# JAYPEE INSTITUTE OF INFORMATION TECHNOLOGY



# ALGORITHMS LAB PROJECT DELHI METRO DESKTOP APPLICATION

SUBMITTED BY:-

SUBMITTED TO:-

Chitrank Mishra (17103103) (B2)

Atharva Tripathi (17103127) (B2)

Ayush Saxena (17103108) (B2)

Trinendra Mehria (17103021) (B1)

Mrs. Ankita Wadhwa



GITHUB LINK: https://github.com/chitrank0614/DelhiMetroRouteApp

# 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 money() 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 minDistance() function.

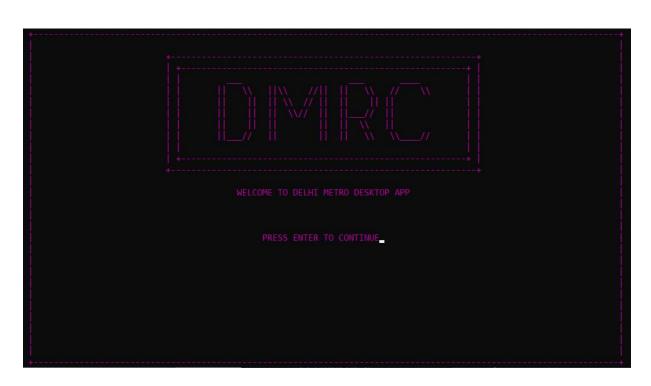
Change of lines: The user is also notified of the line he or she has to change and at which station to reach the destination.

## 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 chandni chowk
ENTER THE INTERMEDIATE STATION:

no
```

Enter station names dialog box

```
ENTER THE STARTING STATION:

Rithala

Chandni chowk

ENTER THE INTERMEDIATE STATION:

DO

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 GREEN}

->> SINDERLOK
{change from GREEN to RED}

->> SHASTRI NAGAR ->> PRATAP NAGAR ->> PULBANGASH ->> TIS HAZARI
{change from RED to YELLOW}

->> KASHMERE GATE ->> CHANDNI CHOWK
```

Route between two stations with no intermediate station provided

### Route between two stations with an intermediate station

```
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:

Others:

Ayush and Trinendra

Chitrank and Atharva

Chitrank and Trinendra

Ayush and Atharva

Expected Completion:

25th April 2019

Thank you for giving us this project. It gave us an opportunity to learn a lot of new concepts.