

Use Cases

Case 1: Premium Users (Authenticated) (At least 1 or 2)

- Scheduling Recurring Trips for Special Events

Utilizing the premium service, an authenticated user can schedule recurring trips for special events such as business meetings, conferences, or regular social gatherings. This service allows the user to automatically schedule trips for specific dates and times based on recurring events in their calendar. The relevant dataset includes information about pickup and drop-off times (`tpep_pickup_datetime`, `tpep_dropoff_datetime`), and payment preferences (`payment_type`, `total_amount`).

- Calculating the Fastest and Shortest Taxi Route

With this premium service, authenticated users can obtain the fastest or shortest route for a specific trip at a specified time of day. They would be able to get either one of the two or both to make a comparison. The shortest route will be independent of the daytime and might be identical to the fastest one, depending on the daytime. We would also distinguish between workday and weekend in this approach. The shortest and fastest route will be modelled in the backend and provided to the user through the API. The relevant information from the dataset includes pickup and drop-off times (`tpep_pickup_datetime`, `tpep_dropoff_datetime`), pickup and drop-off locations (`(pickup_longitude, pickup_latitude, dropoff_longitude, dropoff_latitude)`), and trip distance.

Case 2: Regular Users (Non-Authenticated) (No less than 3)

- Analysis of Preferred Payment Method

A regular user can analyze the most common payment methods used in taxi trips. Relevant dataset information includes payment type (`payment_type`) and tip amount (`tip_amount`).

- Search for Alternative Routes

A regular user can search for alternative routes based on distance, traffic, trip duration, and estimated trip cost. Relevant dataset information includes trip distance (`trip_distance`), additional costs (`extra`, `tolls_amount`), the pickup and drop-off locations (`pickup_longitude`, `pickup_latitude`, `dropoff_longitude`, `dropoff_latitude`), and the pickup and drop-off time (`tpep_pickup_datetime`, `tpep_dropoff_datetime`).

- Consultation of Average Fares

A regular user can check the average fares for taxi trips during different times of the day or days of the week. Relevant dataset information includes pickup time (`tpep_pickup_datetime`), fare amount (`fare_amount`), and total amount (`total_amount`).

Architecture

Architecture: MICROSERVICES FOR TAXI DATA PLATFORM

