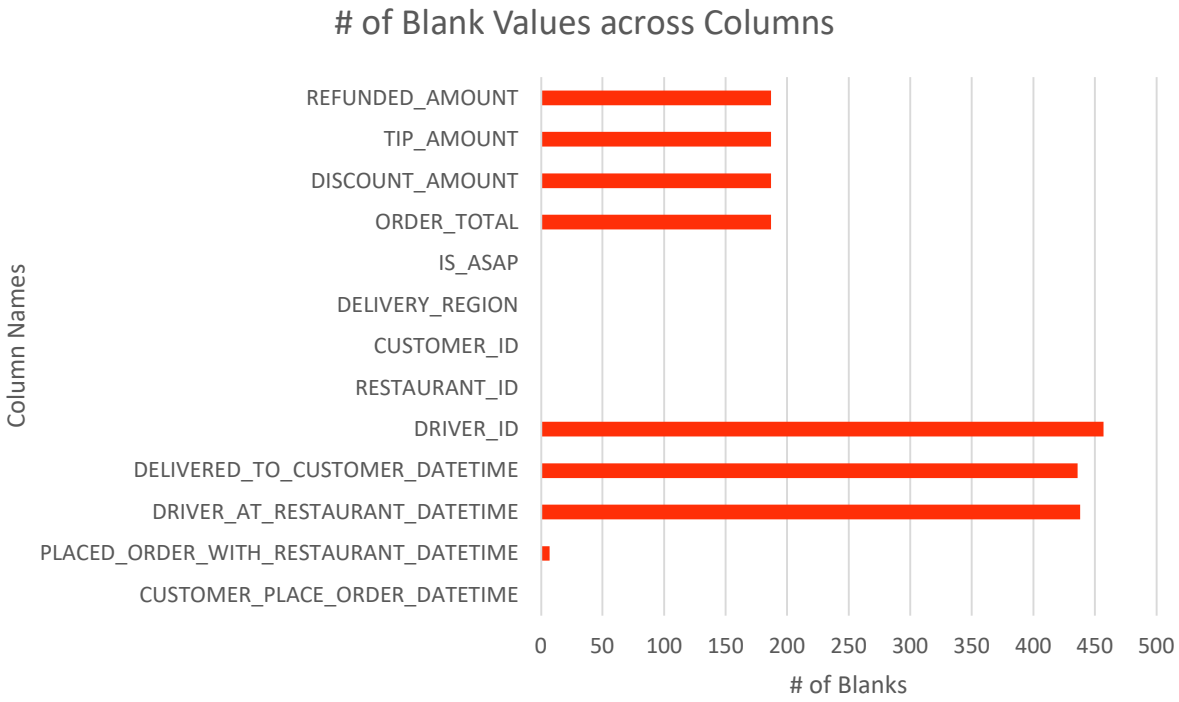
Food Delivery Case Study – June 2025
Food Delivery Company Assessment

Initial Data Cleansing/Quality Check

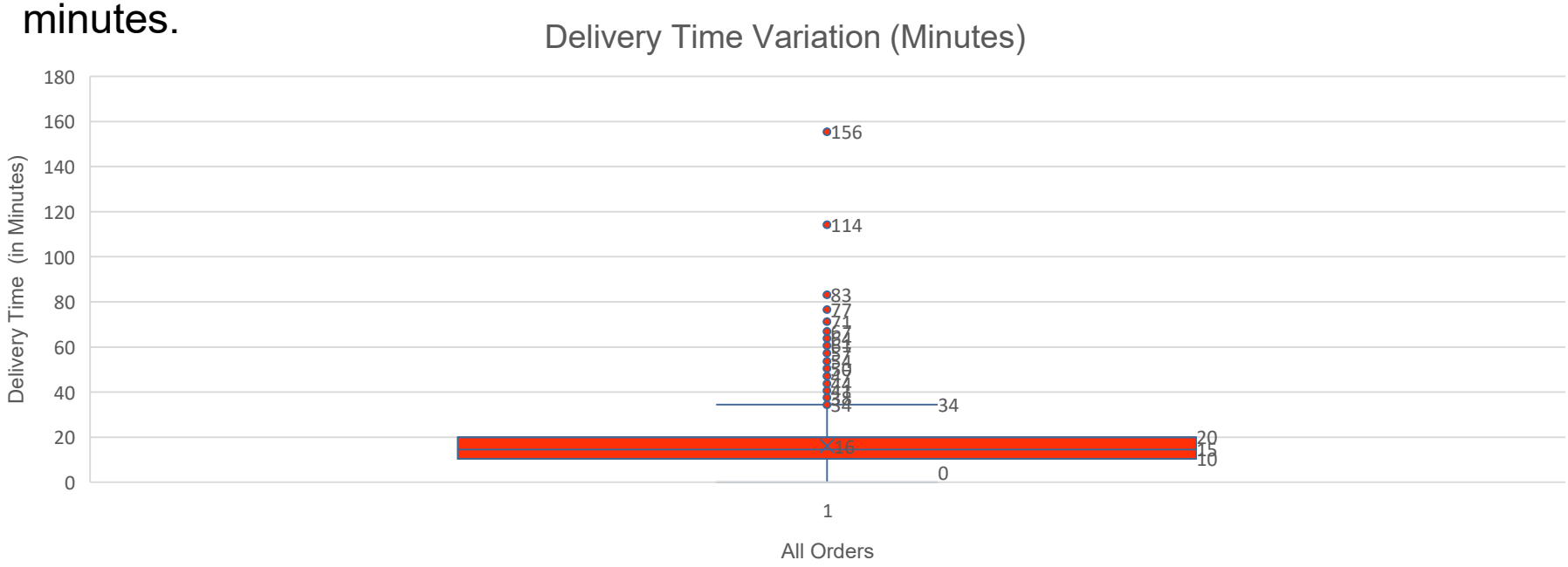
- Kicked off the analysis with a data cleansing process that focused on identifying anomalies, particularly blank values across the dataset.
- Out of 257,927 total values, 2,086 blank values were detected across 13 columns, indicating minor but notable anomalies.



- The Driver ID column accounted for 21.91% of all blank values, followed by Driver at Restaurant column at 21%. The third highest was Delivered to Customer column at 20.90%.

Outlier Delivery Times

- The graph below demonstrates the majority of delivery times fall in a consistent range, but a small number of orders took over 60 minutes, with extreme cases up to 156 minutes.



- To minimize the impact of outlier delivery times and maintain a high-quality customer experience; Food Delivery Company should implement the following recommended actions:
    - Enhance existing real-time tracking by implementing delay-specific escalation alerts, allowing Food Delivery Company to proactively notify consumers, evaluate dasher performance, and flag merchant preparation inefficiencies
    - Offer bonuses or priority scheduling to Drivers with consistently low delivery durations to promote efficient fulfillment

Tip Behavior – Regression Analysis

- Multi-variable linear regression was performed using delivery-related variables (e.g., order total, time of day, delivery duration, discounts, and regional dummies) to understand how various factors affect tip amount (dependent variable).

Regression Statistics	
Multiple R	0.691879489
R Square	0.478697227
Adjusted R Square	0.478269995
Standard Error	2.292786349
Observations	19,540
Top Positive Predictor	ORDER_TOTAL (+0.0970)
Top Negative Predictor	Delivery Duration (-0.0738)
Significant Time Variable	Afternoon (+0.1496)

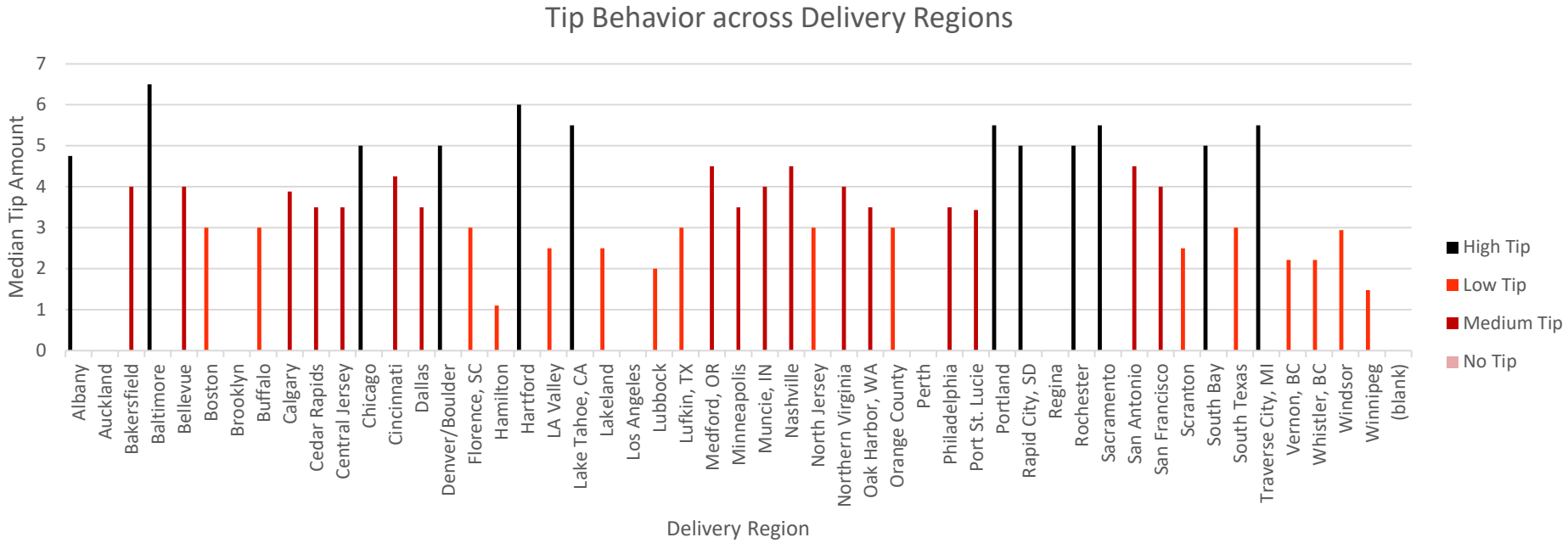
- For every $1 dollar increase in order total, the expected tip amount increases by roughly $0.097. Merchants should promote bundled items or add-on options to increase the average order value, which in turn may raise tip amounts.

- Delivery duration shows that every additional minute a delivery takes, the expected tip decreases by about $0.07. Drivers can be recommended to optimize routing to reduce delivery time. Consider prioritizing high-density areas for faster deliveries or introducing incentives for maintaining shorter delivery times.

- Deliveries during the afternoon are associated with higher tip amounts compared to other times of day. Merchants can schedule special deals or promos in the afternoon to align with this tipping trend. Dasher scheduling algorithms can boost driver presence during this time to maximize earning potential. Tips benefit Drivers.

Tip Behavior across Delivery Regions

- This graph displays the median tip amount across different delivery regions, segmented by tip tier categories.



- High-tipping regions like Fresno and Modesto consistently exceed the $5 median threshold. Medium-tipping areas are the most common, indicating tipping consistency but with potential for improvement. Low-tipping regions, including Bakersfield and Brooklyn, have notably lower median tips—some under $2.

- This insight enables Food Delivery Company to strategically incentivize Drivers by prioritizing shift availability in high-tip regions like Fresno or Modesto, helping maximize earnings and improve delivery coverage where customer generosity is highest.