JAYPEE INSTITUTE OF INFORMATION TECHNOLOGY



DATA STRUCTURES LAB PROJECT DELHI METRO APPLICATION

SUBMITTED BY:-

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DATA structures elements used in basic Algorithm:

- 1) Graphs: The shortest distance between two stations is calculated with the help of graphs.
- Graph provides us nodes that can symbolize a single stations. Using graphs, the complexity can be reduced efficiently.
- 2) File handling: The map showing the stations all across the city can be entered and stored for further use using file handling.
- 3) Graphics*: The application can be visually shown using the graphics. It gives the project a mature visual.
- 4) Vector: The entries can be stores in the vectors rather than using arrays as the size of the entry of the graph is big and unknown.

Overview:

We have covered the following grounds under this project:

Shortest route: Describing the route ,the passenger will take to reach the destination covering the shortest possible path. It is calculated using the djikstra() function.

Fare calculation: Depending upon the distance the he/she has travelled, the average fare will be charged according the rules laid down by DMRC and is calculated using the COST() function.

Average time: The estimated time to reach the destination.

Stations in between: Stations which lie in between the path and train will stop there is shown using the path() function.

Average Distance: the expected average distance is calculated using the distmin() function.

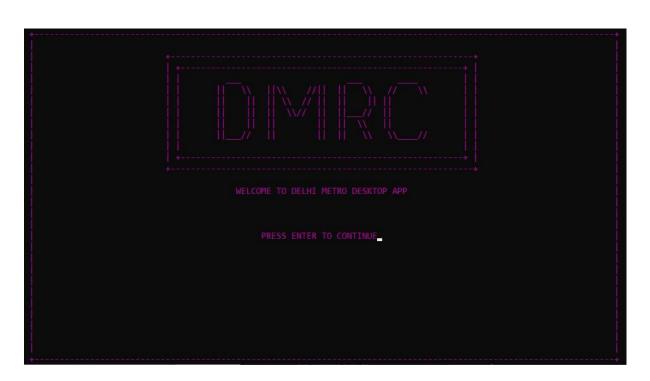
Change of lines: The user is also notified of the line he or she has to change and at which station to reach the destination.

Features Included:

It shows the

- Shortest Route between the stations
- Average fare
- Average time
- Average cost
- Average Distance
- No of Stations

Project Outcome:



Introduction UI

```
ENTER THE STARTING STATION:

Rithala

ENTER THE INTERMEDIATE STATION:

no
```

Enter station names dialog box

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ENTER THE STARTING STATION:

Rithala

Chandni chowk

ENTER THE INTERMEDIATE STATION:

NO
WANT TO SEARCH AGAIN ?

AVERAGE TIME: 29 MIN
AVERAGE FARE: Rs. 40
THE SHORTEST PATH IS: PATH LENGTH IS: 15.9 KM
NO OF STATIONS: 14

->> RITHALA ->> ROHINI WEST ->> ROHINI EAST ->> PITAMPURA ->> KOHAT ENCLAVE
->> NETAJI SUBHASH PLACE ->> KESHAV PURAM ->> KANHAIYA NAGAR
{change from RED to GEEN}
->> INDERLOK
{change from GREEN to RED}
->> SHASTRI NAGAR ->> PRATAP NAGAR ->> PULBANGASH ->> TIS HAZARI
{change from RD to YELLOW}
->> KASHMERE GATE ->> CHANDNI CHOWK
```

Route between two stations

```
ENTER THE STARTING STATION:

Pithala

PAISE THE INTERMEDIATE STATION:

Pajiv chowk
WANT TO SEARCH AGAIN?

AVERAGE TIME: 35 MIN, 25 MIN

AVERAGE TIME: 35 MIN, 25 MIN

AVERAGE TIME: 35 MIN, 25 MIN

AVERAGE FARE: Rs. 40, Rs. 60

THE SHORTEST PATH IS:

PATH LENGTH IS: 18.9 KM, 13.4 KM

NO OF STATIONS: 17, 12

******** ROUTE FOUND *******

->> RITHALA ->> ROHINI WEST ->> ROHINI EAST ->> PITAMPURA ->> KOHAT ENCLAVE

->> NETAJI SUBHASH PLACE ->> KESHAV PURAM ->> KANHAIYA NAGAR

{change from ReD to GREEN}

->> INDERLOK

{change from RED to GREEN}

->> SHASTRI NAGAR ->> PRATAP NAGAR ->> PULBANGASH ->> TIS HAZARI

{change from RED to YELLOW}

->> KASHMERE GATE ->> CHANDNI CHOWK ->> CHAWRI BAZAR ->> NEW DELHI
{change from YELLOW to BLUE}

->> RAJIV CHOWK

INTERMEDIATE STATION

->> RAJIV CHOWK ->> BARAKHAMBA ROAD ->> MANDI HOUSE ->> PRAGATI MAIDAN ->> INDRAPRASTHA

->> YAMUNA BANK ->> LAXMI NAGAR ->> NIRMAN VIHAR ->> PREET VIHAR ->> KARKARDUMA

->> ANAND VIHAR ISBT ->> KAUSHAMBI ->> VAISHALI
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Route between two stations

AVERAGE TIME : 39 MIN,25 MIN

THE SHORTEST PATH IS :

****** ROUTE FOUND ******

AVERAGE FARE : Rs. 50, Rs. 60

PATH LENGTH IS : 5.4 KM, 13.4 KM

NO OF STATIONS : 5, 12

Features Included

Work Distribution:

Designing:

Algorithm implementation:

UI:

Chetan and Divyansh

Mayank and Chetan

Mayank and Divyansh