

Assignment 2

Road Route Search

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Working and Assumptions

To run:

- We first need to consult the main.pl file, and then change the working directory.
(working_directory(CWD,'C:/Users/shiva/Downloads/AI-A2-SHIVAM GUPTA-2020406').)

Input:

- Type of Search Algorithm
- Starting City
- Destination City

Heuristics:

- I have used the findall and min_list inbuilt functions to find simple heuristic value. Findall fill the bag of starting node w.r.t cost of all the nodes, and end with the Dest_city destination, then by using the min_list I have taken the minimum straight distance with the destination.

Output:

- Path
- Cost of the path

Screenshots:

(DFS Working)

```
SWI-Prolog (AMD64, Multi-threaded, version 8.4.3)
File Edit Settings Run Debug Help
Welcome to SWI-Prolog (threaded, 64 bits, version 8.4.3)
SWI-Prolog comes with ABSOLUTELY NO WARRANTY. This is free software.
Please run ?- license. for legal details.

For online help and background, visit https://www.swi-prolog.org
For built-in help, use ?- help(Topic). or ?- apropos(Word).

?-
% c:/Users/shiva/Downloads/AI-A2-SHIVAM GUPTA-2020406/main.pl compiled 0.00 sec, 4 clauses
?- working_directory(CWD, 'C:/Users/shiva/Downloads/AI-A2-SHIVAM GUPTA-2020406').
CWD = 'c:/users/shiva/onedrive/documents/prolog/'.
?- pwd.
% c:/users/shiva/downloads/ai-a2-shivam gupta-2020406/
true.
?- start.

=====
Welcome to Road Route Planner System
=====
Choose whether you want to use the dfs or bfs search - (dfs/bfs).
|: dfs.
Selected Depth First Search
Please Enter Starting City:
|: delhi.
Please Enter Destination City:
|: bangalore.
Path:
delhi
agartala
ahmedabad
agra
bangalore
Cost: 8739
true.
?-
```

```
?- choose_search.
Choose whether you want to use the dfs or bfs search - (dfs/bfs).
|: dfs.
Selected Depth First Search
Please Enter Starting City:
|: delhi.
Please Enter Destination City:
|: agra.
Path:
delhi
agartala
ahmedabad
agra
Cost: 6891
true.
?-
```

(BFS Working)

```
?- choose_search.
Choose whether you want to use the dfs or bfs search - (dfs/bfs).
|: bfs.
Selected Breadth First Search
Please Enter Starting City:
|: ahmedabad.
Please Enter Destination City:
|: agra.
Path:
ahmedabad
agra
Cost: 878
true.
?-
```

```
7- choose_search.
Choose whether you want to use the dfs or bfs search - (dfs/bfs).
| : bfs.
Selected Breadth First Search
Please Enter Starting City:
| : delhi.
Please Enter Destination City:
| : delhi.
Path:
delhi
Cost: 0
true.

7- choose_search.
Choose whether you want to use the dfs or bfs search - (dfs/bfs).
| : bfs.
Selected Breadth First Search
Please Enter Starting City:
| : agra.
Please Enter Destination City:
| : calcutta.
Path:
agra
calcutta
Cost: 1300
true.

7- choose_search.
Choose whether you want to use the dfs or bfs search - (dfs/bfs).
| : bfs.
Selected Breadth First Search
Please Enter Starting City:
| : agra.
Please Enter Destination City:
| : bhopal.
Path:
agra
ahmedabad
bhopal
Cost: 1401
true.
```