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CS 161

Homework 5

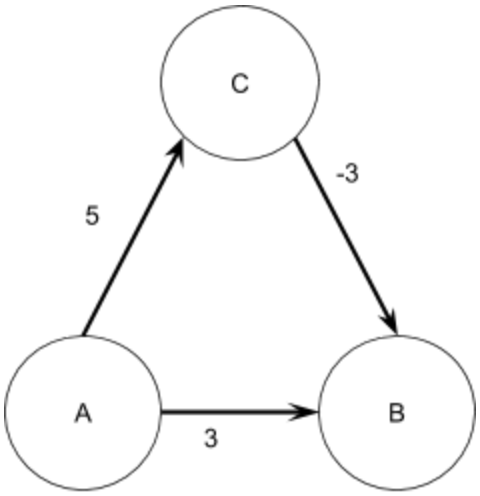
R-13.4

LA15, LA22, LA16, LA31, LA32, LA127, LA141, LA126, LA169

R-13.12

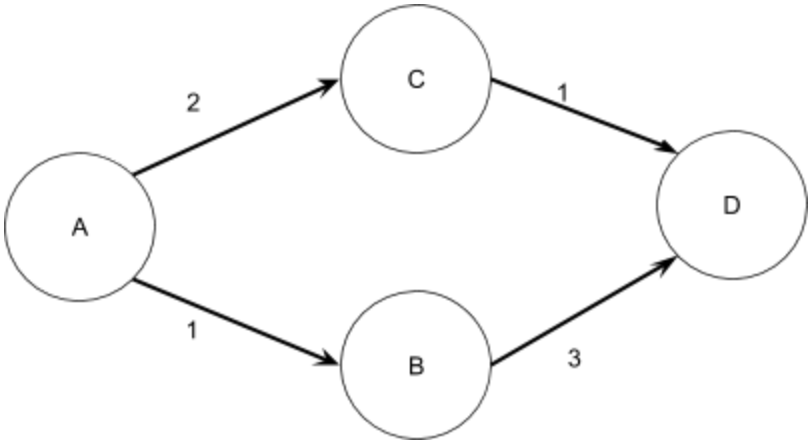
A→E, E→F, I→M, M→N, N→K, K→O, O→P, P→L, L→H, H→D, D→C, C→B, B→F, C→G, G→J

C-14.2



In the example above, A is the starting vertex and B is the ending vertex. Dijkstra's algorithm will compute that the shortest path from A->B is 3. When in actuality the shortest path would be A->C->B which would come out to 2.

C-14.4



In the example above A is the starting vertex and D is the goal vertex. According to the greedy strategy it will first add B to the path because it is the minimum weight edge and then will make B = start. The minimum weight edge from B to D is 3 so D is added to the path and then D = start and the greedy strategy will exit since start = goal. This means that the greedy algorithm is wrong because there is clearly a shorter path to D from A (A->C->D) however there is no method to backup and make provisions.