

README FILE

Metro Simulator Project

1. Data Sources

The metro timings and station information used in this project come from the file **metro_data.txt**, which was provided as part of the assignment.

1. Line
2. Station
3. NextStation
4. TravelTime(min)
5. Interchange Available (Yes/No)

2. Assumptions Made

To keep the simulation simple and uniform, the following assumptions were used:

1. Metro services run from **06:00 AM to 11:00 PM**.
2. Peak hours:
 - Morning: **8:00 AM – 10:00 AM**
 - Evening: **5:00 PM – 7:00 PM**
3. Train intervals:
 - **4 minutes** during peak hours
 - **8 minutes** during non-peak hours
4. All trains start from the first station of each line at exactly **06:00 AM**.
5. Travel times between stations are taken directly from **metro_data.txt**.
6. If interchange is needed, a **2-minute transfer time** is added.
7. Station names in user input must match the names in the data file.

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3. Instructions to Run the Program

The program will ask for:

- Source station
- Destination station
- Time of travel (HH:MM format)

Based on user input, the program will display:

- Next metro arrival time
- Next 4 subsequent metro times
- Total travel time
- Interchange station (if required)
- Final arrival time
- Fare for the journey

```
C: > Users > ASUS > OneDrive > Desktop > metro_simulator.py > ...
61  def journey_planner():
230      if fnd:
231          s2 = s2 + int(x[3])
232          if x[1] == dst or x[2] == dst:
233              break
234
235      arr2 = nt2 + s2
236      print("Arrive at", dst, "at", tstr(arr2))
237      print("Total travel time:", arr2 - cur, "minutes")
238      print("Fare: ₹", (s1 + s2) * 0.5)
239
240
241  journey_planner()
242
```

PROBLEMS OUTPUT DEBUG CONSOLE TERMINAL PORTS

```
> python -u "c:\Users\ASUS\OneDrive\Desktop\metro_simulator.py"
Source: Rithala
Destination: Shadipur
Time of travel (HH:MM): 15:32
Start at Rithala (Red Line )
Next metro at 15:36
Subsequent metros: 15:44 15:52 16:00 16:08
Arrive at Karol Bagh at 16:06
Transfer to Blue Line
Next metro departs at 16:09
Subsequent metros: 16:17 16:25 16:33 16:41
Arrive at Shadipur at 17:13
Total travel time: 101 minutes
Fare: ₹ 47.0
PS C:\Users\ASUS>
```