

Northern Michigan University (Marquette Co, MI)

CS 470-01-26W: Artificial Intelligence

Program 2

Due: Friday 13 February 2026 9:00 A.M. EDT

A*

Create a folder called “PG1” in the top level of your CS470-01-26W folder. Place all files pertaining to this assignment into the top level of your PG1 folder. Place a (possibly empty) file called “DONE” into this folder when you are ready to have your programs graded. The only files you need to turn in are the .py files. Please don't turn in any files other than these!!

Your program will ask the user to enter the name of an input file. From this point forward, your program will read from that file.

The input file will contain the following information:

A list of lines containing city names and x and y coordinates. The cities and the coordinates will be separated by a tab. A blank line will follow this list of cities.

A list of lines showing driving distances between these cities. Not all pairs of cities need to be represented. The format will be city name tab city name tab distance. A blank line follows this list. The distances go in both directions. A distance from A to B implies an identical distance between B and A.

The starting city on its own line. The destination city on its own line.

Your program will use the A* algorithm to find the best path from start to destination. The estimate heuristic will be the direct Euclidean distance between the two cities. (The cities are on a plane, not on a sphere).

Your program should print to the screen the exact path taken from start to destination, and then print the total distance.