbY7JNJuC99VDJcpQdww-4aT3QhdJv
https://github.com/donnemartin/system-design-primer