Optimal Strategy for Minimum cost from city1 to city1 using Dynamic Programming

Write a program that solve minimum cost for traveling from city 1 to city2 Problem using Dynamic Programming technique.

Problem definition:

1. Travelling from home in city1 to a hotel in city2.
2. N stopovers on the way
   a. a number of choices of towns for each stop,
   b. a number of hotels to choose from in each city.
3. Each trip has a different distance resulting in a different cost (petrol).
4. Hotels have different costs.
5. **The goal is to select a route to and a hotel in city2 so that the overall cost of the trip is minimized.**

Your program should print out the following:

1. Read the input data from a file
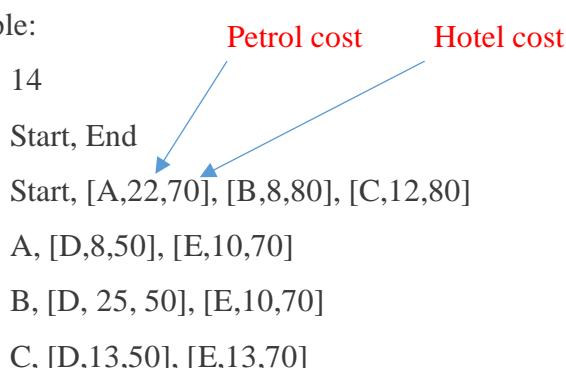
   File format:

   > Number of cities

   > Start city, end city

   > List of adjacent cities

   Example: Petrol cost   Hotel cost

   14

   Start, End

   Start, [A,22,70], [B,8,80], [C,12,80]

   A, [D,8,50], [E,10,70]

   B, [D, 25, 50], [E,10,70]

   C, [D,13,50], [E,13,70]

D, [F,25,50], [G,30,70], [H,18,70], [I, 27,60]

E, [F,12,50], [G,10,70], [H,8,70], [I, 7,60]

F, [J,26,50], [K,13,70], [L,15,60]

G, [J,8,50], [K,10,70], [L,10,60]

H, [J,20,50], [K,10,70], [L,10,60]

I - [J,15,50], [K,10,70], [L,7,60]92
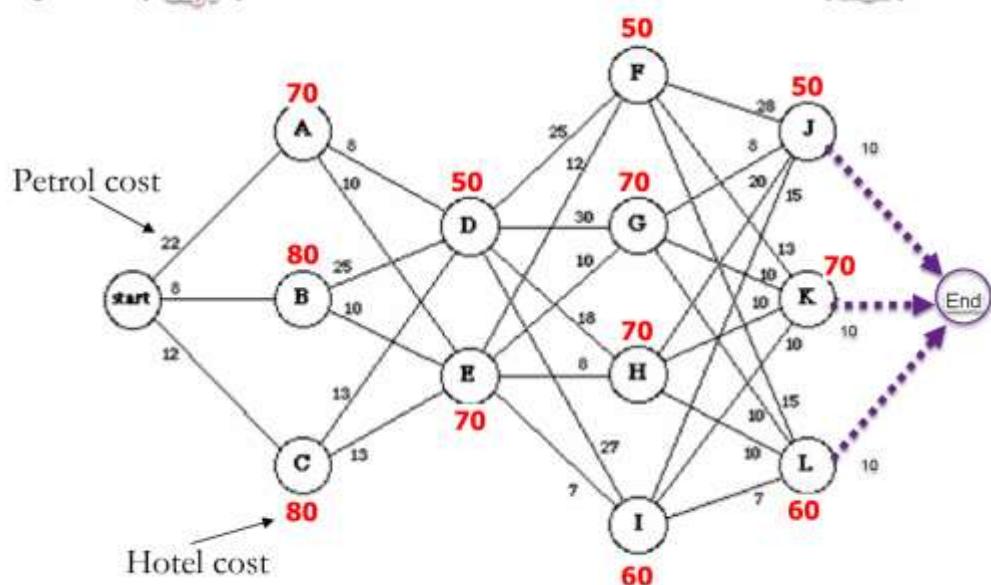
J, [End,10,0]

K, [End,10,0]

L, [End,10,0]

Stage: 0 (City1)   1   2   3   4 (City2)

Petrol cost

Hotel cost

Solution_1 ➔ {Start, B, E, I, J, End}   Cost = 310

Alternative solutions ➔ ?   Cost = ?

2. The expected result (path and cost)

3. The alternatives result (second solution, third solution…)

4. The DP table.

5. Demonstrate the result in a good user interface

Good luck!!