CSE 643 Artificial Intelligence
Assignment 2: Search

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Depth First Search

```
8 ?- [distance].
true.

9 ?- [dfs].
true.

10 ?- start_dfs().
Depth First Search:-
Source  :agartala.

Destination     :|    hubli.

Total Distance: 4406
Path: [agartala,ahmedabad,hubli]
true .
```

We load distance knowledge base. Here, we have all the rules for distance between cities having a direct road.

We then load the dfs knowledge base. Here we have the logic to compute distance between two cities by using DFS search.

start_dfs() is a routine to take input of start and destination cities, and calculates distance between the two cities.

Best First Search

```
11 ?- [distance].
true.

12 ?- [heuristic].
true.

13 ?- [best].
true.

14 ?- start_best_first().
Best First Search:-
Source  : delhi.

Destination     : |    agra.

Final Path: [agra,delhi]
TotalCost cost: 200
true .
```

We load distance knowledge base. Here, we have all the rules for distance between cities having a direct road.

We load the heuristic knowledge base, which has the heuristic distance between the two cities. The heuristic is calculated by the Manhattan distance between the two cities in the NxN matrix containing the list of all cities as columns and rows.

We then load the best knowledge base. Here we have the logic to compute distance between two cities by using Best First search.

start_best_first() is a routine to take input of start and destination cities, and calculates distance between the two cities using the best first search algorithm.