# Assignment1

# Uninformed search and Informed search

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CODE STRUCTURE:

The program uses uniform cost search and informed cost search to find the shortest path between 2 nodes or places from the given file.

This program calculates the following in these order:

Uninformed search:

It gets an input file from the command line arguments

It also gets the arguments from command line like source,destination, type of serach.

From these input files provided in the text file, it creates a dictionary automatically assign them into key value pairs

Create node at every point it finds a new fringe.

Calculate the distance from source to every fringe level and keep accumulating cost.

Sort them into least one and check if the destination lies in the next fringe level.

Add the edges dynamically based on the connections in the graph and checks if the destination is present in the next fringe.

Find the destination and calculate the overall distance from source via the route.

The algorithm needs to know the cost of moving from one vertex to another.

A\* algorithm:

It is like Greedy best first search algorithm.

It creates a queue from the root node.

If the priority of element is more, it would pop them out.

If the priorities are same the smaller one is choosen.

Insert all the elements of dequeued with priority.

Calculate the shortest distance and display them.

COMPILATION AND EXECUTION:

To run the code, open a terminal at the path of the folder, and compile find\_route.py using the default python compiler (tested on omega's default compiler)

The program takes 4 command line arguments:

Ex: python find\_route.py input1.txt Munich Berlin uninf

CITATIONS:

https://algorithmicthoughts.wordpress.com/2013/01/04/artificial-intelligence-a-search-algorithm/

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https://github.com/siddhantgawsane/ArtificialIntelligence1

https://codereview.stackexchange.com/questions/202813/doubly-linked-list-in-python

https://stackoverflow.com/questions/11487049/python-list-of-lists

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