PLAN

Uber wants to improve their services and increase profits keeping in mind the demand of the customers, their satisfaction and affordability and their own drivers availability.

Therefore the things that needs to be focused on are:-

1. **Pricing Structure-** The prices should be optimal and in line with the services provided, the distance covered and affordable that does not scare the customer away with the inflaming prices.
2. **Driver's availability-** Cabs should be available depending on the day like during any festivals or events the demand for cabs is higher or depending on the weather conditions and the time at which a cab arrives should be balanced keeping in mind the factors and that the drivers are present at the right place at the right time. This can be analyzed by customer feedback, analyzing previous data, the demands of cabs during festivals or bad weather etc.
3. **Customer satisfaction-** One way of achieving satisfaction is to reduce the waiting period and by maintain the above two points of cab's availability and affordable prices.

PREPARE

- This step involves collecting past data, customer feedbacks, real-time weather and traffic conditions and festivals/holidays.

- Data can be collected from customer reviews and comments on their experiences with the cab facility provided

- Weather and traffic conditions should be collected on a real-time basis from reliable third party services available.

- Marking their calendars and increase the availability of cabs during festivals or analyzing which time of the day is the demand for cabs the most mostly in busy areas like near offices, malls.

- Driver's availability can be tracked using their shift timings or and real-time locations when they are on shift. This also ensures safety of the customer and the vehicle when in use. Also the idle time for a driver should be tracked in order to prepare a proper shift and availability of drivers during peak hours.

PROCESS

After the data is collected from the following-

- Ride Requests: Past ride information, such as fare, duration, timestamps, and pickup and drop-off locations.
- Weather Data: Current and past meteorological data (such as temperature, precipitation, snowfall, etc.) obtained from weather APIs.
- Traffic Data: To identify patterns of congestion, use real-time data on traffic conditions (from traffic sensors or navigation apps like Google Maps).
- Event/Festival Data: Public holidays, concerts, festivals, and local events are known to boost demand.
- Time of Day: Details about off-peak and peak hours, including morning and evening rush hours.
- Geospatial data: GPS coordinates enabling drivers and passengers to identify optimal routes and anticipate regions with high demand.

We will analyse the following-

- Time-based Patterns: Demand trends at various periods of the day, such as late-night versus peak hours. There may be a lot of demand during the morning rush (7 AM to 9 AM) and evening rush (5 PM to 7 PM). **Off-Peak Times:** There may be less demand in the late morning or afternoon.
- Demand dependent on location: Use heatmaps to pinpoint high-demand locations, such as business districts, city centres, or transportation hubs like airports and rail stations.
- Hotspots: Places that consistently have a lot of demand, such as malls or event spaces.
- Dynamic Hotspots: Places that momentarily see high demand as a result of festivals or events (e.g., sports arenas, concert venues).
- Weather Impact: Research how demand and weather are related. **Rainy Days:** Because fewer people use public transportation on rainy or snowy days, more people request rides. **Temperature**: People may avoid walking on extremely hot or cold days, which could raise demand for cabs.
- Event-based Demand: Determine when there is a lot of demand for a certain festival, concert, conference, or athletic event. For instance, demand may suddenly increase at a performance location, and pickups may be delayed due to road congestion.

continued. PROCESS

We will analyse the following-
In order to maximize driver distribution, we will monitor:

- Driver Location: Each driver's current location.
- Driver Status: Indicates if the driver is online, available, or on a ride.
- Driver Preferences: If drivers have certain times or places they would like to work, they need to mention to the employer.

  The objective is to assign drivers to high-demand locations at the appropriate periods after comprehending demand trends.

- Using a driver pool or ridesharing approach that allows several passengers to be bundled into a single ride during busy periods (like festivals) may be advantageous. Wait times and operating expenses are decreased as a result.

- Monitor real-time system to change the route: Continually modify drivers' routes in response to shifting demand and traffic patterns. For instance, traffic in the surrounding areas should be rerouted to an event if a significant rise in demand is detected. Make use of the driver utilization rate to streamline the driver flow, minimizing wait times and reducing idle time.

ANALYZE

Next step is to analyze the pricing structure based on all the factors discussed previously to balance both supply and demand and profitability is increased without going over or under.

In order to keep customers happy with the pricing:

Clear Communication: To avoid surprising passengers, let them know about possible rate hikes during times of high demand, such as rush hours or weather-related events.

Discounts and Rewards: In order to assist balance supply and demand, offer incentives, such as discounts or loyalty points, during off-peak hours to entice users to use the service when demand is lower.

Based on a sample dataset (from Kaggle) it is also observed to keep in mind the following additional factors-
1. Types of cabs requested by a customer
2. Probable reasons on why the customer has cancelled the ride after booking which maybe longer waiting time, high price etc.
3. No of cancellations and whether it is the driver or customer who cancelled it

SHARE

For a month, the company can test the new tactics in designated zones while keeping an eye on performance indicators like rider wait times, driver satisfaction, and income, with continuous feedback from its customers to keep updating their strategies.

ACT

The taxi service is able to make data-driven judgments regarding driver allocation and price by examining demand according to location, time, festivals, and weather. Dynamic pricing enables the business to retain consumer fairness while optimizing earnings during periods of high demand. The taxi service is able to stay competitive, effective, and adaptable to shifting market conditions because to these data analytics-driven tactics.

When everything goes smooth after proper analysis it results in-
Higher revenue, happier customers, and a more viable business plan are the outcomes of this. The business maintains its agility and responsiveness to shifts in market conditions, external variables, and demand by constant monitoring and adjustments.