SDE: Interview Preparation Kit

Data structures & Algorithms:

Resources:

1. LinkedList -
    a. https://www.youtube.com/watch?v=cg6JGiXhQ9c&list=PLgUwDviBIf0rAuz8tVcM0AymmhTRsfaLU&ab_channel=takeUforward
2. Graphs -
    a. https://www.youtube.com/watch?v=M3_pLsDdeuU&list=PLgUwDviBIf0rGEWe64KWas0Nryn7SCRWw&index=2&ab_channel=takeUforward
3. Coding Lists -
    a. https://takeuforward.org/interviews/strivers-sde-sheet-top-coding-interview-problems/
    b. https://leetcode.com/studyplan/top-interview-150/
    c. https://cses.fi/problemset/list
    d. https://leetcode.com/problem-list/m2ik03cd/ (Link)
4. Important DP questions -
    a. https://lnkd.in/dpHdnbJg
    b. https://lnkd.in/dftf72nm
    c. https://lnkd.in/dHAn6fGW
    d. https://lnkd.in/dUnJw4bS
    e. https://lnkd.in/dM8aTrRv
    f. https://lnkd.in/dpSTcynK
    g. https://lnkd.in/db9ZagnM
    h. https://lnkd.in/dxUK2cCv
    i. https://lnkd.in/dEiTg5yB
    j. https://lnkd.in/dk3zMy3s
    k. https://lnkd.in/dKhAzfUa
    l. https://lnkd.in/diWt_CpT
    m. https://lnkd.in/dF4U5ZsV
    n. https://lnkd.in/dMst59zc
    o. https://lnkd.in/dHx3CTdg

p. https://lnkd.in/de4ZDJVh
q. https://lnkd.in/dA_Nh7VC
r. https://lnkd.in/dqiJp2Xh
s. https://lnkd.in/dp3eXBVq
t. https://lnkd.in/dy3eKPbv
u. https://lnkd.in/dEsEBt_Q
v. https://lnkd.in/e4RQJKp9
w. https://lnkd.in/eMWwamx6
x. https://lnkd.in/eJGp9HVm
y. https://lnkd.in/e5wG-QVi
z. https://lnkd.in/evvgFQUr
aa. https://lnkd.in/eNzFCGqa
bb. https://lnkd.in/e7uMNKMz
cc. https://lnkd.in/ew2eSnwG
dd. https://lnkd.in/etEA-Y58
ee. https://lnkd.in/euYg-hyv

5. Important complexity analysis references -
    a. https://codeforces.com/blog/entry/95287
6. C++ Important & complex syntaxes -
    a. https://finisky.github.io/priorityqueueexample.en/
    b. https://www.geeksforgeeks.org/priority-queue-in-cpp-stl/
    c. https://stackoverflow.com/questions/14896032/c11-stdset-lambda-comparison-function
    d. https://www.geeksforgeeks.org/how-to-sort-a-vector-in-descending-order-using-stl-in-c/
    e. https://www.geeksforgeeks.org/comparator-in-cpp/
    f. https://www.geeksforgeeks.org/cpp-__builtin_popcount-function/
    g. https://www.geeksforgeeks.org/inbuilt-function-calculating-lcm-cpp/
    h. https://www.geeksforgeeks.org/stdgcd-c-inbuilt-function-finding-gcd/
    i. https://www.geeksforgeeks.org/iterators-c-stl/
    j. https://www.geeksforgeeks.org/stdstoi-function-in-cpp/
    k. https://www.geeksforgeeks.org/stdto_string-in-cpp/
    l. https://stackoverflow.com/questions/1472048/how-to-append-a-char-to-a-stdstring
    m. https://www.geeksforgeeks.org/substring-in-cpp/
    n. https://www.geeksforgeeks.org/multiset-in-cpp-stl/
    o. https://www.geeksforgeeks.org/multiset-erase-in-c-stl/
    p. https://www.geeksforgeeks.org/unordered_multiset-erase-function-in-c-stl/
    q. https://stackoverflow.com/questions/10405030/c-unordered-map-fail-when-used-with-a-vector-as-key
    r. https://www.geeksforgeeks.org/comparing-string-objects-using-relational-operators-c/
    s. https://www.geeksforgeeks.org/stringstream-c-applications/
    t. https://stackoverflow.com/questions/30880425/c-string-length-strange-behavior

u. https://www.geeksforgeeks.org/isdigit-function-in-c-cpp-with-examples/
v. https://www.tutorialspoint.com/isalpha-and-isdigit-in-c-cplusplus
w. https://www.geeksforgeeks.org/rand-and-srand-in-ccpp/
x. https://www.geeksforgeeks.org/how-to-convert-a-single-character-to-string-in-cpp/
y. https://www.geeksforgeeks.org/queuefront-queueback-c-stl/
z. https://www.geeksforgeeks.org/upper_bound-and-lower_bound-for-vector-in-cpp-stl/
aa. https://www.geeksforgeeks.org/how-to-create-an-unordered_map-of-pairs-in-c/
bb. https://www.digitalocean.com/community/tutorials/vector-insert-in-c-plus-plus
cc. https://stackoverflow.com/questions/2551775/appending-a-vector-to-a-vector
dd. https://www.geeksforgeeks.org/vector-resize-c-stl/
ee. https://www.geeksforgeeks.org/vector-assign-in-c-stl/
ff. https://www.educative.io/answers/what-is-the-unorderedmapempty-function-in-cpp
gg. https://www.geeksforgeeks.org/bitwise-operators-in-c-cpp/
hh. https://www.geeksforgeeks.org/binary-search-functions-in-c-stl-binary_search-lower_bound-and-upper_bound/
ii. https://www.geeksforgeeks.org/set-lower_bound-function-in-c-stl/
jj. https://stackoverflow.com/questions/13505562/getting-index-of-set-element-via-iterator
kk. https://www.geeksforgeeks.org/list-cpp-stl/
ll. https://www.geeksforgeeks.org/how-to-find-the-maximum-element-of-a-vector-using-stl-in-c/
mm. https://www.geeksforgeeks.org/string-find-in-cpp/
nn. https://www.geeksforgeeks.org/implementation-of-lower_bound-and-upper_bound-on-set-of-pairs-in-c/
oo. https://www.geeksforgeeks.org/lambda-expression-in-c/
    i. Good use of Lambda with Priority queue - https://leetcode.com/submissions/detail/1260825110/
pp. https://www.geeksforgeeks.org/stdnext-vs-stdadvance-in-cpp/
qq. https://www.geeksforgeeks.org/stdprev-in-cpp/
rr. https://www.geeksforgeeks.org/stddistance-in-c/

7. Important Powers of 2
    a. 2^10 - 1024≈10^3
    b. 2^15 - 32768≈10^4.5
    c. 2^20 - 1048576≈10^6
    d. 2^22 - 4194304≈10^6.6
    e. 2^25 - 33554432≈10^7.5
    f. 2^31 - 2147483648≈10^9.3

Important Questions:

1. Important Array Based Questions
    a. Spiral Printing
        i. https://leetcode.com/problems/spiral-matrix/description/
    b. Majority Element (n/2, n/3)
        i. https://leetcode.com/problems/majority-element/
        ii. https://leetcode.com/problems/majority-element-ii/
2. Important Stack/Queue Based Questions
    a. https://leetcode.com/problems/minimum-remove-to-make-valid-parentheses/
    b. https://leetcode.com/problems/the-number-of-weak-characters-in-the-game/description/
    c. https://leetcode.com/problems/remove-k-digits/
    d. https://leetcode.com/problems/largest-rectangle-in-histogram/description/
    e. https://leetcode.com/problems/maximal-rectangle/description/
    f. https://leetcode.com/problems/maximum-length-of-semi-decreasing-subarrays/description/
3. Important Sorting/Searching/Set/Prefix & Suffix Sum based Questions
    a. Different Kind of Sorting Algorithms
        i. https://www.geeksforgeeks.org/time-complexities-of-all-sorting-algorithms/
        ii. https://www.geeksforgeeks.org/problems/bubble-sort/1?itm_source=geeksforgeeks
    b. https://leetcode.com/problems/insert-interval
    c. https://leetcode.com/problems/minimum-number-of-arrows-to-burst-balloons/
    d. At time of binary search, We should always take care about assigning mid to start, otherwise we might end with an infinite loop. Eg -

```
// Infinite Loop
int start = 0, end = 1;
while(start<end){
    int mid = (start+end)/2;
    start = mid;
}

// No Infinite Loop
int start = 0, end = 1;
while(start<end){
    int mid = (start+end)/2;
    end = mid;
}
```

e. https://leetcode.com/problems/maximum-points-inside-the-square/description/
f. https://leetcode.com/problems/random-pick-with-weight/description/
g. https://leetcode.com/problems/next-closest-time/description/
h. https://leetcode.com/problems/my-calendar-i/

4. Important Greedy Questions
    a. https://leetcode.com/problems/maximum-subarray/
    b. https://leetcode.com/problems/maximum-product-subarray/
    c. https://leetcode.com/problems/furthest-building-you-can-reach/description/
    d. https://leetcode.com/problems/container-with-most-water/description/
    e. https://leetcode.com/problems/trapping-rain-water/description/
5. Important Mathematics Based Questions
    a. Permutation & Combination
        i. https://medium.com/@bakedbeans/explained-permutations-vs-combinations-ee4058aadf5c
        ii. https://testbook.com/maths/ncr-formula
    b. ASCII Characters
        i. https://www.w3schools.com/charsets/ref_html_ascii.asp
    c. Extended GCD Algorithm
        i. https://www.youtube.com/watch?v=hf-PRdtzqTY&ab_channel=CodeChef
        ii. https://www.geeksforgeeks.org/problems/extended-euclidean-algorithm3848/1?itm_source=geeksforgeeks&itm_medium=article&itm_campaign=bottom_sticky_on_article
        iii. https://www.geeksforgeeks.org/stdgcd-c-inbuilt-function-finding-gcd/
    d. Roman and Int
        i. https://leetcode.com/problems/roman-to-integer/description/?ref=leetsolve.com
        ii. https://leetcode.com/problems/integer-to-roman/
    e. Modulo % operator on the negative numbers
        i. https://leetcode.com/problems/subarray-sums-divisible-by-k/description/
    f. Polish Notations
        i. https://leetcode.com/problems/evaluate-reverse-polish-notation/description/?envType=daily-question&envId=2024-01-30
    g. Cantor's diagonal argument
        i. https://leetcode.com/problems/find-unique-binary-string/description/
    h. Kth Permutation - https://leetcode.com/problems/permutation-sequence/description/
    i. Most and Least Significant bit / Important Bit masking questions -
        i. https://www.geeksforgeeks.org/position-of-rightmost-set-bit/
        ii. https://www.geeksforgeeks.org/problems/find-first-set-bit-1587115620/1?itm_source=geeksforgeeks
        iii. https://www.geeksforgeeks.org/find-significant-set-bit-number/
        iv. https://leetcode.com/problems/bitwise-and-of-numbers-range (Application of MSB)

    j. Distributive properties of modulo
        i. https://www.geeksforgeeks.org/modulo-1097-1000000007/
    k. Sieve of Eratosthenes and Segmented Sieve
        i. https://www.youtube.com/watch?v=NZ7-ntEgt6g&ab_channel=GeeksforGeeks
        ii. https://www.youtube.com/watch?v=QDFM7Mjk2mc&t=753s&ab_channel=CodeBeyond
        iii. https://www.youtube.com/watch?v=MY0fXk-3BVQ&ab_channel=CodeBeyond
        iv. https://leetcode.com/problems/closest-prime-numbers-in-range/description/
        v. https://www.geeksforgeeks.org/problems/product-of-primes5328/1?itm_source=geeksforgeeks
    l. Inclusion - Exclusion Principle
        i. https://leetcode.com/problems/kth-smallest-amount-with-single-denomination-combination/
        ii. https://cp-algorithms.com/combinatorics/inclusion-exclusion.html
        iii. https://www.geeksforgeeks.org/cpp-__builtin_popcount-function/
        iv. https://www.geeksforgeeks.org/stdlcm-in-cpp17/
6. Important Recursion Based Questions
    a. Tower of Hanoi
        i. https://www.geeksforgeeks.org/problems/tower-of-hanoi-1587115621/1?itm_source=geeksforgeeks&itm_medium=article&itm_campaign=bottom_sticky_on_article
    b. https://leetcode.com/problems/decode-string/description/
    c. https://leetcode.com/problems/ternary-expression-parser/description/
7. Important LinkedList Questions
    a. https://leetcode.com/problems/design-browser-history/description/
    b. https://www.geeksforgeeks.org/problems/length-of-longest-palindrome-in-linked-list/1?itm_source=geeksforgeeks
    c. https://leetcode.com/problems/copy-list-with-random-pointer/description/
    d. https://leetcode.com/problems/remove-nth-node-from-end-of-list (Slow and Fast pointer)
    e. https://leetcode.com/problems/remove-zero-sum-consecutive-nodes-from-linked-list/
    f. https://leetcode.com/problems/linked-list-cycle-ii/description/
    g. https://www.geeksforgeeks.org/problems/remove-loop-in-linked-list/1?itm_source=geeksforgeeks
    h. https://leetcode.com/problems/reverse-nodes-in-k-group/description
    i. Detect and Remove cycle from the linkedlist
        i. https://www.geeksforgeeks.org/detect-and-remove-loop-in-a-linked-list/
        ii. https://www.youtube.com/watch?v=jcZtMh_jov0&t=703s&ab_channel=AnujBhaiya
8. Important Skip List Questions

    a. https://www.geeksforgeeks.org/skip-list/
    b. https://leetcode.com/problems/design-most-recently-used-queue/description/
9. Important Tree Based Questions
    a. https://leetcode.com/problems/construct-binary-search-tree-from-preorder-traversal/description/
    b. https://leetcode.com/problems/construct-binary-tree-from-inorder-and-postorder-traversal/description/
    c. https://leetcode.com/problems/construct-binary-tree-from-preorder-and-inorder-traversal/description/
    d. https://leetcode.com/problems/binary-tree-level-order-traversal-ii/description/
    e. https://www.geeksforgeeks.org/problems/boundary-traversal-of-binary-tree/1?itm_source=geeksforgeeks (Divide into 4 parts -> Root, Left nodes without leaf, Leaf nodes, Right Nodes without leaf)
    f. https://leetcode.com/problems/populating-next-right-pointers-in-each-node/description/
    g. https://leetcode.com/problems/populating-next-right-pointers-in-each-node-ii/description/
    h. Insertion and Deletion in BST
        i. https://leetcode.com/problems/insert-into-a-binary-search-tree/description/
        ii. https://leetcode.com/problems/delete-node-in-a-bst/description/
    i. Morris Algorithm
        i. https://www.geeksforgeeks.org/morris-traversal-for-preorder/
        ii. https://www.geeksforgeeks.org/inorder-tree-traversal-without-recursion-and-without-stack/
        iii. https://www.youtube.com/watch?v=80Zug6D1_r4&t=651s&ab_channel=takeUforward
        iv. https://leetcode.com/problems/binary-tree-inorder-traversal/description/
        v. https://leetcode.com/problems/binary-tree-preorder-traversal/
10. Important Heap/Priority Queue Based Questions
    a. Heap Implementation -
        i. https://www.geeksforgeeks.org/binary-heap/
    b. https://leetcode.com/problems/meeting-rooms-iii/description/
    c. Top K frequent elements in the array
        i. https://leetcode.com/problems/top-k-frequent-elements/description/
        ii. https://www.youtube.com/watch?v=YPTqKIgVk-k&ab_channel=NeetCode
    d. https://leetcode.com/problems/split-array-into-consecutive-subsequences/
11. Important DP Questions
    a. https://leetcode.com/problems/maximum-number-of-operations-with-the-same-score-ii/description/
    b. https://leetcode.com/problems/stone-game-ii/description/
    c. https://leetcode.com/problems/minimum-number-of-coins-for-fruits/description/
12. Important Graph Questions
    a. Detect Cycle in the undirected Graph - BFS + DFS
        i. https://geeksforgeeks.org/problems/detect-cycle-in-an-undirected-graph/1

b. Bipartite Graph
    i. https://www.geeksforgeeks.org/problems/bipartite-graph/1?itm_source=geeksforgeeks
c. Detect Cycle in Directed Graph (DFS + BFS - Kahn Algorithm)
    i. https://www.geeksforgeeks.org/detect-cycle-in-a-graph/
d. TopoLogical Sort (DAG only) - DFS + BFS (Kahn Algorithm) - Directed Graphs only.
    i. https://www.geeksforgeeks.org/problems/topological-sort/1?utm_source=youtube
e. Shortest Path using Dijkstra Algo for directed and undirected graphs (It might work with negative weights but not with negative weight cycles because otherwise a cyclic loop will come in the path). Set > PQ > Queue (Better in term of Time Complexity)
    i. https://www.geeksforgeeks.org/problems/shortest-path-in-undirected-graph/1?utm_source=youtube
    ii. https://www.geeksforgeeks.org/problems/shortest-path-in-undirected-graph-having-unit-distance/1?utm_source=youtube
    iii. https://www.geeksforgeeks.org/problems/implementing-dijkstra-set-1-adjacency-matrix/1?itm_source=geeksforgeeks
    iv. https://www.geeksforgeeks.org/why-does-dijkstras-algorithm-fail-on-negative-weights/
    v. https://discuss.codechef.com/t/can-dijkstras-algorithm-work-in-negative-edges-without-negative-cycle/89316
f. Bellman Ford Algorithm (Works even in case of negative weights, Also works for directed as well as undirected graphs. In the case of undirected graphs, we just need to convert undirected graphs into directed graphs. It helps us to detect negative weight cycles (sum of edges's cost in cycle is negative in the given graph).
    i. https://www.geeksforgeeks.org/problems/distance-from-the-source-bellman-ford-algorithm/1?utm_source=youtube
    ii. https://www.geeksforgeeks.org/detect-negative-cycle-graph-bellman-ford/
    iii. https://cstheory.stackexchange.com/questions/17462/finding-the-shortest-path-in-the-presence-of-negative-cycles
g. https://leetcode.com/problems/cheapest-flights-within-k-stops
h. https://leetcode.com/problems/find-all-people-with-secret/description/
i. https://leetcode.com/problems/regions-cut-by-slashes/description/
j. Floyd Warshall Algorithm (Multi source shortest path algorithm)
    i. This algorithm works for both directed and undirected graphs.This algorithm is highly efficient and can handle graphs with both positive and negative edge weights. But, it does not work for the graphs with negative cycles (where the sum of the edges in a cycle is negative).
    ii. https://www.youtube.com/watch?v=YbY8cVwWAvw&t=39s&ab_channel=takeUforward

iii. https://www.geeksforgeeks.org/problems/implementing-floyd-warshall2042/1?utm_source=youtube
iv. https://leetcode.com/problems/number-of-possible-sets-of-closing-branches/editorial/
v. https://www.geeksforgeeks.org/floyd-warshall-algorithm-dp-16/

k. Union Find Graph Algorithm - Undirected Graphs only
i. https://www.youtube.com/watch?v=aBxjDBC4M1U&ab_channel=takeUforward
ii. https://leetcode.com/problems/satisfiability-of-equality-equations/description/
iii. https://www.geeksforgeeks.org/problems/detect-cycle-using-dsu/1
iv. https://stackoverflow.com/questions/61167751/can-we-detect-cycles-in-directed-graph-using-union-find-data-structure
v. https://leetcode.com/problems/count-unreachable-pairs-of-nodes-in-an-undirected-graph/description/ (union by size)

l. Minimum Spanning Tree (MST)
i. https://www.geeksforgeeks.org/spanning-tree/
ii. https://www.geeksforgeeks.org/problems/minimum-spanning-tree/1
iii. https://leetcode.com/problems/optimize-water-distribution-in-a-village/
iv. https://stackoverflow.com/questions/10414043/is-minimum-spanning-tree-afraid-of-negative-weights
v. https://www.geeksforgeeks.org/why-prims-and-kruskals-mst-algorithm-fails-for-directed-graph/
vi. Prim (undirected graphs only, works fine with negative edges) - https://www.youtube.com/watch?v=mJcZjjKzeqk&ab_channel=takeUforward
vii. Kruskal (undirected graphs only, works fine with negative edges) - https://www.youtube.com/watch?v=DMnDM_sxVig&ab_channel=takeUforward

m. Strongly Connected Components (Kosaraju's Algorithm - Directed Graphs Only)
i. https://www.youtube.com/watch?v=R6uoSjZ2imo&ab_channel=takeUforward
ii. https://www.geeksforgeeks.org/strongly-connected-components/
iii. https://www.geeksforgeeks.org/problems/strongly-connected-components-kosarajus-algo/1?utm_source=youtube

n. Bridges in the Graph (Undirected Graphs - Tarjan Algorithm)
i. https://www.geeksforgeeks.org/bridge-in-a-graph/
ii. https://www.youtube.com/watch?v=qrAub5z8FeA&list=PLgUwDviBIf0oE3gA41TKO2H5bHpPd7fzn&index=56&ab_channel=takeUforward
iii. https://leetcode.com/problems/critical-connections-in-a-network/description/

13. Important Bit Masking Questions
a. Represent of negative number in the binary form

        i. https://www.geeksforgeeks.org/representation-of-negative-binary-numbers/
        ii. https://data-flair.training/blogs/bitwise-operators-for-negative-numbers-in-c/
    b. https://leetcode.com/problems/find-the-maximum-sum-of-node-values/description/
    c. https://leetcode.com/problems/sum-of-all-subset-xor-totals/description/
    d. Important property of XOR operation - https://brainly.com/question/35443939
14. Important Sliding Window and Deque Questions
    a. https://leetcode.com/problems/sliding-window-maximum/description/
    b. https://leetcode.com/problems/subarrays-with-k-different-integers/description/
    c. https://leetcode.com/problems/reveal-cards-in-increasing-order/description/
15. Important Trie Based Questions
    a. https://leetcode.com/problems/maximum-xor-of-two-numbers-in-an-array/description/
    b. https://www.naukri.com/code360/problems/complete-string_2687860
    c. https://leetcode.com/problems/longest-common-suffix-queries/description/
16. Important String Pattern Search Based Question
    a. KMP Algorithm
        i. https://www.youtube.com/watch?v=GTJr8OvyEVQ&ab_channel=TusharRoy-CodingMadeSimple
        ii. https://leetcode.com/problems/longest-happy-prefix/description/
        iii. https://www.geeksforgeeks.org/problems/search-pattern0205/1?itm_source=geeksforgeeks
        iv. https://leetcode.com/problems/shortest-palindrome/description/
    b. Rolling Hash / Rabin Karp Algorithm
        i. https://www.geeksforgeeks.org/introduction-to-rolling-hash-data-structures-and-algorithms/
        ii. https://www.youtube.com/watch?v=BQ9E-2umSWc&ab_channel=Techdose
        iii. https://www.youtube.com/watch?v=N5kn4IrIAKg&ab_channel=Pepcoding
        iv. https://www.youtube.com/watch?v=H4VrKHVG5qI&t=180s&ab_channel=TusharRoy-CodingMadeSimple
        v. https://leetcode.com/problems/longest-duplicate-substring/description/
        vi. https://leetcode.com/problems/check-if-a-string-contains-all-binary-codes-of-size-k/description/
17. Important Questions Based on the Segment Tree
    a. https://www.youtube.com/watch?v=-dUiRtJ8ot0&t=670s&ab_channel=takeUforward
    b. https://www.geeksforgeeks.org/problems/sum-of-query-ii5310/1
    c. https://www.youtube.com/watch?v=rwXVCELcrqU&t=443s&ab_channel=takeUforward
    d. https://leetcode.com/problems/range-sum-query-mutable/description/
18. Important Question Based on the Palindrome

a. https://leetcode.com/problems/prime-palindrome/description/
b. https://www.geeksforgeeks.org/problems/next-smallest-palindrome4740/1
c. https://leetcode.com/problems/find-the-closest-palindrome/description/

ToDo Topics:

1. Graphs Topics
    a. Articulation Point
2. Fenwick Tree (Binary Index Tree)
3. Binary Lifting
4. Z Algorithm
    a. https://www.youtube.com/watch?v=CpZh4eF8QBw&ab_channel=TusharRoy-CodingMadeSimple
    b. https://leetcode.com/problems/minimum-time-to-revert-word-to-initial-state-ii/description/

ToDo Questions:

1. https://leetcode.com/problems/greatest-common-divisor-traversal/description/
2. https://leetcode.com/problems/couples-holding-hands/description/
3. https://leetcode.com/problems/count-subarrays-with-fixed-bounds/description/
4. https://leetcode.com/problems/finding-mk-average/description/
5. https://leetcode.com/problems/largest-color-value-in-a-directed-graph/description/
6. https://leetcode.com/problems/bomb-enemy/
7. https://leetcode.com/problems/minimum-score-triangulation-of-polygon/description/
8. https://leetcode.com/problems/open-the-lock/description/?envType=daily-question&envId=2024-04-22
9. https://www.geeksforgeeks.org/problems/job-sequencing-problem-1587115620/1
10. https://www.geeksforgeeks.org/problems/matrix-chain-multiplication0303/1
11. https://leetcode.com/problems/parallel-courses-ii/description/
12. https://leetcode.com/problems/count-submatrices-with-all-ones/description/?envType=list&envId=mr0juc31
13. https://leetcode.com/problems/freedom-trail/description/?envType=daily-question&envId=2024-04-27
14. https://leetcode.com/problems/minimize-maximum-value-in-a-grid/description/?envType=list&envId=mr0juc31
15. https://leetcode.com/problems/largest-color-value-in-a-directed-graph/?envType=list&envId=mr0juc31
16. https://leetcode.com/problems/split-array-into-consecutive-subsequences/description/?envType=list&envId=mr0juc31

17. https://leetcode.com/problems/redundant-connection-ii/description/
18. https://leetcode.com/problems/k-th-smallest-prime-fraction/
19. https://www.geeksforgeeks.org/problems/next-smallest-palindrome4740/1
20. https://leetcode.com/problems/find-the-closest-palindrome/description/
21. https://leetcode.com/problems/the-number-of-beautiful-subsets/description/
22. https://leetcode.com/problems/longest-duplicate-substring/description/
23. https://leetcode.com/problems/maximum-number-of-accepted-invitations/description/
24. https://leetcode.com/problems/block-placement-queries/description/
25. https://leetcode.com/problems/number-of-ways-to-build-sturdy-brick-wall/description/
26. https://leetcode.com/problems/minimum-area-rectangle-ii/description/
27. https://leetcode.com/problems/maximum-number-of-achievable-transfer-requests/description/
28. https://leetcode.com/problems/shortest-path-in-a-grid-with-obstacles-elimination/description/
29. https://leetcode.com/problems/count-triplets-that-can-form-two-arrays-of-equal-xor/description/?envType=daily-question&envId=2024-05-30
30. https://leetcode.com/problems/optimal-account-balancing/description/

System Design/Core Fundamentals:

Resources:

1. Grokking Course -
    a. https://www.designgurus.io/course/grokking-the-system-design-interview
        i. Email Id - vishuchhabra1016@gmail.com
    b. https://www.educative.io/courses/grokking-modern-system-design-interview-for-engineers-managers
    c. PDF Links
        i. https://drive.google.com/drive/folders/1XDnZ_b1CthP3-hWwJb7GWhmcOF8s8Zsx?usp=sharing
2. Gaurav Sen (Interview Ready) -
    a. https://interviewready.io/learn/system-design-course/databases-deep-dive/what-are-databases
    b. Email Id - vishuchhabra1016@gmail.com
3. Github Repo (Awesome System Design) - https://github.com/ashishps1/awesome-system-design-resources

4. Code Karle - https://www.codekarle.com/
5. Designing Data - Intensive Applications (Book) - Link
6. Harvard Scalability lecture - https://lnkd.in/gCE5-2Uy
7. CAP theorem -
    a. https://lnkd.in/gBK3Yr-k
    b. https://www.ibm.com/topics/cap-theorem
8. Load Balancing - https://lnkd.in/gKmiBGMY.
9. SQL vs NoSQL - https://lnkd.in/gTwWGgRW
10. Database Sharding - https://lnkd.in/gge-HFki
11. Caching: https://lnkd.in/gcEenvvY
12. What is a CDN -
    a. https://lnkd.in/g2v99kw4
    b. https://developers.cloudflare.com/cache/how-to/purge-cache/
13. 10 popular System Design problems: https://lnkd.in/gtw7H378
14. ACID Compliance - https://www.mongodb.com/resources/products/capabilities/acid-compliance
15. SOLID Principles - https://www.youtube.com/watch?v=XI7zep97c-Y&ab_channel=Concept%26%26Coding-byShrayansh
16. Abstract class vs Interface - https://www.tutorialspoint.com/when-to-use-an-abstract-class-and-when-to-use-an-interface-in-java
17. OOP (C++) - https://www.programiz.com/cpp-programming/oop
18. Inheritance in C++ - https://www.geeksforgeeks.org/inheritance-in-c/
19. Design Patterns -
    a. https://www.digitalocean.com/community/tutorials/gangs-of-four-gof-design-patterns
    b. https://www.youtube.com/watch?v=OuNOyFg942M&t=1s&ab_channel=Concept%26%26Coding-byShrayansh
20. Different Kind of APIs (REST, SOAP, GraphQL) -
    a. https://blog.postman.com/soap-vs-rest/
    b. https://blog.dreamfactory.com/when-to-use-rest-vs-soap-with-examples
    c. https://www.ibm.com/blog/graphql-vs-rest-api/
    d. https://aws.amazon.com/compare/the-difference-between-graphql-and-rest/
