Part 1 Extra Examples

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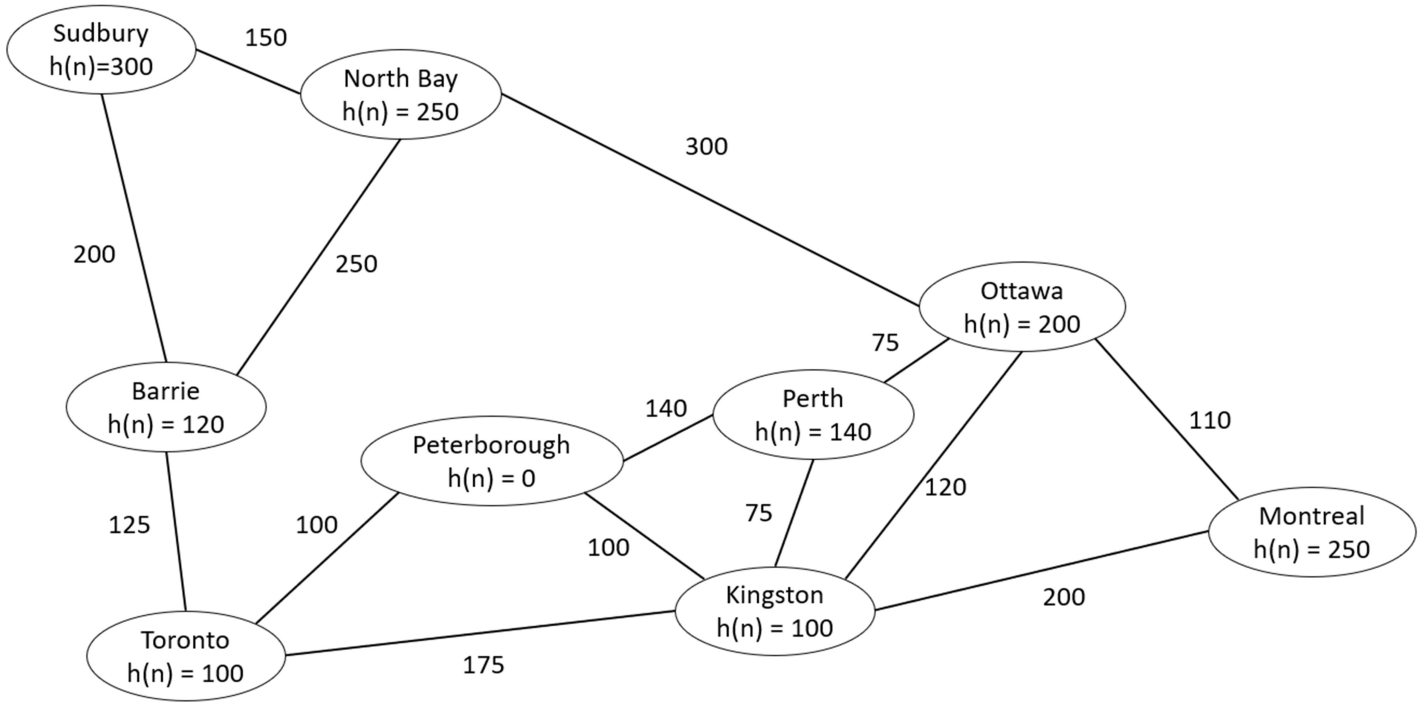
Example 1.
Imagine an agent working in a maze environment. The agents works to solve the maze (i.e. find an exit).

A) Describe the task environment
B) Describe the characteristics of the task environment. Justify your answers.
C) Suggest, at a high-level, how a simple reflex agent, a model-based reflex agent, a goal-based agent, and a utility-based agent might be implemented in this environment.

Example 2.
Consider our previous example of driving in Southern Ontario. Use A* search to find the optimal path from Sudbury to Peterborough. Note the heuristic values have been updated in this example.



Example 3.
Consider using A* search to find the optimal path for driving in a car between two cities, call them S and G, on a map. The cost associated with each driving route (edge on the graph) is the straight-line distance between the two cities.

Show that the following heuristic is consistent:

$h(n)$=$difference\ in\ latitudes\ from\ n\ to\ goal$

Example 4.
Consider the graph below.

a) Perform minimax search on this graph. Assume plies proceed in the following order: MAX, MIN, MAX, MIN.

b) Perform minimax search with alpha-beta pruning on this graph. Assume plies proceed in the following order: MAX, MIN, MAX, MIN.