

PROJECT : COMMUNICATE WITH YOUR DATA

Mady by :Yousef Mohamed Abd Elmonem



INTRODUCTION

Dataset overview

- The dataset comes from the Ford GoBike System (February 2019).
- It contains bike-sharing trip data, including:
 - Trip Duration (in seconds)
 - Start & End Stations
 - User Type (Subscriber or Customer)
 - Rider Age & Gender
 - Bike ID & Rental Details

PURPOSE OF ANALYSIS

1.

- Understand user behavior patterns in bike-sharing.

2.

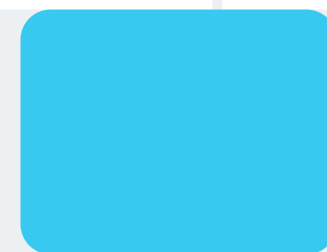
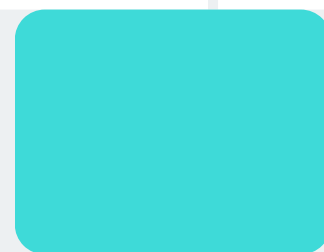
- Explore ride duration variations across age groups.

3.

- Identify correlations between user demographics and ride characteristics.

4.

- Present data-driven insights to optimize the bike-sharing experience.



KEY QUESTIONS & OBJECTIVES (WHAT YOU AIMED TO FIND)

- **Key Questions**

- **How does ride duration distribution change across different age brackets?**
- **What is the most rented month for bike usage?**
- **How do ride durations vary by user type (Subscriber vs. Customer)?**
- **What are the most popular hours for bike rentals?**
- **How is gender distribution represented among riders?**

- **Purpose of Analysis**

- **Understanding user behavior and ride patterns**
- **Identifying key trends in bike rentals**

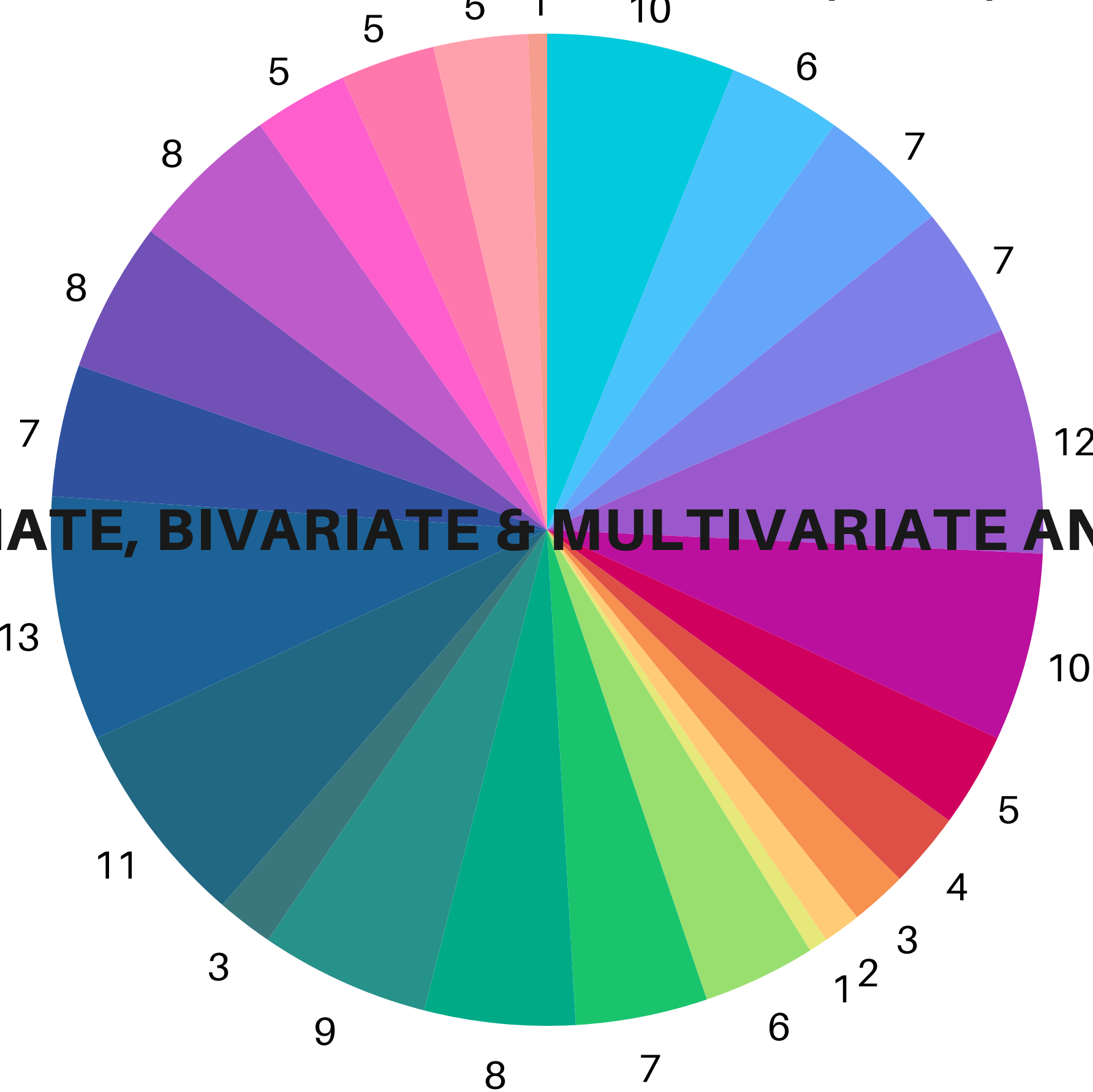
DATA CLEANING & PREPROCESSING

- **Steps taken:**
 - **Handling :**
 - **Missing values**
 - **Outliers,**
- **Data formatting**



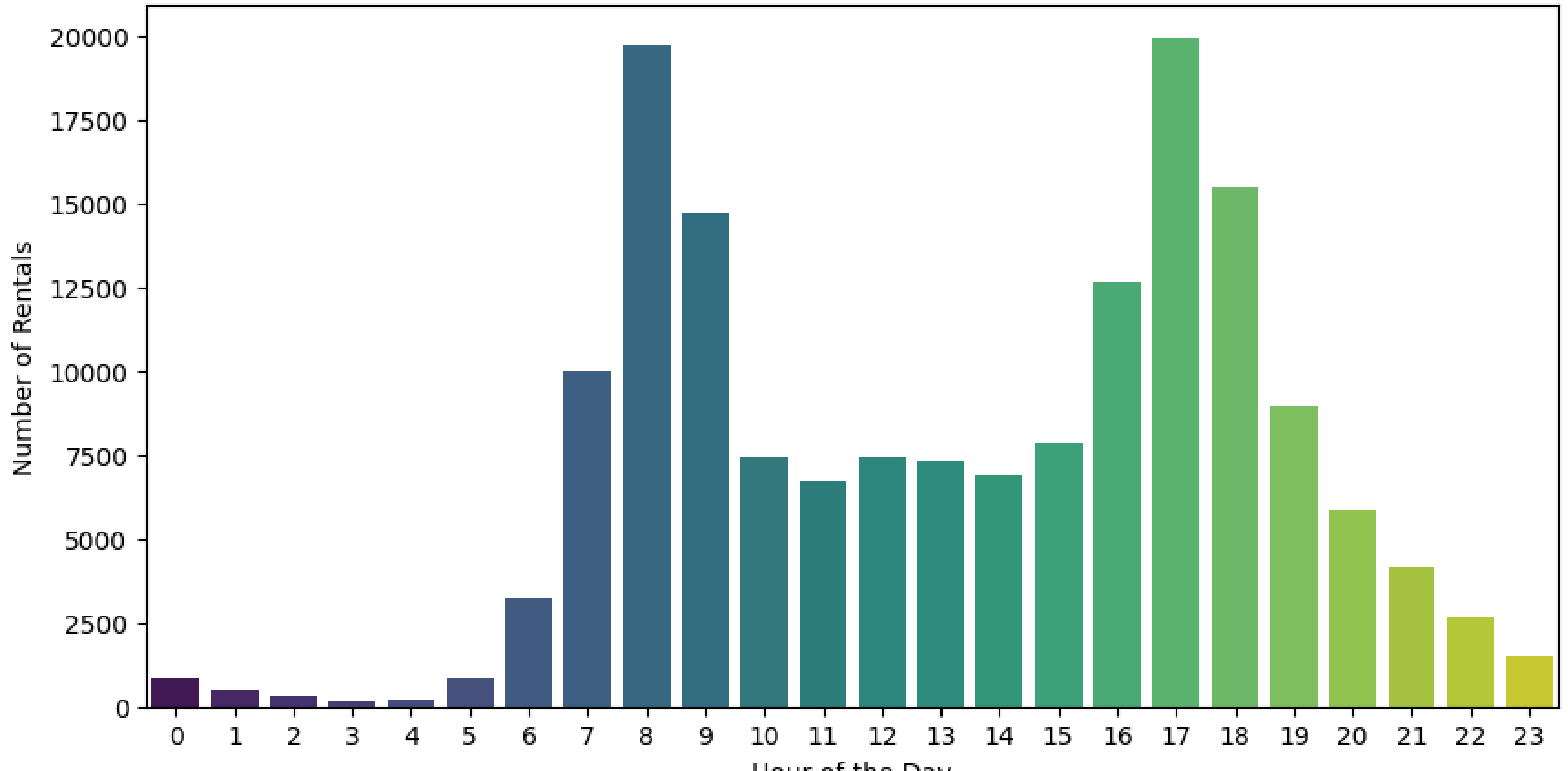
EXPLORATORY DATA ANALYSIS (EDA) OVERVIEW

UNIVARIATE, BIVARIATE & MULTIVARIATE ANALYSES

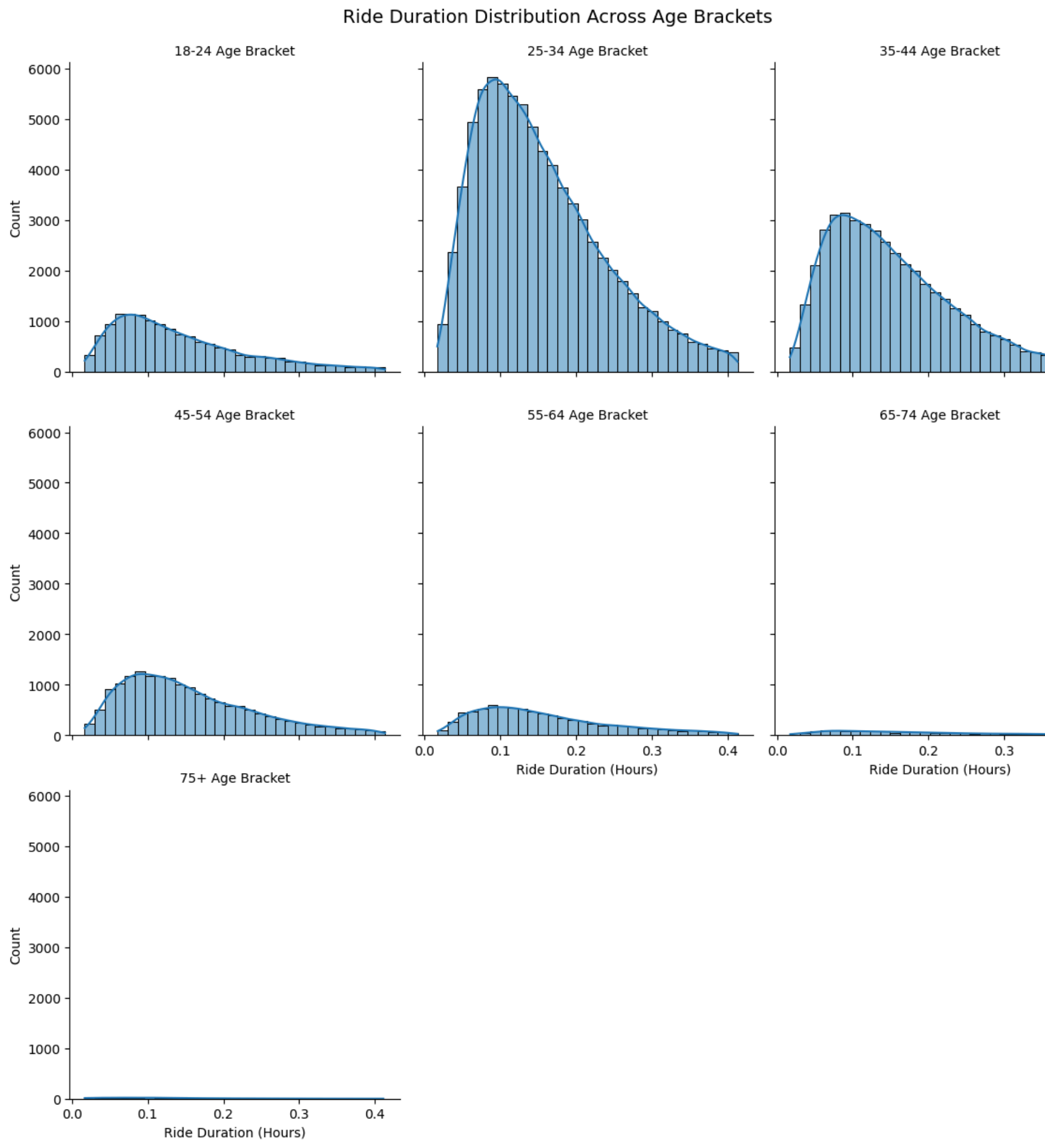


**** WHAT IS THE MOST POPULAR HOUR IN BIKE RENTAL? ****
ANSWER : 5 PM

Most Popular Hours for Bike Rentals

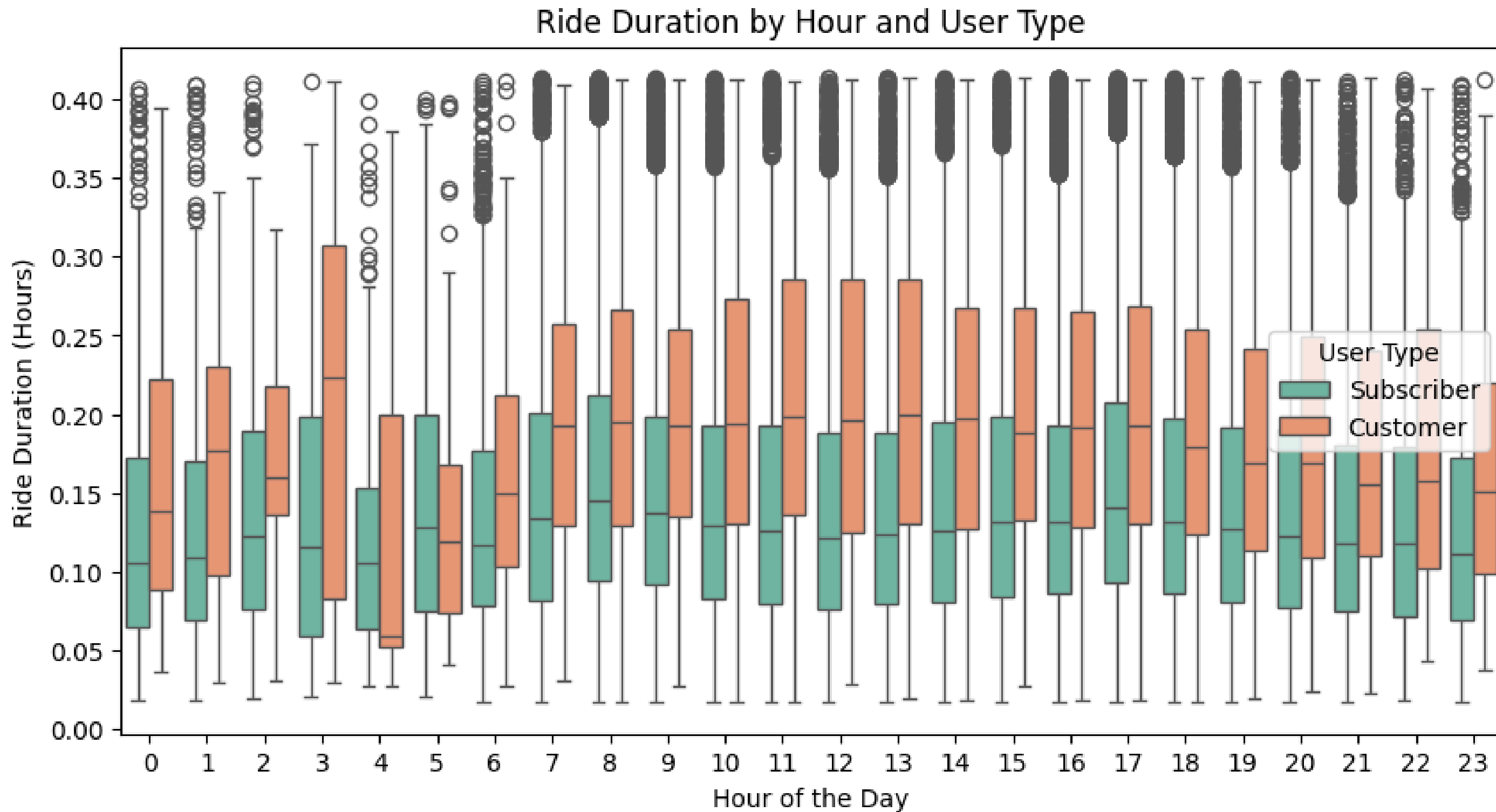


**** FURTHER INVESTIGATION OF HOW AGE AFFECTS THE RIDE DURATION? ****



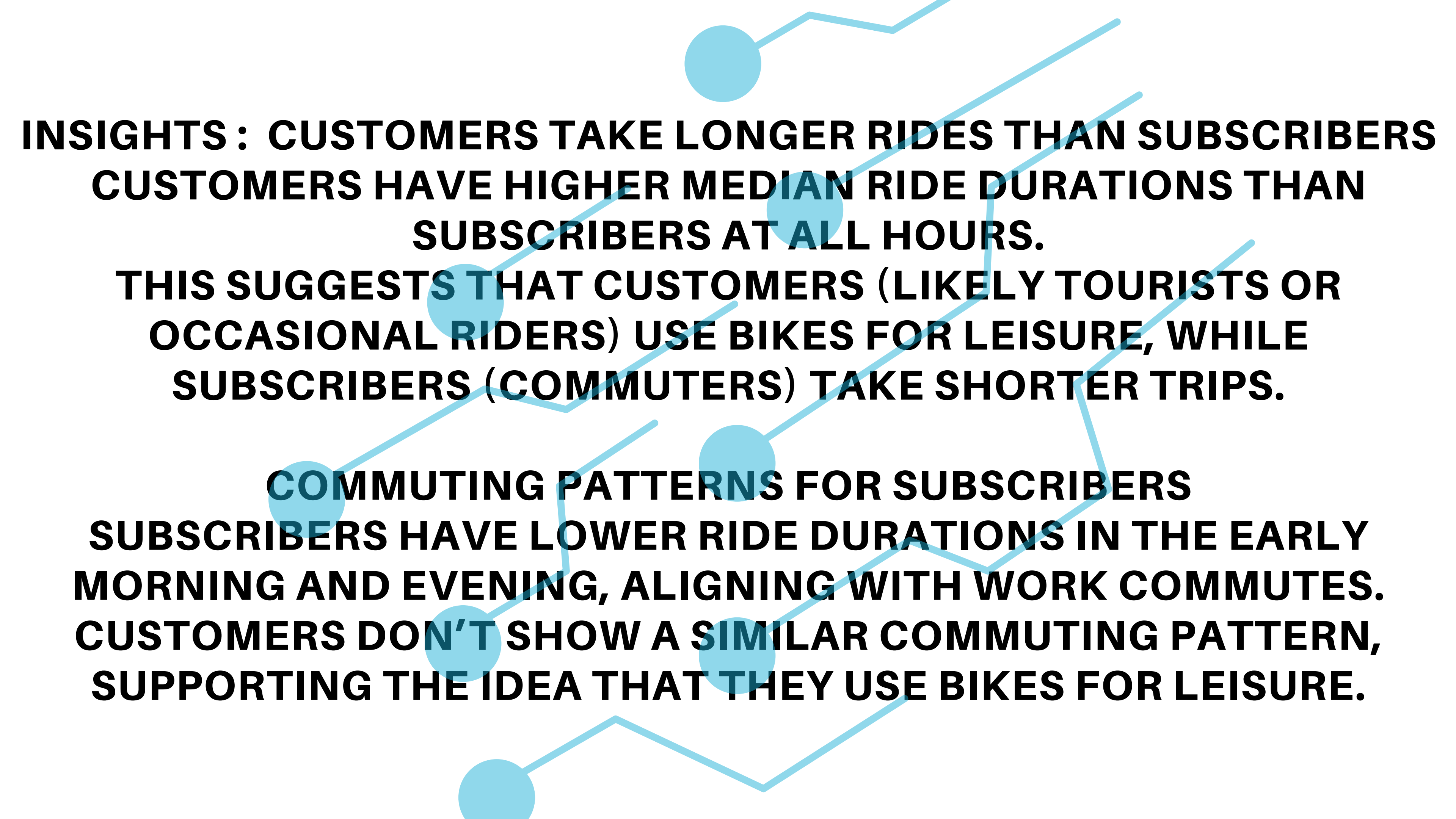
An abstract graphic featuring several light blue lines of varying lengths and directions, some ending in solid light blue circles. The lines and circles are scattered across the white background, with some overlapping the text area.

THE 25-34 AGE GROUP HAS THE HIGHEST RIDE FREQUENCY, WITH MOST RIDES BEING SHORT (~0.1 HOURS OR 6 MINUTES). THE 35-44 AND 18-24 AGE GROUPS ALSO HAVE SIGNIFICANT RIDE ACTIVITY BUT LOWER THAN 25-34. OLDER AGE GROUPS (45+) HAVE SIGNIFICANTLY FEWER RIDES.



Multivariate Analysis

****How the type of the user affects the ride duration?****



**INSIGHTS : CUSTOMERS TAKE LONGER RIDES THAN SUBSCRIBERS
CUSTOMERS HAVE HIGHER MEDIAN RIDE DURATIONS THAN
SUBSCRIBERS AT ALL HOURS.**

**THIS SUGGESTS THAT CUSTOMERS (LIKELY TOURISTS OR
OCCASIONAL RIDERS) USE BIKES FOR LEISURE, WHILE
SUBSCRIBERS (COMMUTERS) TAKE SHORTER TRIPS.**

**COMMUTING PATTERNS FOR SUBSCRIBERS
SUBSCRIBERS HAVE LOWER RIDE DURATIONS IN THE EARLY
MORNING AND EVENING, ALIGNING WITH WORK COMMUTES.
CUSTOMERS DON'T SHOW A SIMILAR COMMUTING PATTERN,
SUPPORTING THE IDEA THAT THEY USE BIKES FOR LEISURE.**

Key Findings & Insights

- Peak usage times and age group trends
 - “Peak hour is 5 PM with 17500+ rentals”).
- Subscriber vs. Customer ride behavior
 - That is clear in the day parts
- Gender-based differences in ride patterns
 - Males ride bikes by 75%!

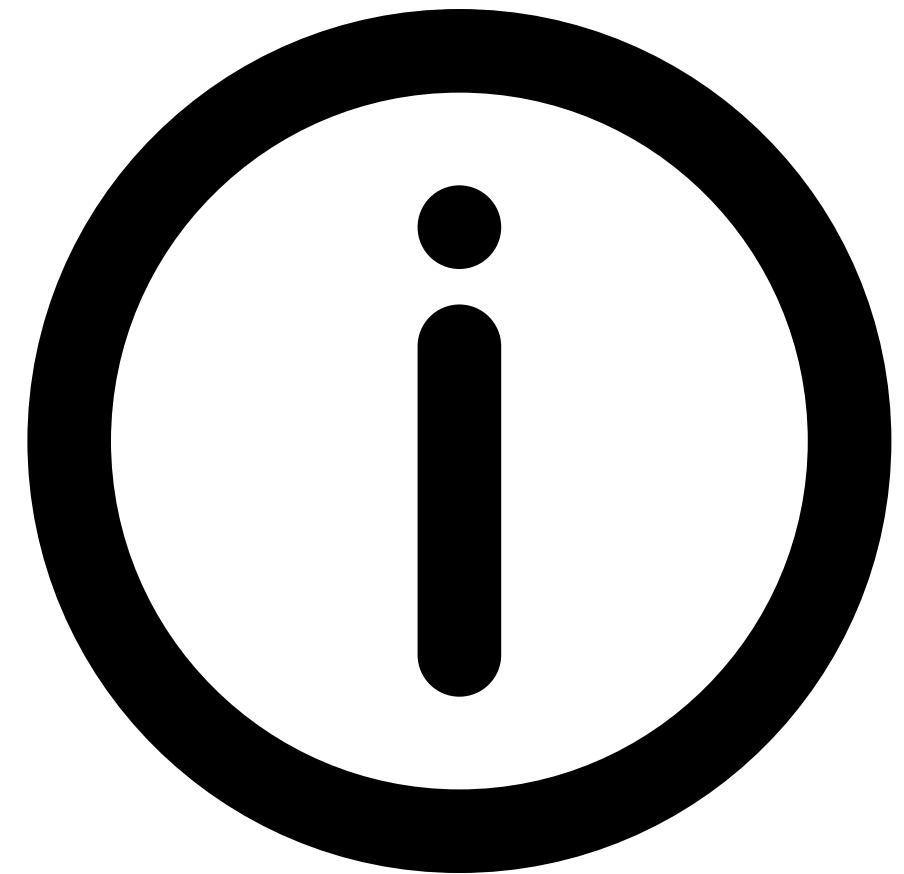
Challenges & Limitations

- **Outliers in ride duration**
- **Data gaps & missing values**



CONCLUSION & RECOMMENDATIONS

- **Key takeaways from the data analysis**
 - **Suggestions for improving service**
 - **(adjusting bike availability in high-demand areas,**
 - **promoting usage during off-peak hours)**



Thank You!



FINISH