CS2023 Data Structures and Algorithms

200014B

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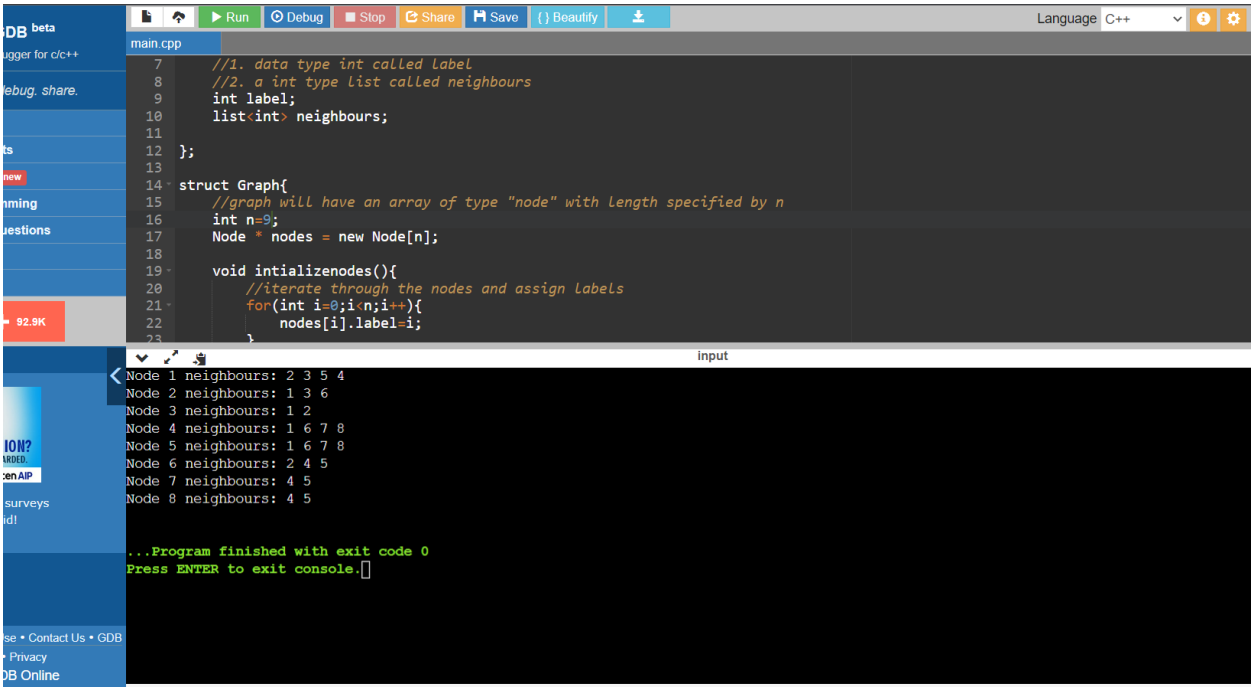
GitHub Repository: https://github.com/MB-Shihab-Aaqil-Ahamed/Data-Structures-and-Algorithms/tree/master/Labs/Lab10

Section 1

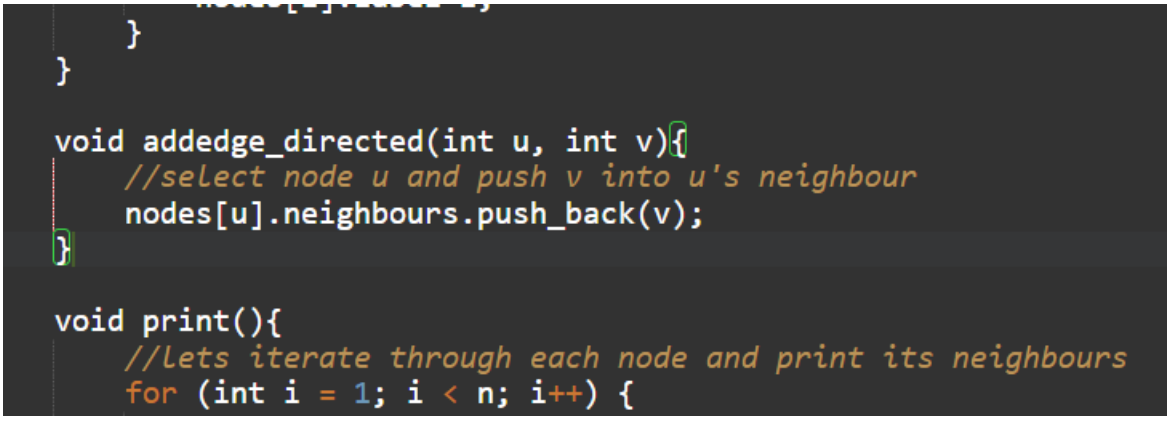
1. Adjacency list representation

1	2 3 4 5
2	1 3 6
3	1 2
4	1 7 8 6
5	1 7 8 6
6	4 5 2
7	4 5 2
8	4 5 2

4. Terminal Output



5. To make the Graph ADT accept directed graphs, we need to modify the addedge_directed function to add only one directed edge between the given pair of vertices instead of adding two undirected edges as it above.



```
    }
}

void addedge_directed(int u, int v){
    //select node u and push v into u's neighbour
    nodes[u].neighbours.push_back(v);
}

void print(){
    //lets iterate through each node and print its neighbours
    for (int i = 1; i < n; i++) {
```

Section 2

Check the similarity between node 4 and each of the neighbors of node 1 to find the most similar node to node 4.

Neighbor of Node1	Complete neighbor count with node 4	Common neighbor count with node 4	Similarity score
2	5	2	2/5 = 0.4
3	5	1	1/5 = 0.2
5	4	4	4/4 = 1

Nodes 4 and 5 have edges with the same nodes. Therefore they have the highest similarity score. Node 5 should be suggested to node 4 next.