PROJECT TITLE:

FOOD DELIVERY TIME PREDICTION AND OPERATIONAL ANALYSIS

THE BUSINESS PROBLEM:

A food delivery platform wants to understand what drives longer delivery times across its orders, so operations can set more accurate ETAs, improve rider allocation, and reduce late deliveries.

DATA OVERVIEW

The attached CSV contains 50,000 records and 24 columns. It includes Order ID, Order date, Order hour, Day of week, Is weekend, Is festival, Weather, Pickup zone, Drop off zone, Vehicle type, Rider experience years, Riders rating, Restaurant rating, Cuisine type, Order items, Restaurant load, Preparation time(min), Road distance(km), Delivery distance category, Traffic level, Number of signals, Average speed(km/h), Delivery priority, Time taken(min).

Data item	Result	Interpretation
Records	50,000	Number of respondents/observations.
Columns	24	All fields available in the CSV.
Duplicates	0	No duplicate rows were detected.
Missing values	0	No missing values were detected.
Complete fields	12	All fields are complete.

We have no duplicates and missing values, all Categorical fields were standardized, and also all numerical fields were verified. I verified time taken

and road distance for Outliers using the IQR rule: Lower limit = Q1 − 1.5×IQR and Upper limit = Q3 + 1.5×IQR, the check identifies 32 potential outliers in Road distance and 2153 potential outliers in Time taken, this doesn’ t mean the data should be deleted, it is just a genuine observation.

OPERATIONAL RECOMMENDATION

1. Improving routes planning i.e. avoiding routes with frequent traffic delays.
2. Increase in riders’ availability during high traffic period to reduce delivery delays
3. Optimizing Vehicle type allocation, vehicles suitable for longer distance can be assigned for longer delivery and also for traffic conditions.
4. Use information such as traffic level, weather, road distance and vehicle type when estimating delivery time, this will make estimated delivery times more realistic.
5. Monitor delivery time regularly, by tracking average delivery time by weather, traffic level, vehicle type and distance, this will help the management identifies where delays are occurring and take corrective action.