# Uber Request Data Analysis

- This project involves analysis of Uber ride request data to identify demand patterns, service gaps, and potential operational bottlenecks. The data contains information such as request timestamps, pickup points (Airport or City), driver assignment status, and trip completion status.
- The goal of this analysis is to understand customer behavior and operational efficiency across various time slots, identify peak demand periods, and highlight the reasons behind unfulfilled requests. Through data cleaning, visualization, and aggregation, we uncover critical insights such as demand-supply mismatch, time-of-day effects, and patterns in trip requests that can help optimize driver allocation and service performance.
- By identifying problem areas such as "No Cars Available" and "Driver Cancelled" cases during high-demand periods, the analysis aims to support Uber's business decisions with data-driven insights. Charts like bar plots, heatmaps, and time series plots provide clear visual storytelling of operational trends.

MS Excel Charts with Insights
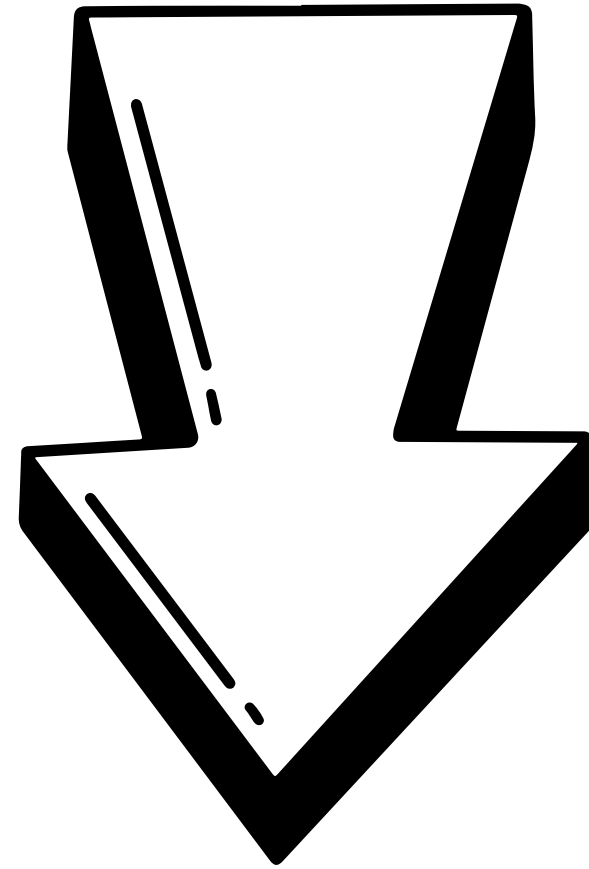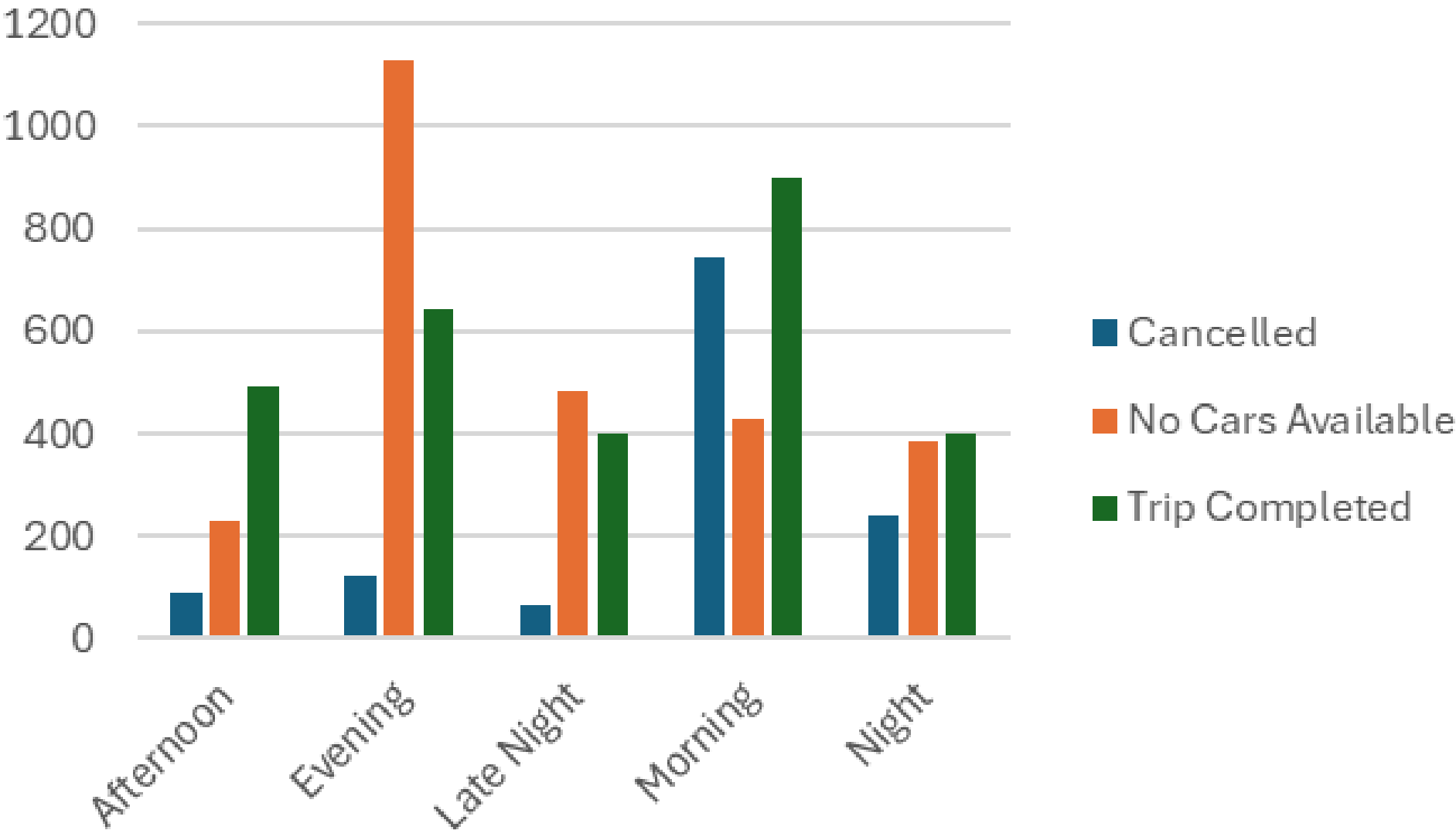
Requests by Time Slot & Status

fig. 1

Key Insights

1. Morning has the highest number of requests (2072) but also the most cancellations (744).
2. Evening faces the most "No Cars Available" issues (1127), indicating high unmet demand.
3. Afternoon has the best trip completion rate (60.6%) with relatively low cancellations and no-car issues.
4. Trip completion is lowest during Evening (33.9%) despite high demand.
5. Improvement needed in vehicle availability during Morning and Evening to reduce cancellations and no-car cases.

Trips by Pickup Point & Status

fig. 2
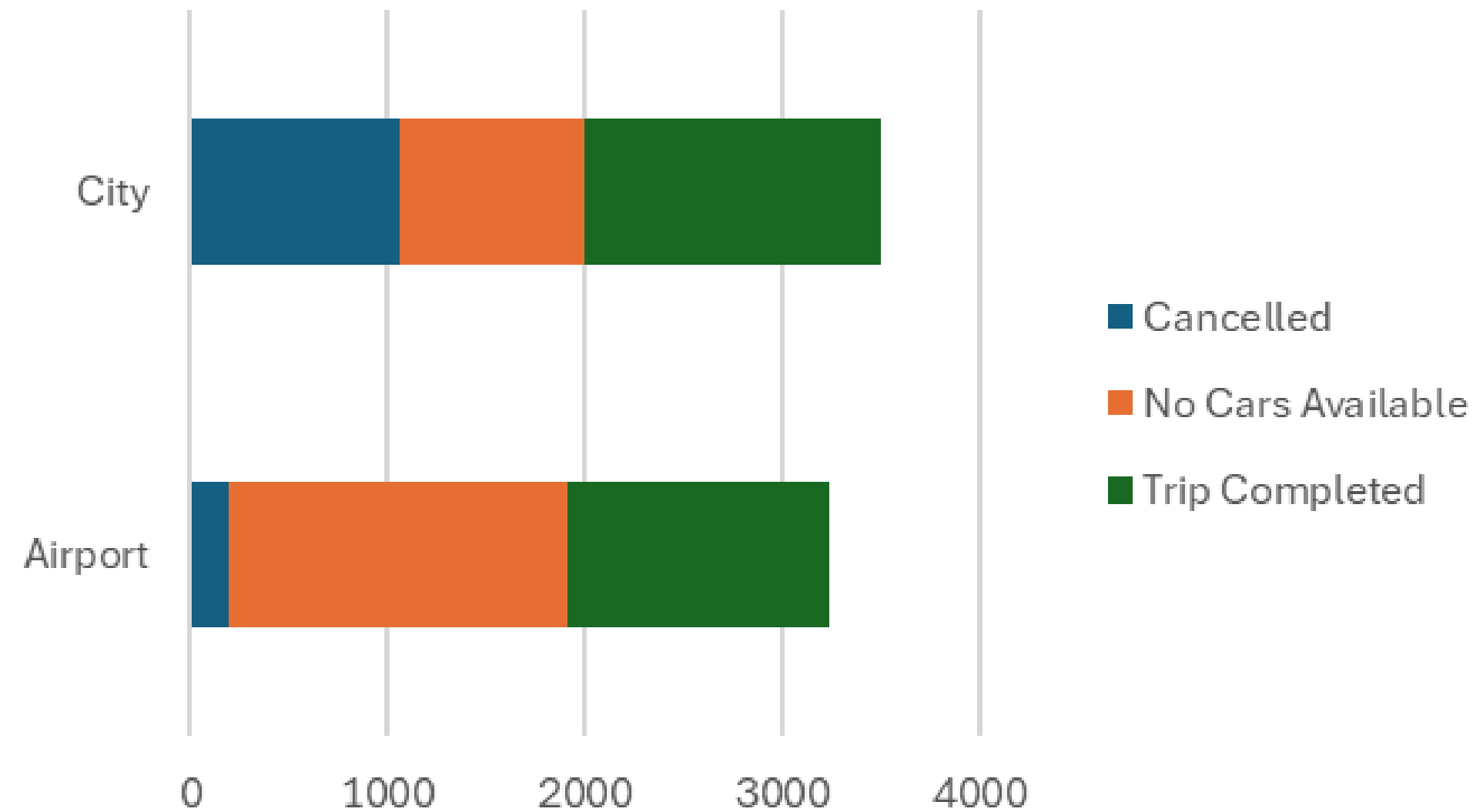
Key Insights

1. City has more total requests (3507) than the Airport (3238).
2. Cancellations are much higher in the City (1066 vs 198), indicating possible driver refusals or poor fulfillment.
3. Airport faces the highest "No Cars Available" issue (1713 vs 937), showing a major supply gap at the airport.
4. Trip completion is slightly higher in the City (1504) than the Airport (1327), despite the higher cancellations.

Average Trip Duration by Time Slot

fig. 3
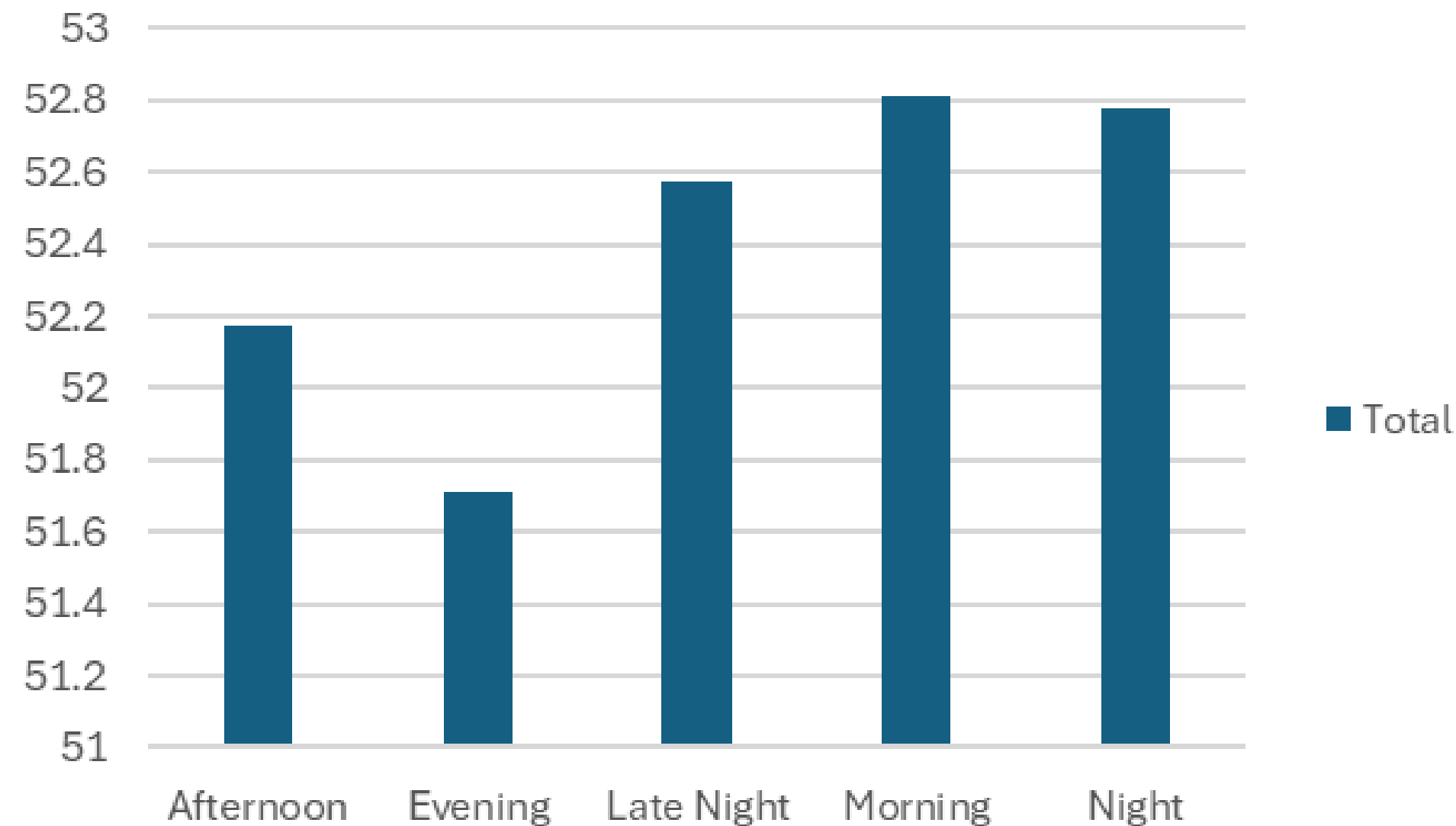
Key Insights

1. Morning trips are the longest on average (52.82 mins), followed by Night (52.78 mins).
2. Evening trips have the shortest duration (51.71 mins), possibly due to shorter urban commutes.
3. Overall average trip duration is approximately 52.41 minutes.
4. All time slots have relatively similar trip durations (around 52 mins), indicating consistent travel distances or conditions across the day.

Trip Volume by Day of Week

fig. 4
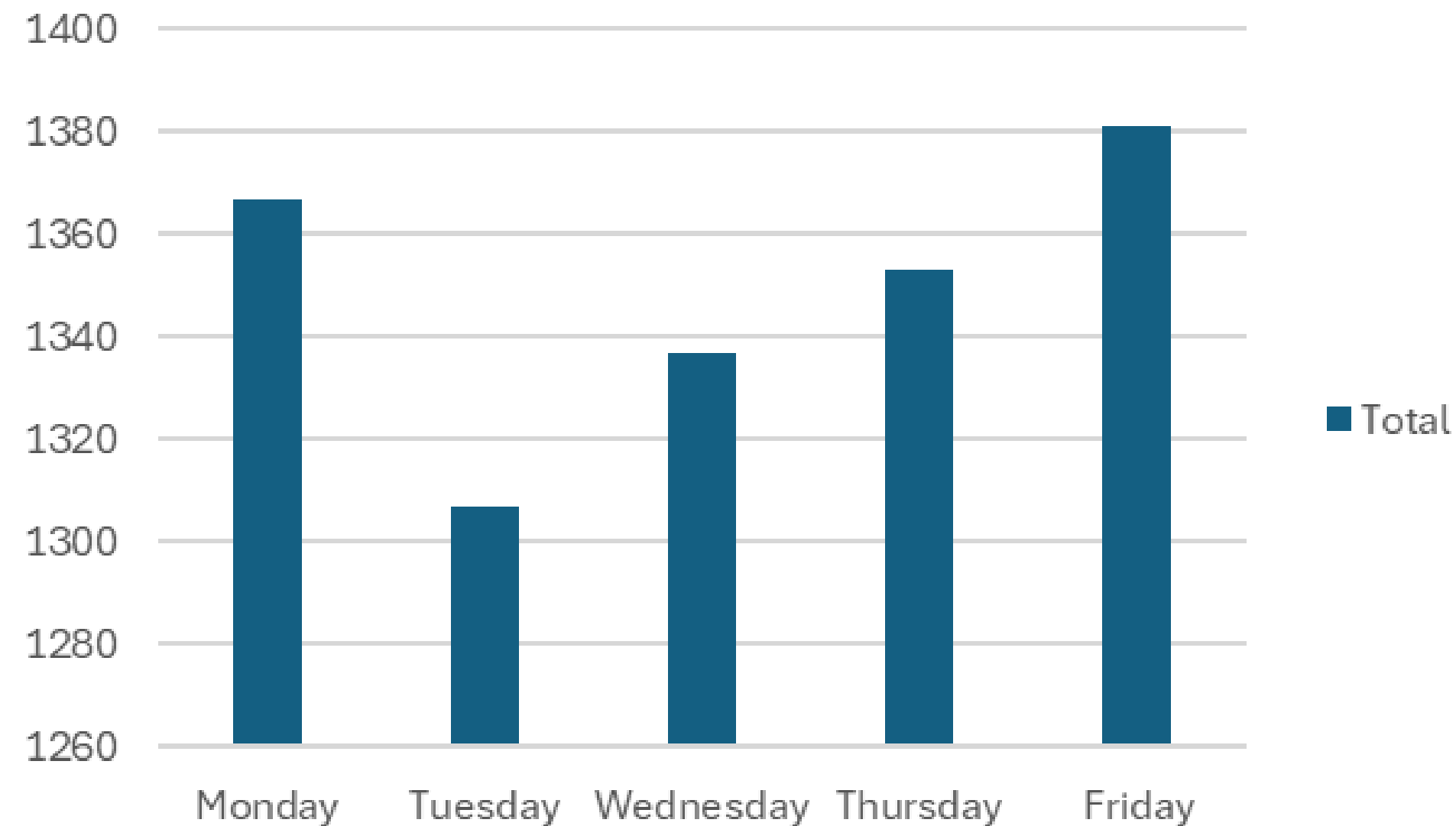
Key Insights

1. Friday has the highest number of ride requests (1381) — possibly due to end-of-week travel and outings.
2. Tuesday sees the lowest demand (1307).
3. The number of requests is fairly balanced across all weekdays, with a slight rise toward the weekend.
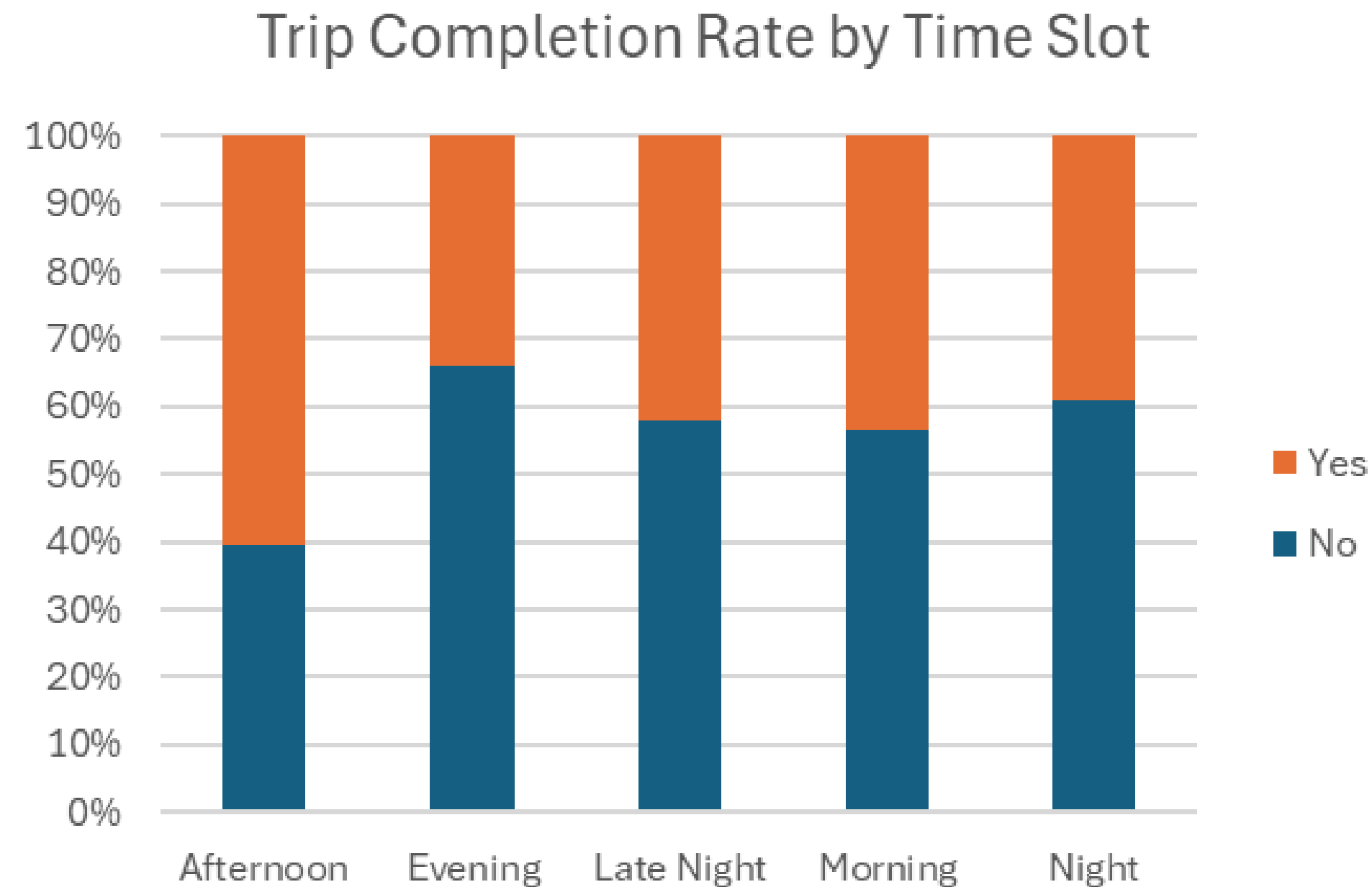4. Total ride requests over the 5 weekdays = 6745.

fig. 5

Key Insights

1. Morning has the highest number of completed trips (900) — suggesting strong fulfillment during this period.
2. Evening has the highest number of incomplete trips (1251) — over 66% of evening requests were not fulfilled.
3. Afternoon has the highest trip completion rate at ~60.6% (491 out of 810).
4. Overall, only ~42% of all ride requests (2831 out of 6745) were completed.
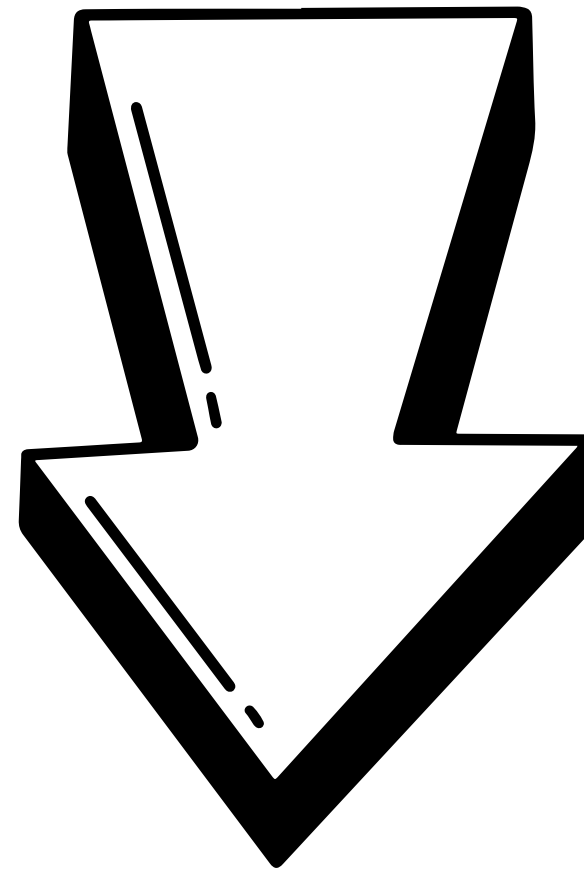
fig. 6
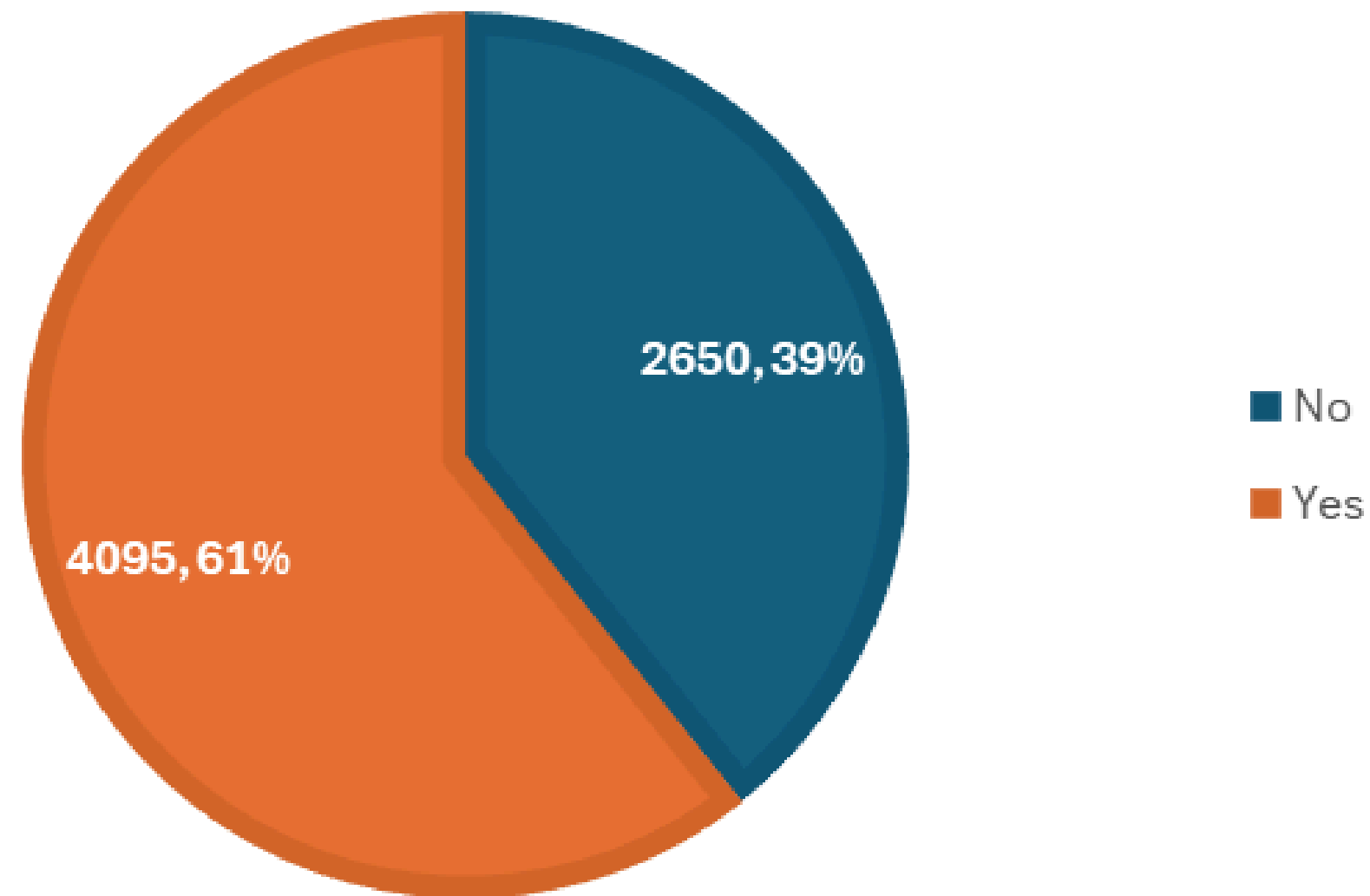
Key Insights

1. Cars were available in 4095 out of 6745 requests (~60.7%).
2. In 2650 cases (39.3%), cars were not available at the time of request.
3. Nearly 4 out of 10 users faced issues due to unavailability of cars, indicating a major supply gap that needs urgent attention, especially during high-demand hours like Evening.

SQL Key Insights with Results

1. Total Number of Trip Requests:
- 6745 total trip requests recorded.

	Total Requests bigint
1	6745

2. Trips Completed vs Not Completed
- 2831 trips were completed (42%)
- 3914 trips were not completed (58%)

	Trip Completed text	Number of Trips bigint
1	No	3914
2	Yes	2831

3. Daily Request Volume
- Trip demand was consistent across weekdays, with slight increases toward Friday and Monday.

	Trip Date date 🔒	Requests Per Day bigint 🔒
1	2016-07-11	1367
2	2016-07-12	1307
3	2016-07-13	1337
4	2016-07-14	1353
5	2016-07-15	1381

4. Trip Requests by Time Slot
- Evening had the highest number of requests, followed by Morning.
- Indicates peak ride demand during commute hours.

	Trip Request Time Slot text 🔒	Requests Per Slot bigint 🔒
1	Morning	2072
2	Evening	1893
3	Night	1023
4	Late Night	947
5	Afternoon	810

5. Requests from Each Pickup Point
- City had more requests (3507) than Airport (3238).
- But Airport had more cases of no cars available, indicating a supply issue.

	Pickup point text	Number of Requests bigint
1	City	3507
2	Airport	3238

6. Trips Completed by Each Driver
- Shows individual driver performance.
- Some drivers had significantly more completed trips than others — can help identify high performers.

	Driver id integer	Completed Trips bigint
1	184	15
2	116	10
3	87	9
4	273	12
5	51	13
6	272	9

Showing rows: 1 to 6 Page No: 1 of 50

Total rows: 300   Query complete 00:00:00.088   CRLF   Ln 58, Col 1

7. Average Trip Duration
- The average trip lasted around 52.41 minutes.

	Average Duration (mins) numeric
1	52.4132815259625574

8. Trip Requests by Day of the Week
- Requests were fairly balanced.
- Friday had the most requests, followed by Monday.

	Day Of Week text	Trip Requests bigint
1	Monday	1367
2	Friday	1381
3	Thursday	1353
4	Wednesday	1337
5	Tuesday	1307

9. Trips Without Drop Timestamp
- 3914 trips lacked a drop timestamp, matching the number of incomplete trips.

10. Most Active Drivers
- Certain drivers completed significantly more trips, useful for performance rewards or dispatch optimization.

11. Status Breakdown

- Statuses include Cancelled, No Cars Available, and Trip Completed.
- High cancellations occurred especially from City pickup points.

	Status text	Status Count bigint
1	Trip Completed	2831
2	Cancelled	1264
3	No Cars Available	2650

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12. Evening Slot Incomplete Trips

- A very high number of incomplete trips in the Evening — supply doesn't meet peak demand.

	Request id integer	Pickup point text	Driver id integer	Status text	Request timestamp text	Drop timestamp text	Trip Duration (hh:mm) text	Trip Duration (in mins) text	Trip Date date	Reques text
1	4805	City	1	Cancelled	14-07-2016 17:07	[null]	NA	NA	2016-07-14	5:07 P
2	5202	Airport	1	Cancelled	14-07-2016 20:51	[null]	NA	NA	2016-07-14	8:51 P
3	2347	Airport	2	Cancelled	12-07-2016 19:14	[null]	NA	NA	2016-07-12	7:14 P
4	3806	Airport	2	Cancelled	13-07-2016 20:57	[null]	NA	NA	2016-07-13	8:57 P
5	5023	Airport	2	Cancelled	14-07-2016 19:04	[null]	NA	NA	2016-07-14	7:04 P
6	3807	Airport	4	Cancelled	13-07-2016 20:58	[null]	NA	NA	2016-07-13	8:58 P

Total rows: 1251   Query complete 00:00:00.217   CRLF   Ln 98, Col 1

13. Drivers with More Than 10 Completed Trips

- Only a subset of drivers consistently completed trips — identifying reliable drivers for peak hours.

	Driver id integer	Completed Trips bigint
1	184	15
2	273	12
3	51	13
4	70	14
5	176	14
6	22	16

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Total rows: 103   Query complete 00:00:00.086   CRLF   Ln 104, Col 1

EDA Results with Insights
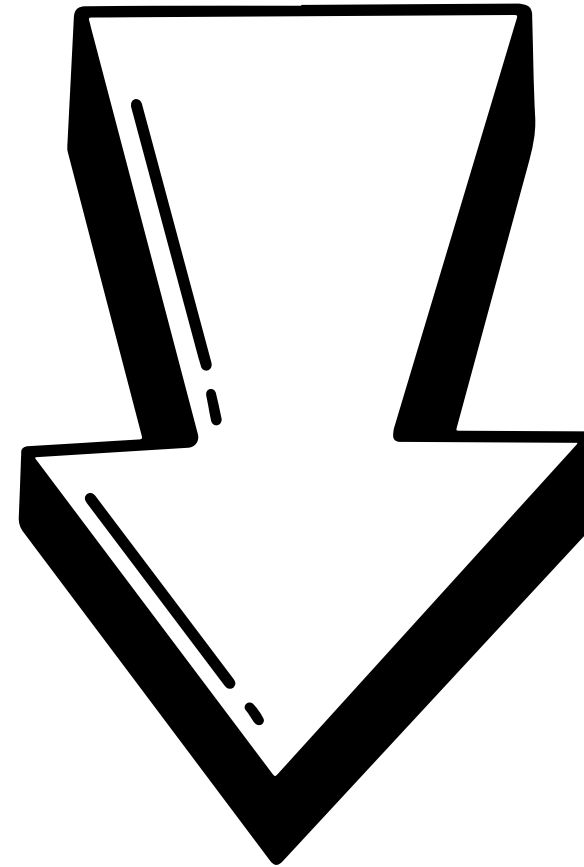
fig. 1

Key Insights

- A large number of requests are not completed.
- No Cars Available and Cancelled together outnumber completed trips.
- The company is losing a significant portion of customer demand due to operational failures (driver-side or supply-side).
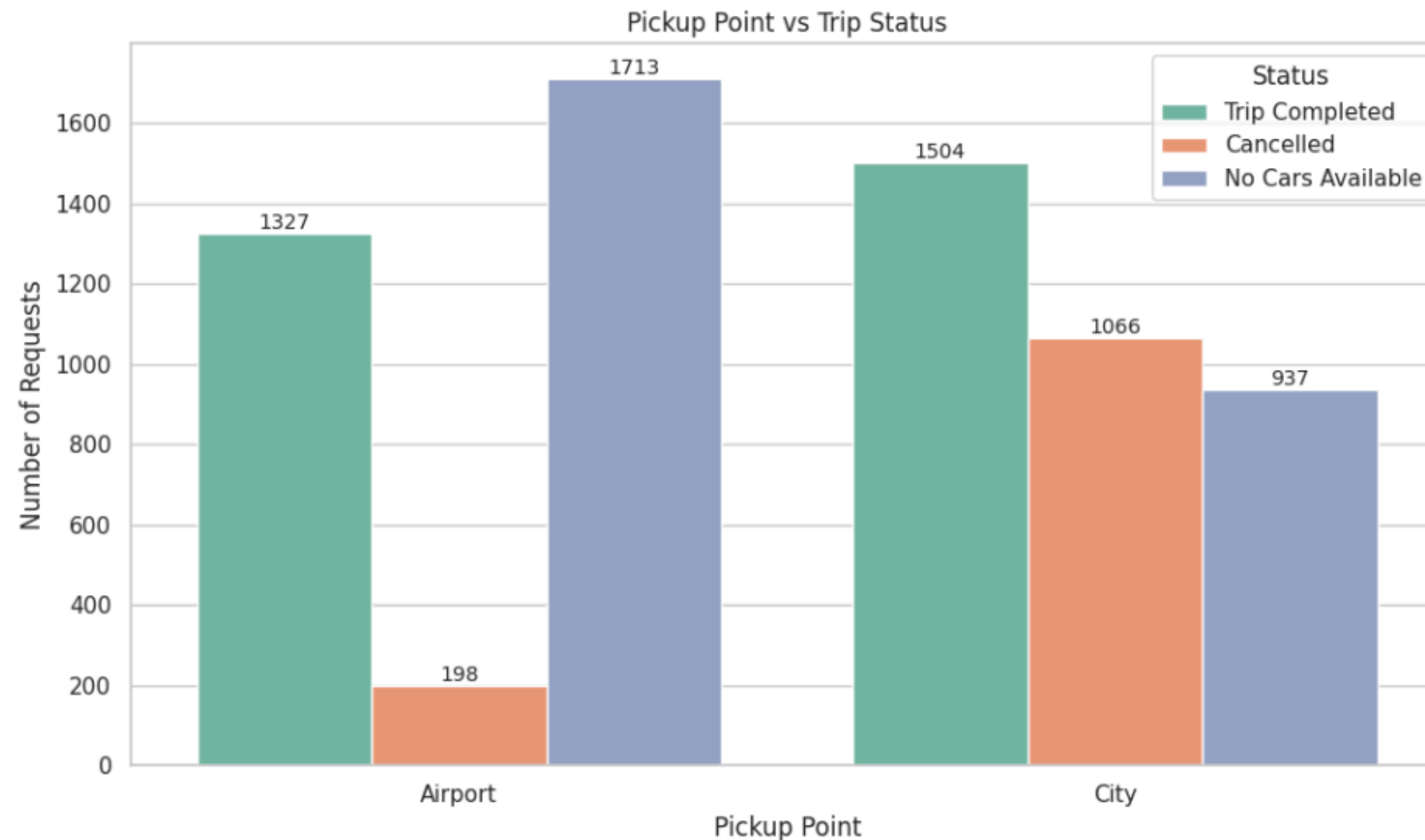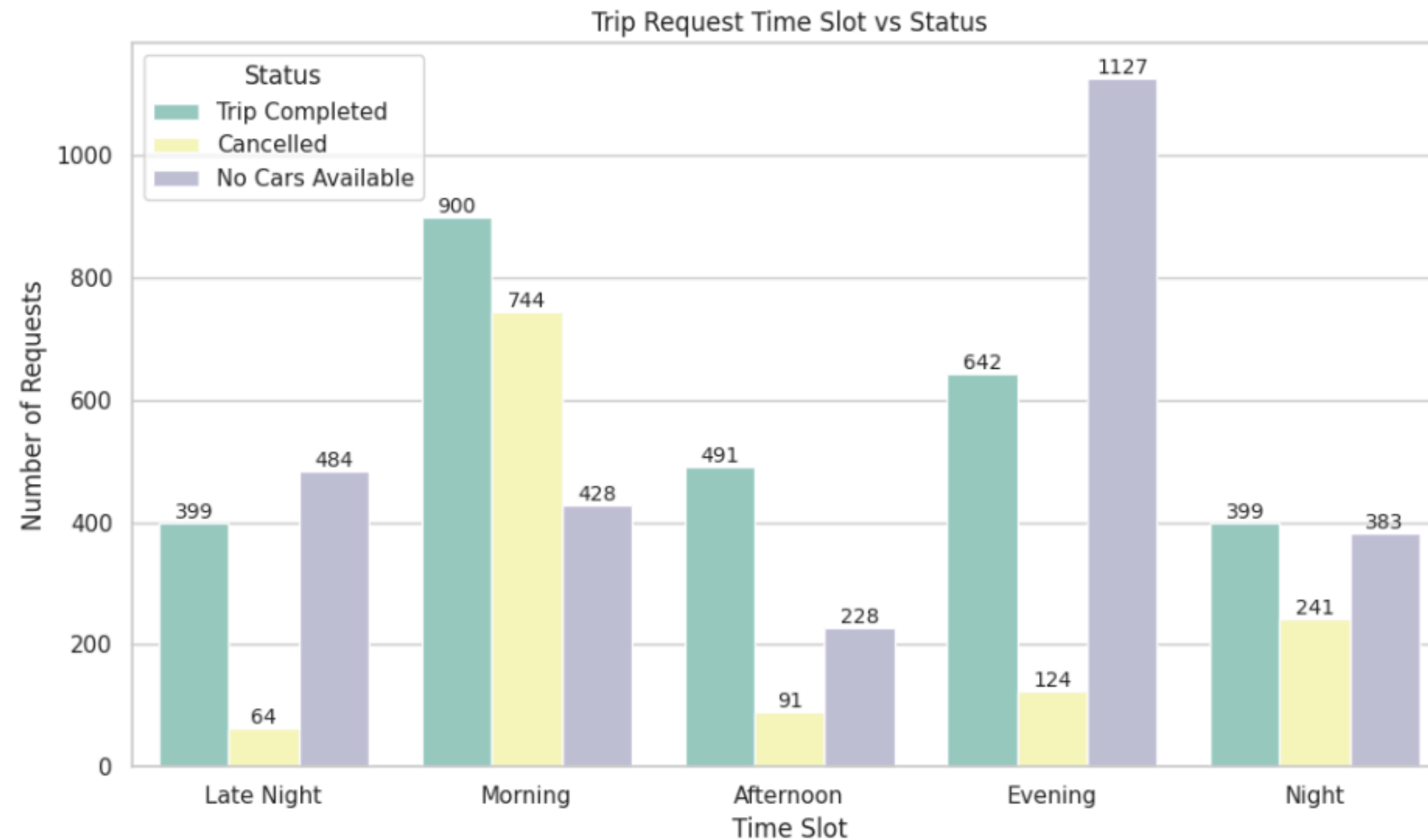
Pickup Point vs Trip Status

fig. 2

Key Insights

- City pickups have higher cancellations.
- Airport pickups suffer more from lack of car availability.

Trip Request Time Slot vs Status

fig. 3

Key Insights

- Morning has the most cancellations.
- Evening shows the highest No Cars Available.
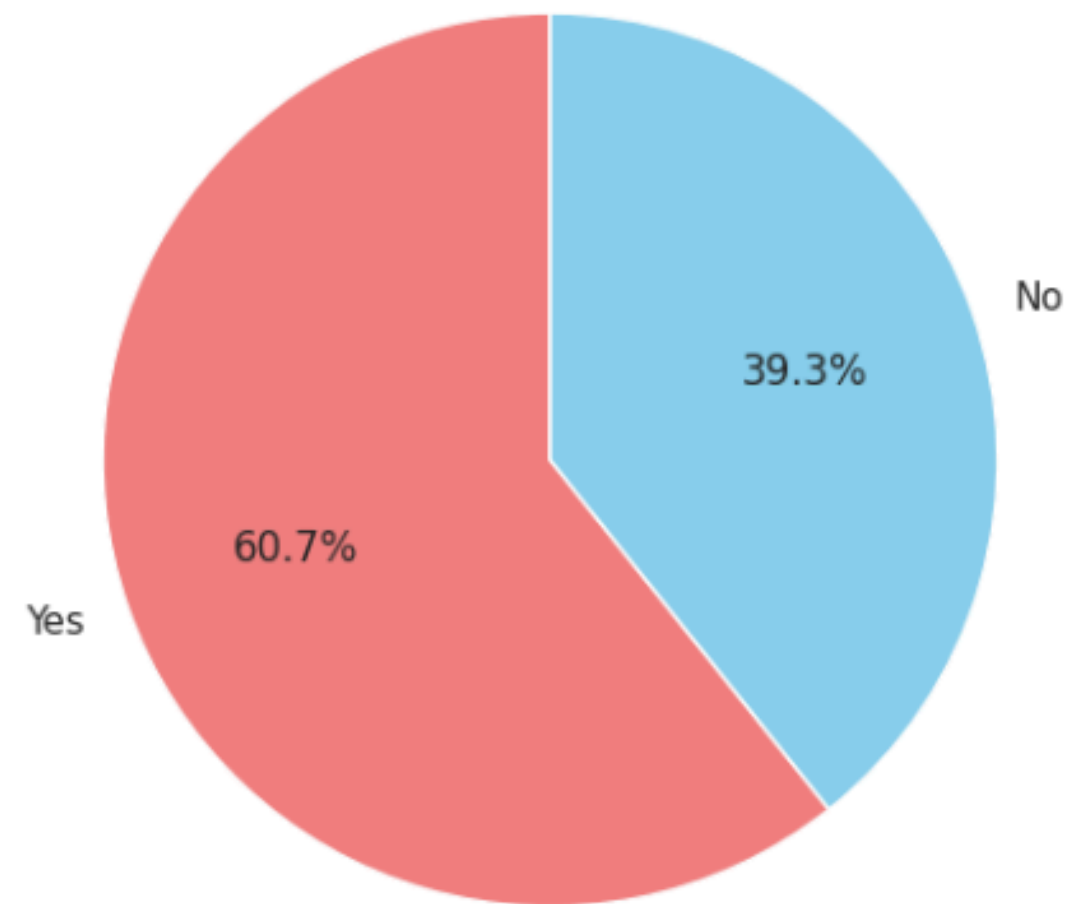
Driver Assigned vs Not Assigned

No 39.3%

Yes 60.7%

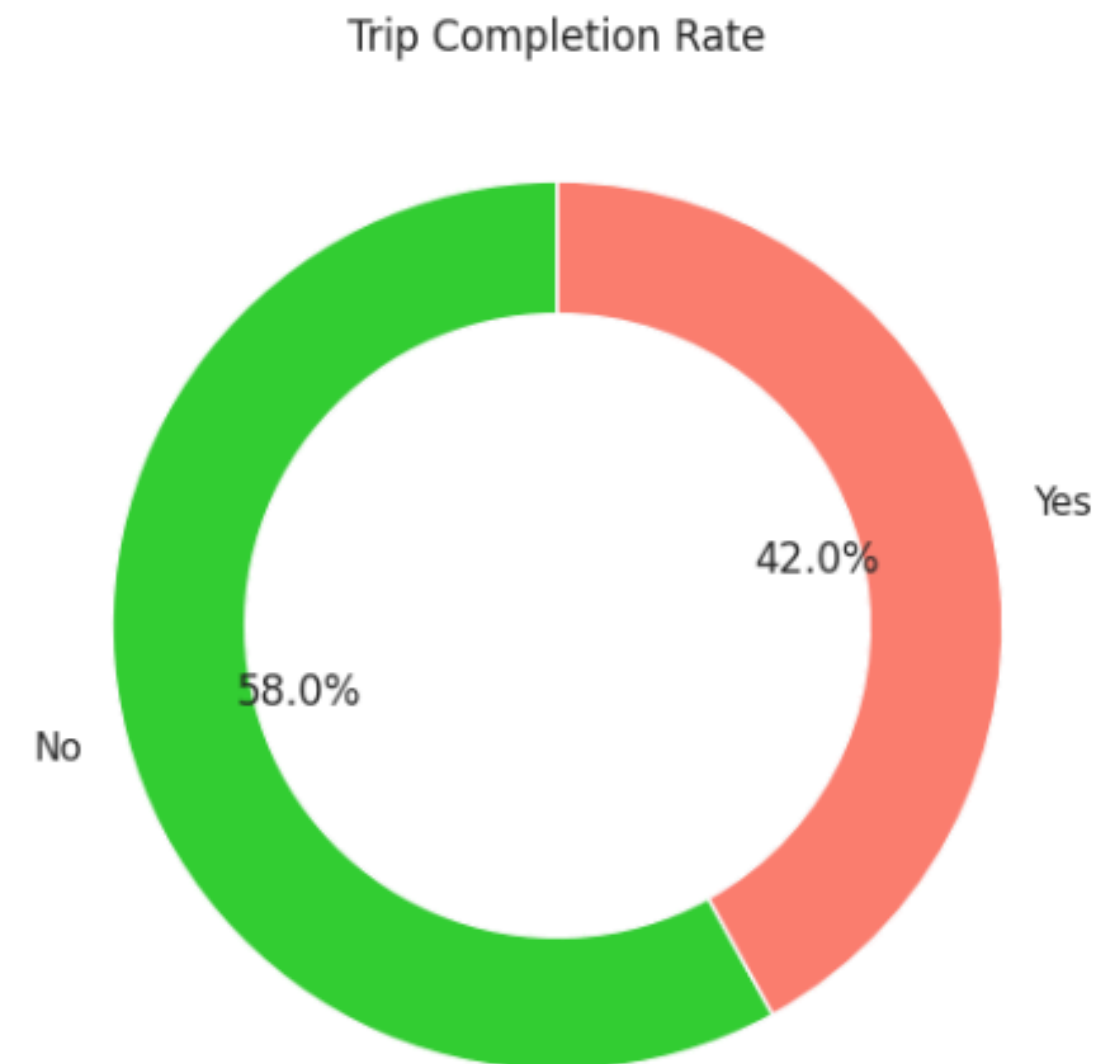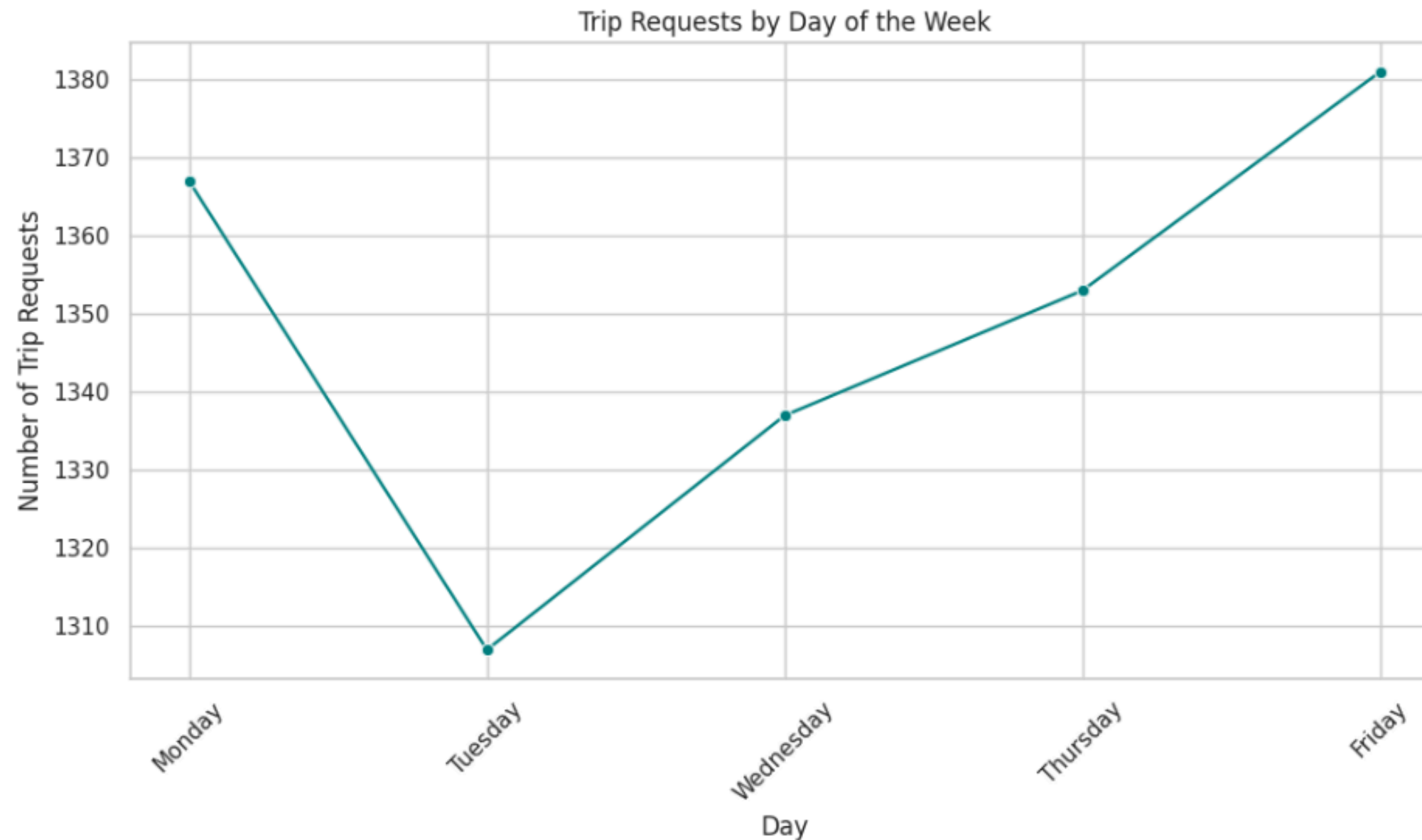fig. 4

Key Insights

- A significant portion of requests were not assigned a driver, which highlights a critical operational failure.

Trip Completion Rate

Yes 42.0%

No 58.0%

fig. 5

Key Insights

- Less than half of the ride requests are successfully completed, indicating a significant service failure rate.
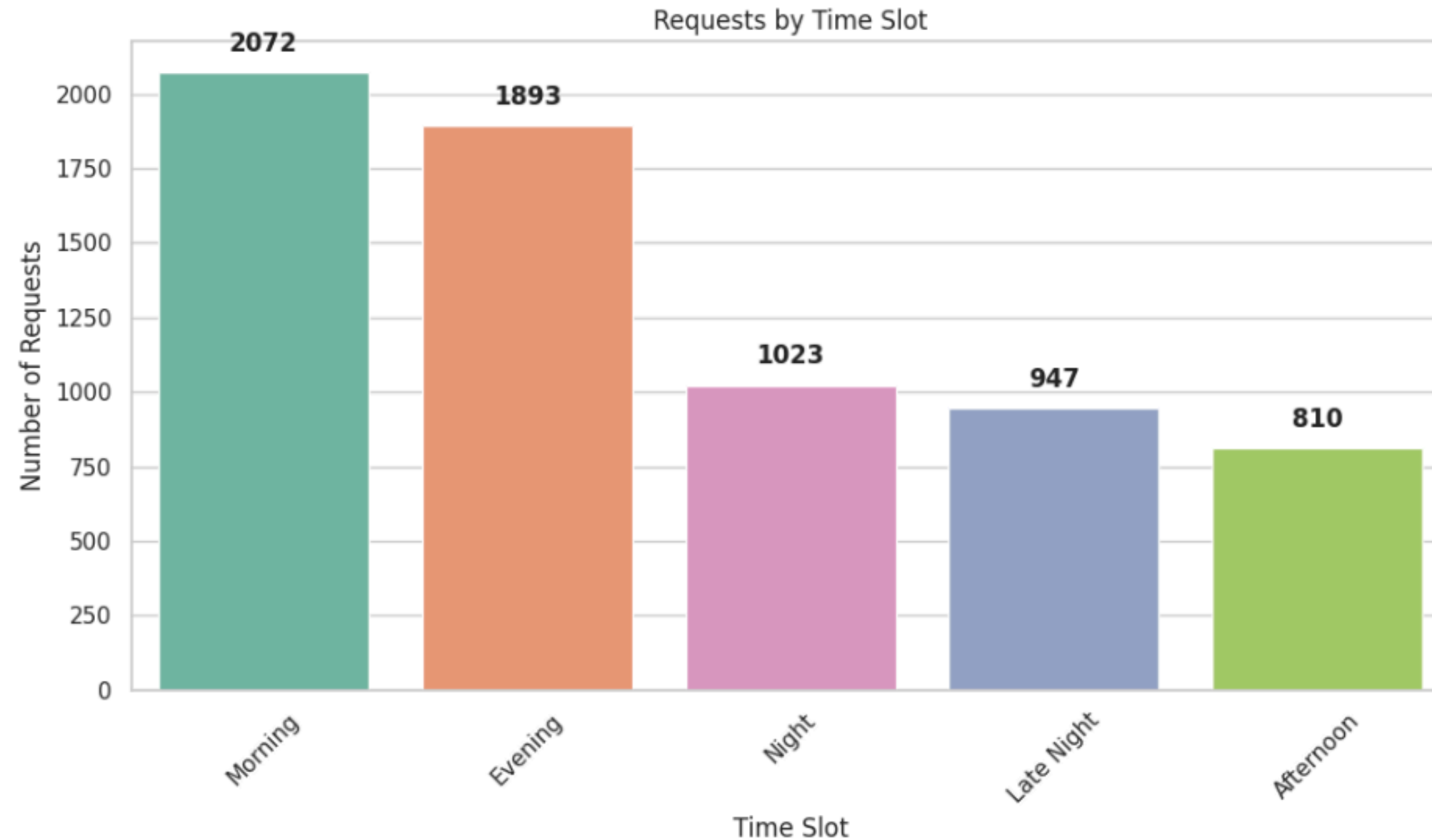
Trip Requests by Day of the Week

fig. 6

Key Insights

- Weekday trip volume appears higher than weekends.
- Friday and Monday show notable demand, likely due to airport or work-related travel.
- Weekends have fewer requests, suggesting a dip in business-related usage.

fig. 7

Key Insights

- Morning has the highest number of ride requests.
- Evening also sees significant demand, but slightly lower than Morning.
- Late Night and Night have fewer requests, indicating low usage during those hours.
- Afternoon has moderate activity, likely due to non-work-related travel.

Thank you