Notes from nearly draining pursuits of mastery in Leetcode problems

Hardik Rajpal

March 6, 2023

Contents

1 Graph Algorithms **2**
1.1 BFS—DFS 2

1 Graph Algorithms

1.1 BFS—DFS

I prefer writing both of these iteratively. In the immortal intonation of Ashish Mishra,
BFS - Queue
DFS - Stack
Here's a sample of both algorithms.

Listing 1: BFS

```
T s;
unordered_map<T, vector<T>> edges;
queue<T> q;
unordered_map<T, bool> visited;
unordered_map<T,T> prev;
int steps = 0;
q.push(s);
visited[s] = true;
while(!q.empty()){
    int sz = q.size();
    while(sz--){
        T u = q.front();
        q.pop();
        for(nb:edges[u]){
            if(!visited[nb]){
                visited[nb] = true;
                prev[nb] = u;
                q.push(nb);
            }
        }
    }
    steps++;
}
```

Listing 2: DFS

```
T s;
unordered_map<T, vector<T>> edges;
stack<T> s;
unordered_map<T, bool> visited;
unordered_map<T,T> prev;
s.push(s);
visited[s] = true;
while(!s.empty()){
    T u = s.top();
    s.pop();
    for(nb:edges[u]){
        if(!visited[nb]){
            visited[nb] = true;
            prev[nb] = u;
            q.push(nb);
        }
    }
}
```