COSC 2123/1285 Algorithms and Analysis
Tutorial 9
Greedy Algorithmic Paradigm

Objective

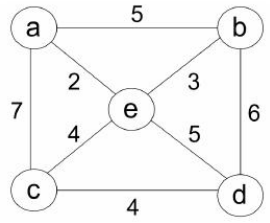
Students who complete this tutorial should:

- Be familiar with concepts of the greedy techniques.

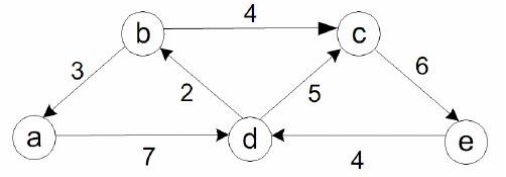
Questions

9.1.3 Consider the problem of scheduling n jobs of known durations $t_1, \ldots, t_n$ for execution by a single processor. The jobs can be executed in any order, one job at a time. You want to find a schedule that minimizes the total time spent by all the jobs in the system. (The time spent by one job in the system is the sum of the time spent by this job in waiting plus the time spent on its execution.)

9.1.9a Apply Prim's algorithm to the following graph. Include in the priority queue all the vertices not already in the tree.



9.3.2 Solve the following instances of the single-source shortest-paths problem with vertex a as the source:



9.4.1

a Construct a Huffman code for the following data:

character	A	B	C	D	_
probability	0.4	0.1	0.2	0.15	0.15

b Encode the text `ABACABAD` using the code of question a.

c Decode the text whose encoding is `100010111001010` in the code of question a.

