East West University

Department of Computer Science and Engineering

Course: CSE246 Algorithm Topic: Graph Theory (BFS) Lab: 07

1. Shortest path: You are given an unweighted, undirected graph as input. Your task is to find the shortest path from source node to all other nodes using Breadth-First Search (BFS) algorithm. First input n denotes the number of nodes followed by number of edges. Then each edge is given as a pair of integer values (u, v).

|  |  |
| --- | --- |
| Sample input | Sample output |
| 4  4  0 1  1 2  2 0  2 3  Source node: 0 | Path 0 to 1: 0->1 Cost: 1  Path 0 to 2: 0->2 Cost: 1  Path 0 to 3: 0->2->3 Cost: 2 |

1. Bipartite graph: You are given an unweighted, undirected graph as input. Your task is to determine whether the given graph is bipartite or not using Breadth-First Search (BFS) algorithm. First input n denotes the number of nodes followed by number of edges. Then each edge is given as a pair of integer values (u, v).

|  |  |
| --- | --- |
| Sample input | Sample output |
| 4  4  0 1  1 2  2 0  2 3 | Not Bipartite |