CO1107 Algorithm, Data Structure & Advanced Programming - Workshop Week 7

Task 1:

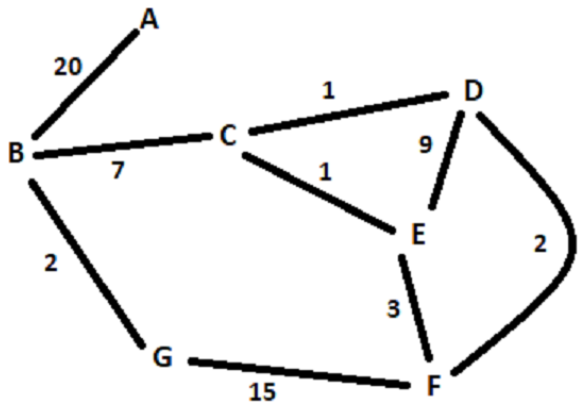
Implement Breadth-first search in a graph. The basic algorithm is discussed in the lecture slides.

Task 2:

We want to determine, given a graph G and a source node src and a destination node dst, whether src is connected to dst. The basic algorithm is described in the lecture slides.

Your task is to implement this algorithm. Make sure to test your code on some examples.

Task 3:
Given the below graph G,



Part A) Produce an adjacency list that represents this graph;

Part B) Using prim's algorithm discussed during the lecture, find the minimal spanning tree of this graph. You should show the result after selecting each edge; you should start with vertex B.

You may draw on a piece of paper and show it to your tutor during the lab session.

Task 4: Optional

Write a version of bubble sort that alternates left-to-right and right-to-left passes through the list. This algorithm is called shaker sort.