

Implementation of Data Structures and Algorithms

Short Project 6: Breadth First Search Applications

Due: Friday, March 10, 2023, at 11:59 PM

Do not modify Graph.java, BFSOO.java

Submission procedure: same as usual. No need to submit Graph.java, BFSOO.java

Team task:

1. Implement a BFS based algorithm to output an odd-length cycle of a graph. If the graph is bipartite, it returns null. Do not modify Graph.java and BFSOO.java Use them from package idsa. Make sure that the returned list has the vertices in order along the cycle.

`List<Vertex> oddCycle(Graph g) { ... } // do not assume that g is connected`

Practice task (optional):

2. Implement the algorithm to find the diameter of a tree using BFS. Code this algorithm without modifying Graph.java and BFSOO.java, using them from package idsa.

`int diameter(Graph g) { ... } // assume that g is an acyclic, connected graph (tree).`