Table of Contents

[Graphs 1](#_Toc43881594)

# Graphs

1. DFS
   1. DFS with rank
   2. DFS with states 0 / 1 / 2
2. BFS
   1. BFS with states 0 / 1 – Bipartite graph
3. Travelling from outside of the graph to inside based on leaves
4. Disjoined set Union-Find (Cycle in a graph)
5. Topological Sort
6. Shortest Paths
   1. Dijkstra - BFS with Priority Queue
   2. Bellman Ford (Shortest Path from source to all vertices)
   3. Shortest Path Faster algorithm
   4. Floyd Warshall (Shortest Path from every vertex to every other vertex, All Pairs shortest Path)
7. Minimum Spanning tree
   1. Prim’s Algorithm
   2. Kruskal’s Algorithm
8. Strongly connected components
   1. Tarjan’s Algorithm
   2. Kosaraju’s Algorithm
9. Articulation Point
10. Bridges in Graph - <https://www.geeksforgeeks.org/bridge-in-a-graph/>
11. Eulerian Paths & Circuits
12. Boggle - <https://www.geeksforgeeks.org/boggle-find-possible-words-board-characters/>
13. <https://www.geeksforgeeks.org/top-10-algorithms-in-interview-questions/#algo1>
14. <https://www.geeksforgeeks.org/top-10-algorithms-in-interview-questions-set-2/?ref=rp>
15. <https://www.geeksforgeeks.org/top-20-greedy-algorithms-interview-questions/>

<http://www.cs.rpi.edu/~musser/gp/algorithm-concepts/graph-algorithms-screen.pdf>

<https://brilliant.org/wiki/shortest-path-algorithms/>

1. Topological sort
2. DFS/BFS
3. 2-D Matrix Prefix Sum
4. Binary Search over functions
5. Quick sort/Quick select
6. Merge sort
7. Dijkstra/Bellman Ford/ Floyd Warshall/ Kruskals Minimum Spanning Tree
8. UnionFind
9. Trie
10. Min-max Games
11. Cycle Detection
12. Intervals
13. Segment Tree
14. KMP
15. Bridges/Articulation point/Tarjan SCC
16. Euler's Path/Circuit/Hierholzer's Algorithm

Reservoir Sampling:

<https://florian.github.io/reservoir-sampling/>

<https://www.educative.io/edpresso/what-is-reservoir-sampling>

Bloom Filter:

<http://llimllib.github.io/bloomfilter-tutorial/>

<https://florian.github.io/bloom-filters/>

Count – min Sketch

Finding the frequency in huge dataset with lot of unpopular keys.

<https://florian.github.io/count-min-sketch/>

Segment Trees:

<https://leetcode.com/articles/a-recursive-approach-to-segment-trees-range-sum-queries-lazy-propagation/>

<https://www.geeksforgeeks.org/segment-tree-set-1-sum-of-given-range/>

https://www.hackerearth.com/practice/data-structures/advanced-data-structures/segment-trees/tutorial/