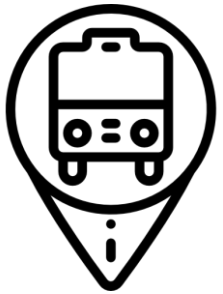


FIND YOUR BUS

Mini-project Presentation

Overview

Find your bus is a web based application system aimed to keep track of various buses available between the requested source and destination routes

Problem statement

The aim is to clone a basic version of an already existing and fully functional map and navigation systems to understand how they work and thus set in motion a learning process to further develop this mini project into a full fledged mobile application system in the future.

Scope & Literature review

Enter source/destination pair of your journey; it will list all possible options with routes, distance.

Research, Methodology & Implementation

a) Data on various MTC buses available and their respective routes can be scraped before proceeding.

This is followed by data cleansing – remove the inconsistencies across the data source, data integration – combine information from multiple data sources and data transformation – ensure that the data is in suitable format to proceed with writing of algorithm.

b) Using various graph data structures we connect the landmarks and eventually suggest the best route available for the user.

This is achieved by writing an algorithm that models a relationship between the objects (various bus stops) focusing on the adjacency of the routes and hence provide the shortest path to reach the end destination.

C) Design an interface that is flexible and interactive to the user of the application. Initially start with Web API and extend the same to Mobile applications.

Web scraping & data cleaning

```python
import requests
from bs4 import BeautifulSoup
import csv
import pandas as pd

l = "https://mtcbus.tn.gov.in/Home/routewiseinfo"

r = requests.get(l)

soup = BeautifulSoup(r.content,'html.parser')
routes = ''
r_fil = []

print(soup.get_text())

for i in soup.get_text().split("Select Routes"):
    routes += i
##print(routes)
#df = pd.DataFrame(routes)
#f_index = routes.index('Select')
#t_index = routes.index('xao')

#r_fil = routes[f_index:t_index]
#df.split('/n')
print(routes)
f_index = routes.find('--Route--')
f_index
t_index = routes.find('V51')
r_fil = routes[f_index:t_index+3]
r_fil = r_fil.split("\n")
r_fil.remove('--Route--')
r_fil
f = open('data_miniproj1.csv','w')

writer = csv.writer(f)
```

```python
for i in r_fil:
    URL = "https://mtcbus.tn.gov.in/Home/routewiseinfo?csrf_test_name=e1ee48d9825cb906af5ba817b3e1d808&selroute={}&submit=".format(i)
    #print(URL)

    r = requests.get(URL)
    soup = BeautifulSoup(r.content,'html.parser')

    s = []
    x = soup.get_text()[soup.get_text().index("Routes"):soup.get_text().index("Route No.")]

    x = x.replace("Routes","")
    #print(x)
    s = x.split()
    places = [i]
   # print(s)
    temp = ' '
    for j in range(len(s)):

        if s[j].isdigit():
            places += [temp]
            temp = ' '
        else:
            temp += ' ' + s[j]

    #print(places)

    writer.writerow(places)
```

Algorithm - Backend

```python
import csv

def design():
    print("=============================================================================================================================")
    print("")
    print("\t\t\t\tWELCOME TO MTC BUS ROUTE MANAGEMENT")
    print("")
    print("=============================================================================================================================")
    print("")
    print("")
    source = input("\tSTARTING FROM : ")
    print("")
    print("")
    destination = input("\tDESTINATION : ")
    print("")
    print("")
    file = open(r"C:\Users\Keerthana\Desktop\Mini_project\RAW.csv","r")
    reader = csv.reader(file)

    route_num = []
    route_stops = []
    for row in reader:
        if row != []:
            route_num.append(row[0])
            route_stops.append(row[1])
    brd = dict(zip(route_num,route_stops))
    del brd['']

```

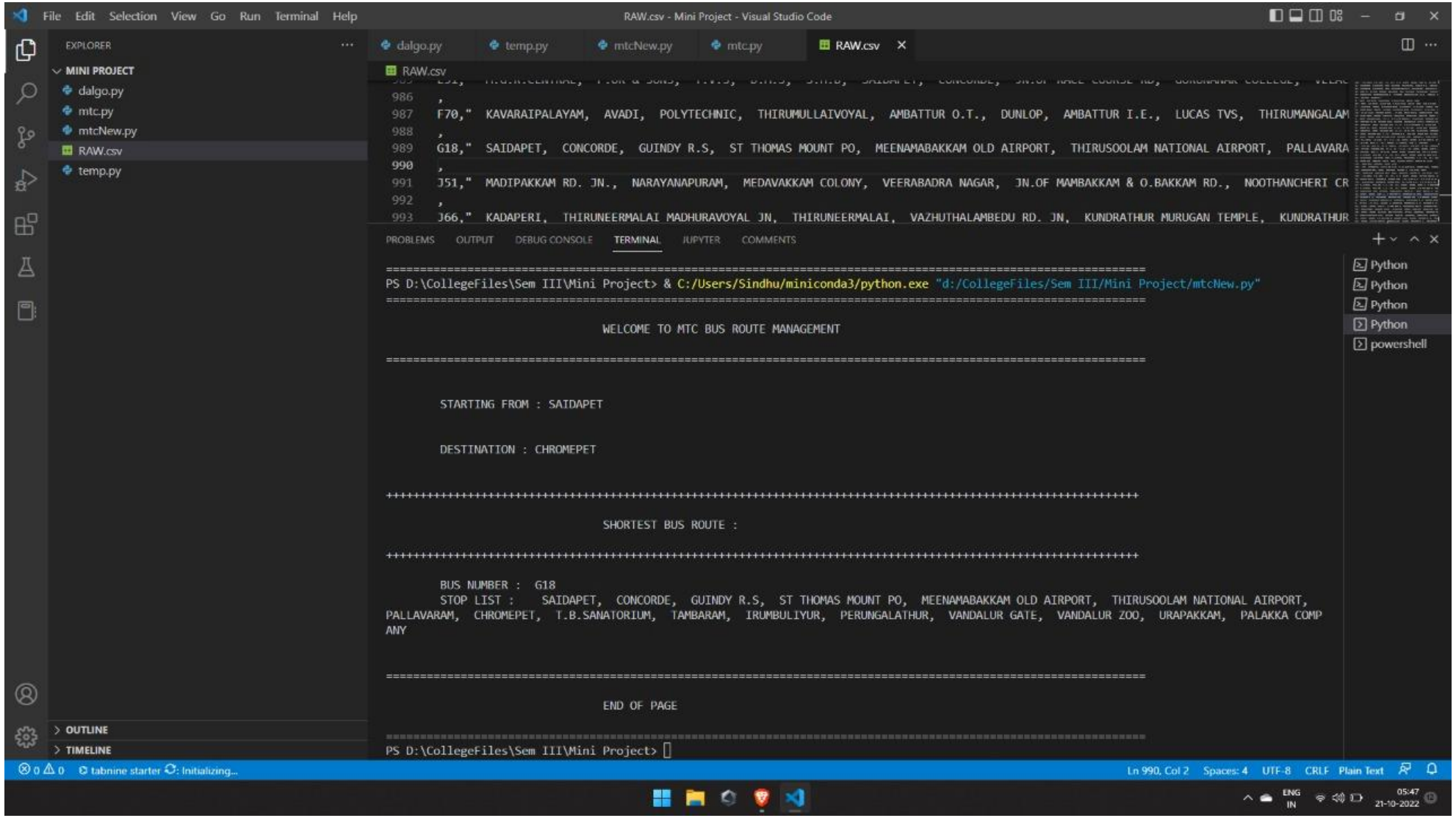
Algorithm - Backend

```
    count = 0
    min = 9999999999999999999999
    for brn in brd:
        bus_route = brd[brn]
        if(( source in bus_route) and (destination in bus_route)):
            count += 1
            src_ind = bus_route.index(source)
            dest_ind = bus_route.index(destination)
            cost = dest_ind - src_ind - 1
            if(cost < 0):
                cost = -1*cost
            if(cost <= min):
                min = cost
                min_route = brn

    print("++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++")
    print("")
    print("\t\t\t\tSHORTEST BUS ROUTE : ")
    print("")
    print("++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++++")
    print("")
    if(count != 0):
        print("\tBUS NUMBER : ",min_route)
        print("\tSTOP LIST : ",brd[min_route])
    else:
        print("\tROUTE UNAVAILABLE")
    print("")
    print("")
    print("================================================================================================================================")
    print("")
    print("\t\t\t\tEND OF PAGE")
    print("")
    print("================================================================================================================================")

design()
```

The algorithm...

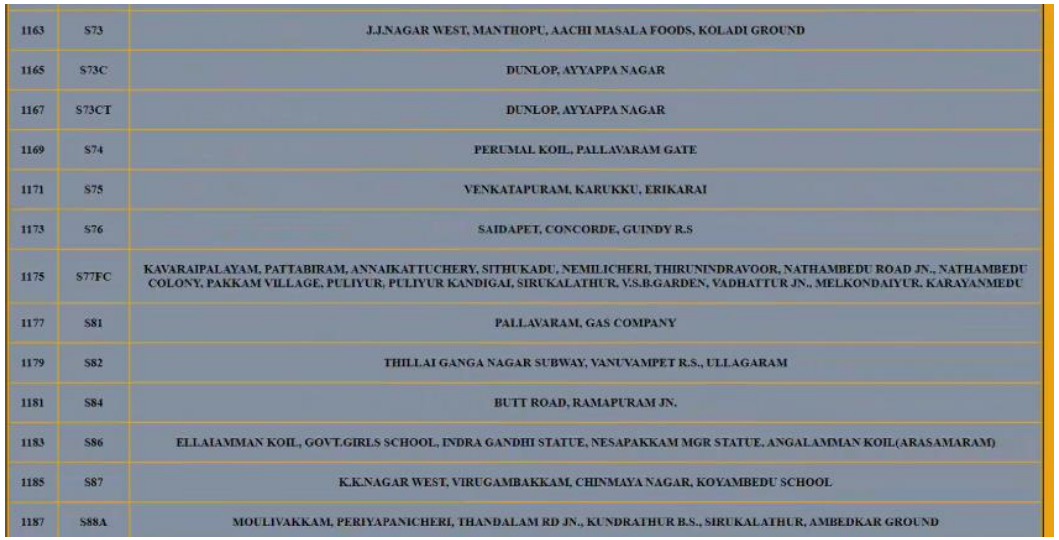


How it works?

1

1. Enter the source and destination of your location

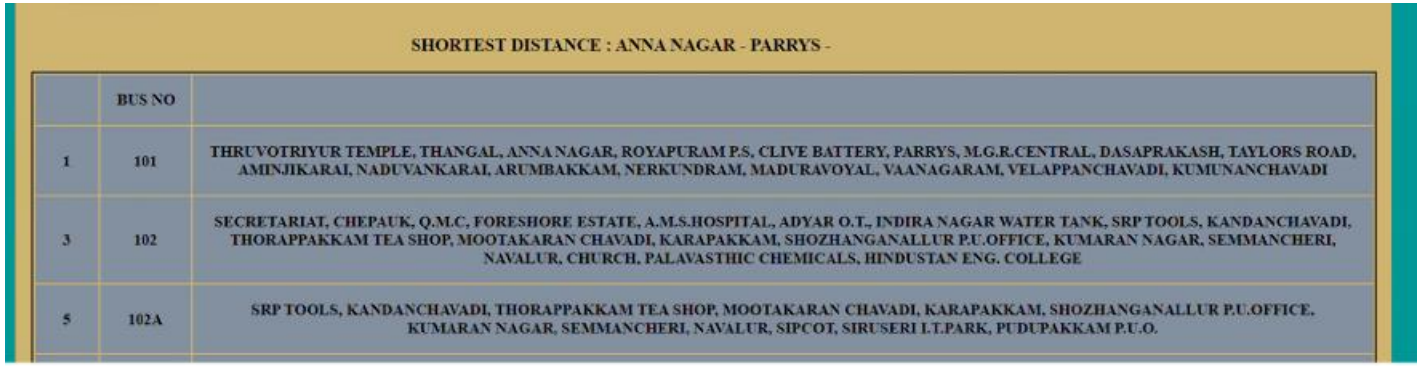
2



1163	S73	J.J.NAGAR WEST, MANTHOPU, AACHI MASALA FOODS, KOLADI GROUND
1165	S73C	DUNLOP, AYYAPPA NAGAR
1167	S73CT	DUNLOP, AYYAPPA NAGAR
1169	S74	PERUMAL KOIL, PALLAVARAM GATE
1171	S75	VENKATAPURAM, KARUKKU, ERIKARAI
1173	S76	SAIDAPET, CONCORDE, GUINDY R.S
1175	S77FC	KAVARAIPALAYAM, PATTABIRAM, ANNAIKATTUCHERY, SITHUKADU, NEMILICHERI, THIRUNINDRAVOOR, NATHAMBEDU ROAD JN., NATHAMBEDU COLONY, PAKKAM VILLAGE, PULIYUR, PULIYUR KANDIGAI, SIRUKALATHUR, V.S.B.GARDEN, VADHATTUR JN., MELKONDAIYUR, KARAYANMEDU
1177	S81	PALLAVARAM, GAS COMPANY
1179	S82	THILLAI GANGA NAGAR SUBWAY, VANUVAMPET R.S., ULLAGARAM
1181	S84	BUTT ROAD, RAMAPURAM JN.
1183	S86	ELLAIAMMAN KOIL, GOVT.GIRLS SCHOOL, INDRA GANDHI STATUE, NESAPAKKAM MGR STATUE, ANGALAMMAN KOIL(ARASAMARAM)
1185	S87	K.K.NAGAR WEST, VIRUGAMBAKKAM, CHINMAYA NAGAR, KOYAMBEDU SCHOOL
1187	S88A	MOULIVAKKAM, PERIYAPANICHERI, THANDALAM RD JN., KUNDRATHUR B.S., SIRUKALATHUR, AMBEDKAR GROUND

2. Get all the routes available b/w your source and destination

3

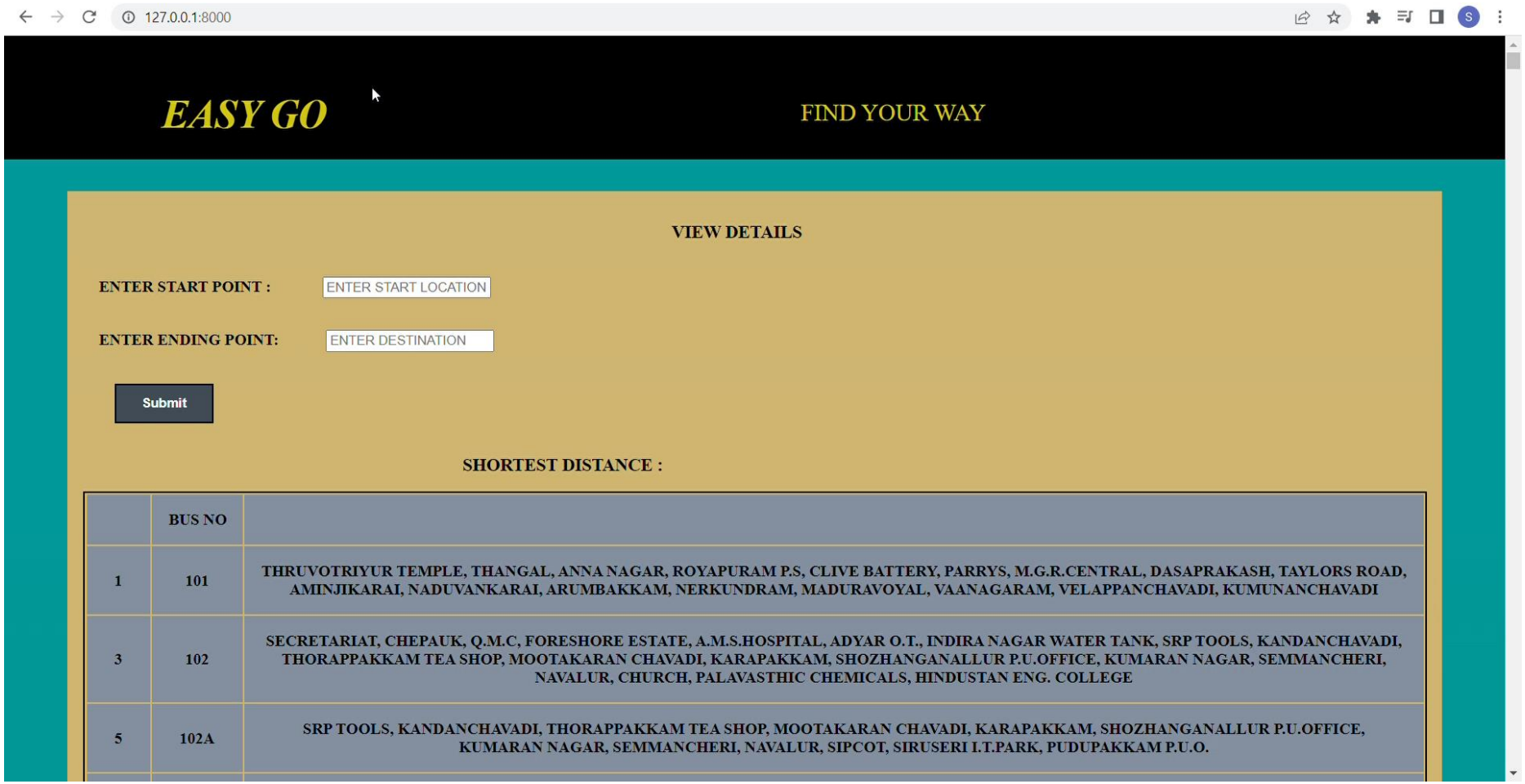


SHORTEST DISTANCE : ANNA NAGAR - PARRYS -

	BUS NO	
1	101	THRUVOTRIYUR TEMPLE, THANGAL, ANNA NAGAR, ROYAPURAM P.S, CLIVE BATTERY, PARRYS, M.G.R.CENTRAL, DASAPRAKASH, TAYLORS ROAD, AMINJIKARAI, NADUVANKARAI, ARUMBAKKAM, NERKUNDRAM, MADURAVOYAL, VAANAGARAM, VELAPPANCHAVADI, KUMUNANCHAVADI
3	102	SECRETARIAT, CHEPAUK, Q.M.C, FORESHORE ESTATE, A.M.S.HOSPITAL, ADYAR O.T., INDIRA NAGAR WATER TANK, SRP TOOLS, KANDANCHAVADI, THORAPPAKKAM TEA SHOP, MOOTAKARAN CHAVADI, KARAPAKKAM, SHOZHANGANALLUR P.U.OFFICE, KUMARAN NAGAR, SEMMANCHERI, NAVALUR, CHURCH, PALAVASTHIC CHEMICALS, HINDUSTAN ENG. COLLEGE
5	102A	SRP TOOLS, KANDANCHAVADI, THORAPPAKKAM TEA SHOP, MOOTAKARAN CHAVADI, KARAPAKKAM, SHOZHANGANALLUR P.U.OFFICE, KUMARAN NAGAR, SEMMANCHERI, NAVALUR, SIPCOT, SIRUSERI I.T.PARK, PUDUPAKKAM P.U.O.

3. Get the quickest route to reach your destination

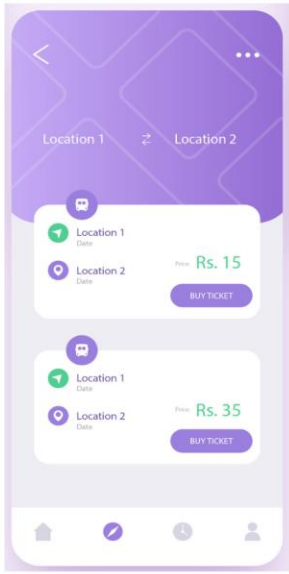
Our webpage - UI

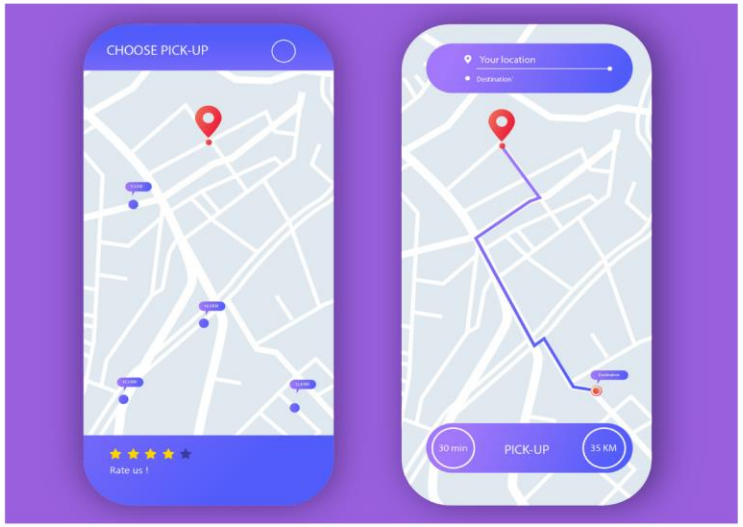


Results, Conclusion & Future Scope

- Searches can be made more effective with choice of “Direct Journey” or “Multi-hop Journey” options.
- See the exact location of your bus using your own customizable map.

Results, Conclusion & Future Scope






Project Presentation End