Cyclistic Bike-Share Analysis

How Annual Members and Casual Riders Use Bikes Differently

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Business Task & Goal

- **Business Task:** Analyse how annual members and casual riders use Cyclistic bikes differently.

- **Goal:** Identify marketing strategies to convert casual riders into annual members

- **Key stakeholders:**

➢ Lily Moreno – Director of Marketing at Cyclistic
➢ Marketing Analytics Team
➢ Executive Team

Data Sources

- **Dataset:** 12 months of Divvy trip data for 2024
- **Source:** Provided by Cyclistic / internal dataset
- **Total rows:** 5860568
- **Total columns:** 13

Data Cleaning & Manipulation

- Merged multiple months of data into one table
- Removed duplicates and invalid entries
- Added calculated columns: ride_length and day_of_week
- Verified all data types and missing values
- Prepared dataset for analysis

Summary Table of Key Columns

Column Name	Description	Type / Notes
ride_id	Unique ride identifier	Integer, no duplicates
started_at	Ride start time	Datetime
ended_at	Ride end time	Datetime
member_casual	Rider type	“member” or “casual”
rideable_type	Bike type	e.g., Classic, Electric
start_station_name	Starting station	Text
end_station_name	Ending station	Text

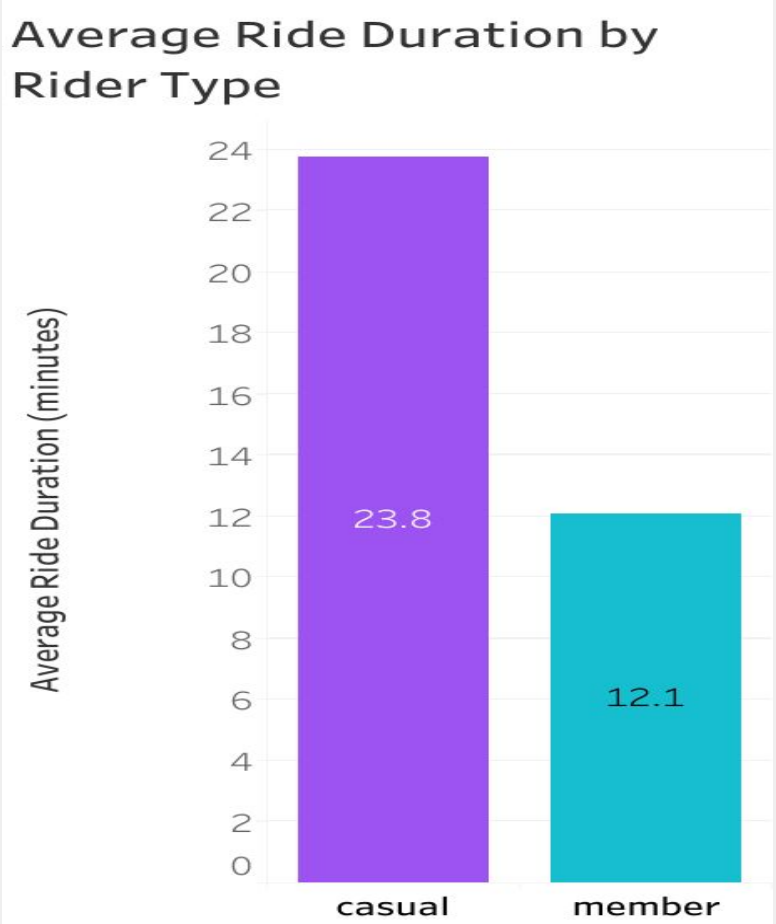
Exploratory Analysis

Key patterns in Cyclistic ridership by member type, day, month, and location

Ride Duration & Frequency

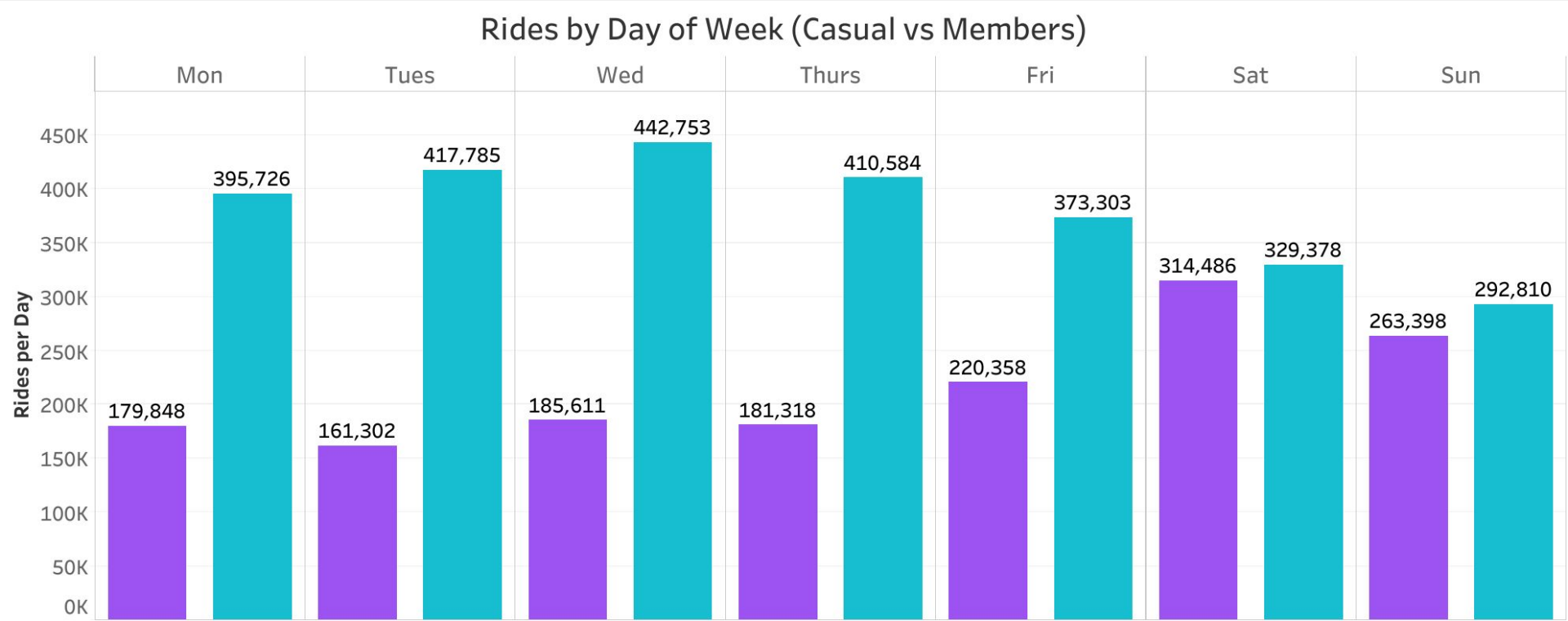
Casual riders take longer rides than annual members

- **Average ride duration:**
  - Casual riders: **~23.8 minutes**
  - Annual members: **~12.1 minutes**



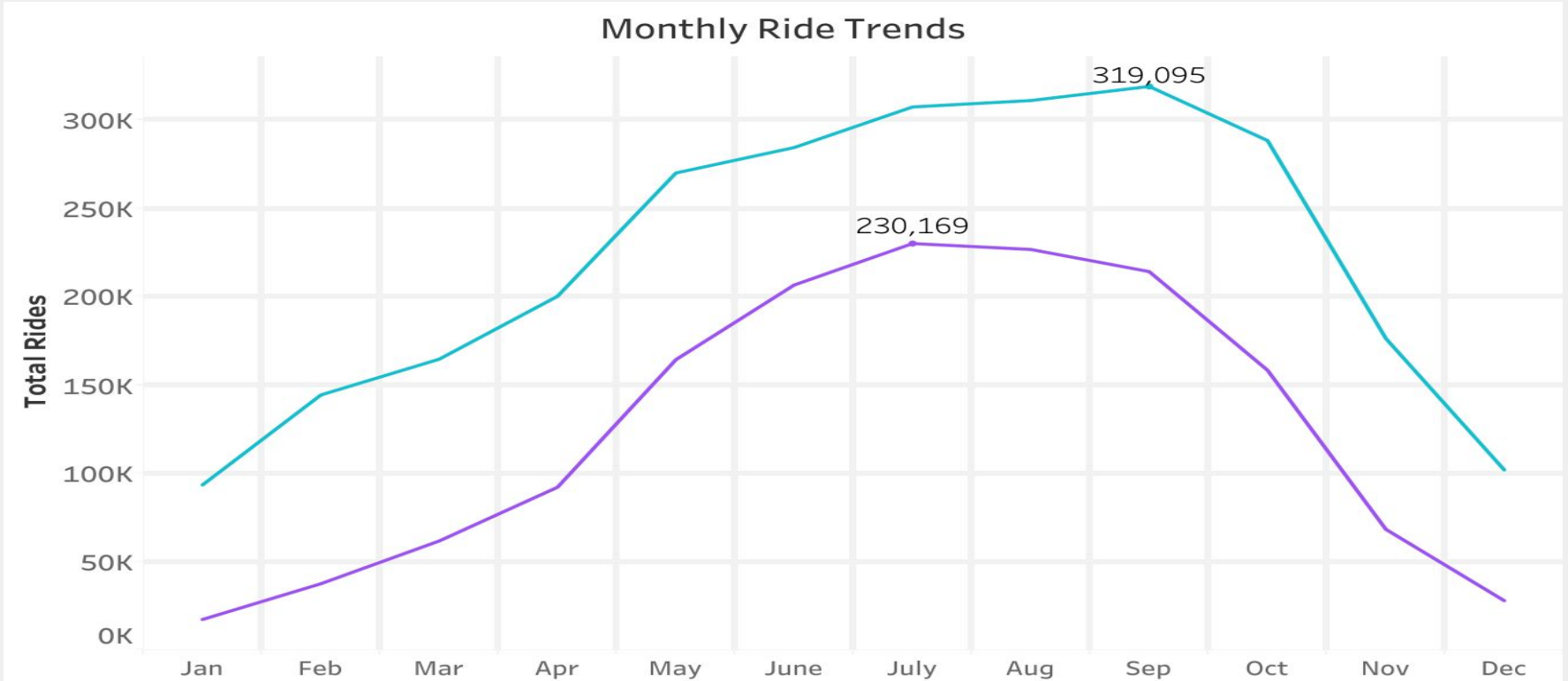
Ride Patterns by Day of Week

- Casual riders peak on weekends, while members ride more on weekdays.



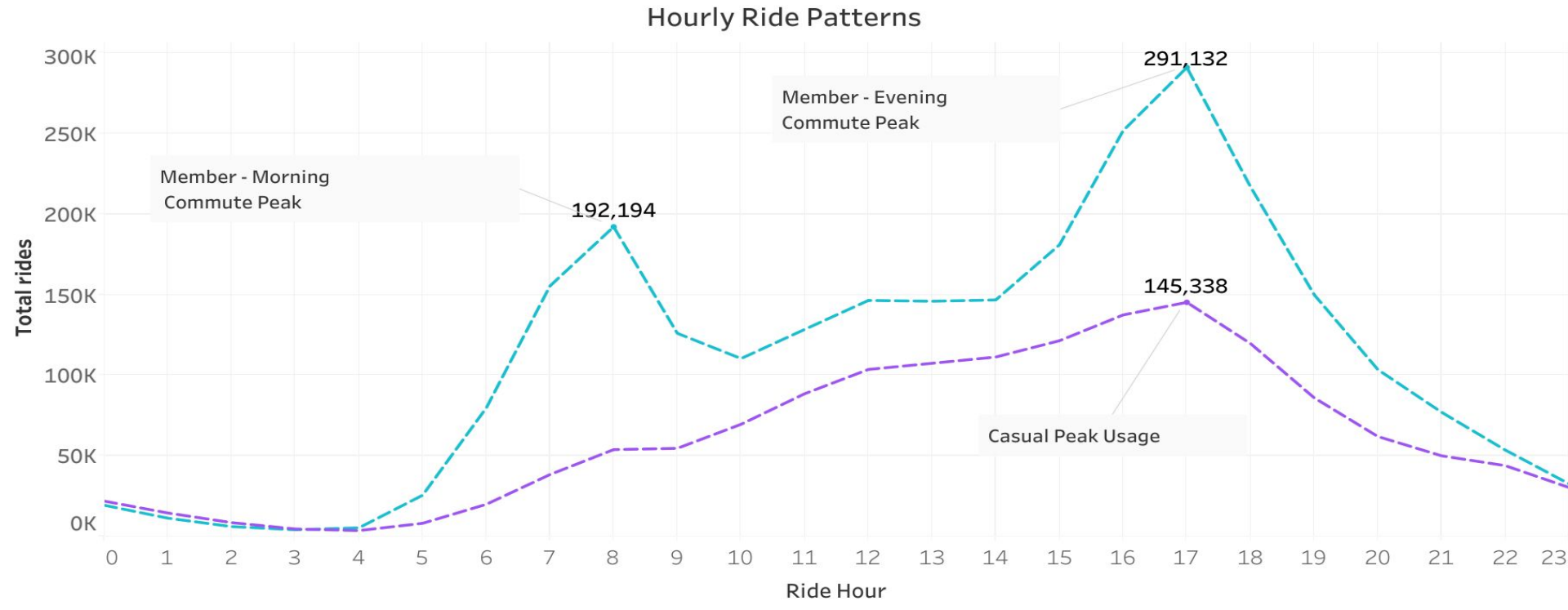
Ride Patterns by Month

- Both casual riders and members show increased usage during the summer months



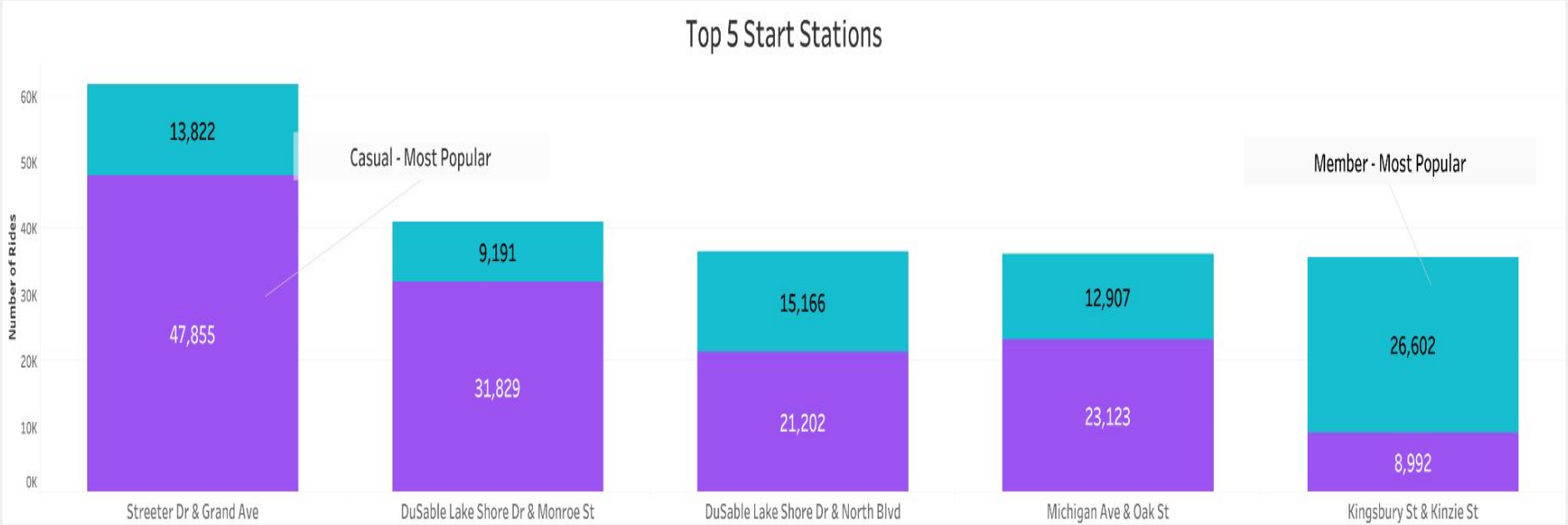
Ride Patterns by Hour of Day

- Members ride mostly during commuting hours, while casual riders start increasing around noon and peak at 5 PM



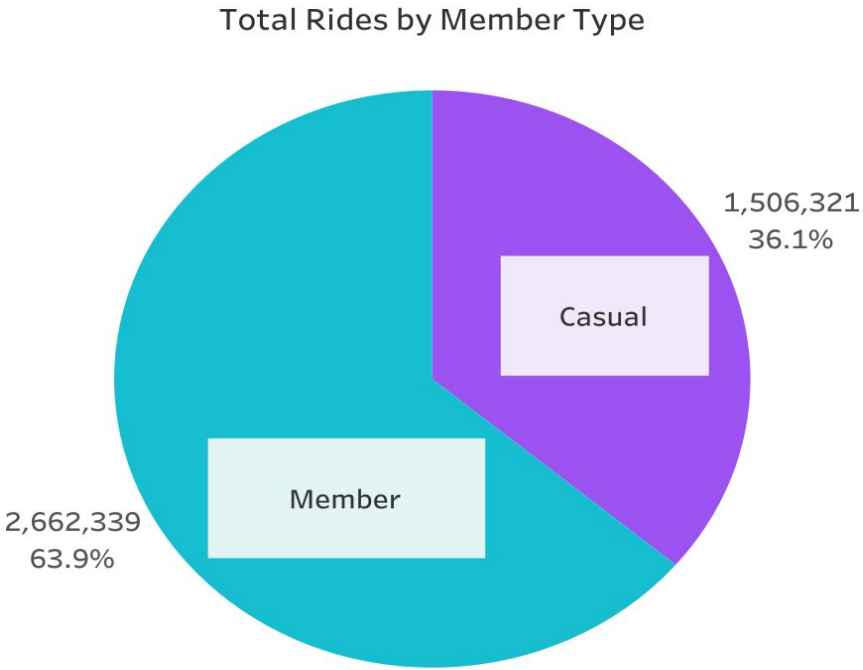
Top 5 Start Stations

- Member trips are concentrated in city locations, while casual riders start rides near parks and beaches



Total Rides by Member Type

- Annual members account for the majority of rides, but casual riders still make up a significant portion (36%)



Key Insights / Summary

1. **Casual riders take longer rides than members** (~24 vs 12 min), reflecting recreational use.

2. **Members ride mostly on weekdays and commuting hours**, while casual riders peak mid-day and on weekends.

3. **Ridership increases during summer months** for both rider types, showing strong seasonality.

4. **Member trips are concentrated in city locations**, whereas casual riders start rides near parks and beaches.

5. **Annual members account for 64% of rides**, casual riders 36%, highlighting an opportunity to convert casuals.

Recommendations

1. **Target casual riders with seasonal promotions** during summer months to increase engagement.

2. **Offer incentives for weekday or off-peak rides** to encourage casual riders to use bikes more frequently.

3. **Promote membership benefits in leisure areas** near parks and beaches to convert casual riders.

4. **Highlight convenience of commuting as a member** to appeal to weekday riders.

5. **Leverage ridership patterns by hour** to run time-specific promotions or campaigns.

Tools / Methods

- **Data Cleaning & Manipulation:** BigQuery (SQL, calculated columns, data validation)
- **Visualization & Dashboarding:** Tableau (charts, dashboards, insights)
- **Presentation:** Google Slides (portfolio slides, charts integration)
- **Skills Demonstrated:** Data analysis, visualisation, dashboard creation, insight communication

Next Steps & Limitations

Next Steps:

1. Analyse rides by **bike type or trip length** to uncover additional patterns.
2. Explore **station-to-station trip paths** to optimise docking locations and marketing campaigns.
3. Test **membership conversion campaigns** using behavioural patterns from casual riders.

Limitations:

1. Data only covers one year; trends may vary across multiple years.
2. Some stations have long names, which limited label clarity on slides.
3. Hourly analysis may not capture **external factors** (weather, events, holidays).