DS & related algos cheat sheet

Condensed Notes

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1 Graph

- can be impplemented either as adjecency matrix or adjecency list

sl.	Name of Algorithm	Time complexity	Space Complexity	Implementation in english
1	BFS	O(v+e)		start with a node visit all its immidiate neighbours put them in q (which is not visited and is also not already there in q) in oredr they are visited take each node from que perform the same thing until queue is empty (i like adjecency list here) **queue is used**
2	DFS	O(v+e)		start with a node add all its child (which is not visited and is also not already there in stack) to a stack then start with the top node of the stack and so on untill its empty (i like adjecency list here) **stack is used**

3	Cycle detection in directed graph			we maintain two boolean array localvisited and gloabalvisited and run a recursive routine that returns only if local visited is true (whichh means there is a cycle) other wise we check recursivly and backtrack and change the local visited array to false while back tracking
4	Cycle detection in undirected graph	O(v+e)		just run a dfs or bfs and check whether a node is encountered twice

Table 1: Your caption here

Table 1 shows my first longtable.