Tecnológico de Monterrey

Fundamentos de computación

Homework 8

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1 Problems

Solve the following problems:

1. Investigate the algorithm for computing the maximum flow on a graph. Provide and example and apply the algorithm, showing each step.

2. Given a graph $G = (V, E, W)$ and a MST T, suppose that we decrease the weight of one of the edges not in T. Design an algorithm and its computational complexity to find the MST in the modified graph.
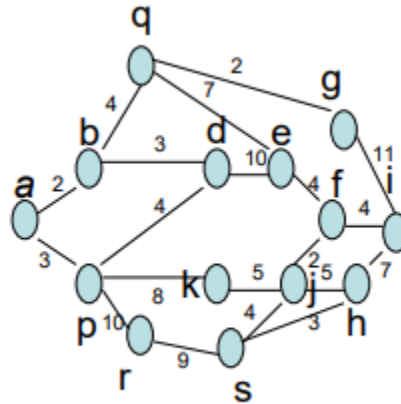

Figure 1: Graph

3. Obtain the MST for the graph in Figure 1 using both the Kruskal and Dijastra/Prim algorithms.

4. Design a graph with at least 4 components (biconnected, each with three or more nodes) and run the algorithm seen in class to obtain them. Show the steps.

5. Design a directed graph and establish an origin and a destination and apply the algorithm Dijkstra/Prim to obtain the shortest path between both nodes. Show the steps.