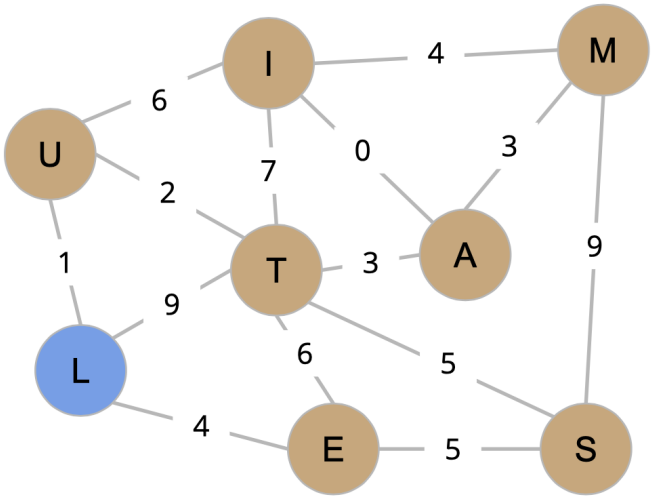
Dijkstra's and A*

Given the graph below, answer the following questions:



(a) What edges are in the shortest paths tree (SPT) starting from **L**?

Solution:
Edges: LU, LE, UT, AT, ST, AM, AI
Here is a video walkthrough of the solutions.

(b) Decreasing **which edge** by 2 changes the SPT from **L**? Assume the SPT tree was created by running Dijkstra's from **L**. There may be more than one correct answer, determine **all**!

Solution:
Edges: UI, IM, ES, EL, AI
Here is a video walkthrough of the solutions.

(c) We will define the heuristic of a vertex v as the shortest distance from v to I. For instance, the heuristic of T is 3.

Given that I is the end vertex, what start vertex would visit the most vertices on one run of A*? Recall that A* terminates after removing the goal. If multiple answers produce the maximum, select all.

Solution:
Vertex: L
Here is a video walkthrough of the solutions.