

# ARTIFICIAL INTELLIGENCE

## ASSIGNMENT-2

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### Search Road Route - Depth First Search and Best First Search

2 CSV Files have been created - Distances.csv and Heuristic.csv by manipulating the roaddistance.csv file.

#### Heuristic

Heuristic is assigned as the shortest distance between 2 pairs of cities using floyd-warshall algorithm.

#### Screenshots Of Program

1)

```
?- init.
-----Welcome to Search Road Route Program!-----

This program searches a road route from source city to destination city using Depth First or Best First Search.

Please enter the source:
|: 'Delhi'.
Please enter the destination:
|: 'Bangalore'.
Please choose an option- (dfs,bfs)
|: dfs.

-----DFS Path-----

Delhi --> Ahmedabad --> Bangalore

-----Cost-----
2401
true .
```

2)

```
?- init.
-----Welcome to Search Road Route Program!-----

This program searches a road route from source city to destination city using Depth First or Best First Search.

Please enter the source:
|: 'Bangalore'.
Please enter the destination:
|: 'Delhi'.
Please choose an option- (dfs,bfs)
|: dfs.

-----DFS Path-----

Bangalore --> Ahmedabad --> Bhubaneshwar --> Bombay --> Calcutta --> Chandigarh --> Cochin --> Delhi

-----Cost-----

13282
true .
```

3)

```
?- init.
-----Welcome to Search Road Route Program!-----

This program searches a road route from source city to destination city using Depth First or Best First Search.

Please enter the source:
|: 'Agra'.
Please enter the destination:
|: 'Meerut'.
Please choose an option- (dfs,bfs)
|: bfs.

-----BFS Path-----

Agra --> Delhi --> Meerut

-----Cost-----

266
true .
```

4)

```
?- init.
-----Welcome to Search Road Route Program!-----

This program searches a road route from source city to destination city using Depth First or Best First Search.

Please enter the source:
|: 'Agra'.
Please enter the destination:
|: 'Meerut'.
Please choose an option- (dfs,bfs)
|: dfs.

-----DFS Path-----

Agra --> Ahmedabad --> Bangalore --> Bhubaneshwar --> Bombay --> Calcutta --> Chandigarh --> Cochin --> Delhi --> Hyderabad --> Indore --> Jaipur --> Kanpur --> Lucknow --> Madras --> Nagpur --> Nasik --> Panjim --> Patna --> Pondicherry --> Pune --> Agartala --> Allahabad --> Amritsar --> Asansol --> Baroda --> Bhopal --> Calicut --> Coimbatore --> Gwalior --> Hubli --> Imphal --> Jabalpur --> Jamshedpur --> Jullundur --> Kolhapur --> Ludhiana --> Madurai --> Meerut

-----Cost-----

28941
true .
```

5)

```
?- init.
-----Welcome to Search Road Route Program!-----

This program searches a road route from source city to destination city using Depth First or Best First Search.

Please enter the source:
|: 'Surat'.
Please enter the destination:
|: 'Pune'.
Please choose an option- (dfs,bfs)
|: bfs.

-----BFS Path-----
Surat --> Nasik --> Bombay --> Pune

-----Cost-----
643
true .
```

6)

```
?- init.
-----Welcome to Search Road Route Program!-----

This program searches a road route from source city to destination city using Depth First or Best First Search.

Please enter the source:
|: 'Surat'.
Please enter the destination:
|: 'Pune'.
Please choose an option- (dfs,bfs)
|: dfs.

-----DFS Path-----
Surat --> Ahmedabad --> Bangalore --> Bhubaneshwar --> Bombay --> Calcutta --> Chandigarh --> Cochin --> Delhi --> Hyderabad --> Indore --> Jaipur --> Kanpur --> Lucknow --> Madras --> Nagpur --> Nasik --> Panjim --> Patna --> Pondicherry --> Pune

-----Cost-----
26886
true .
```