Analysing the Impact of the Day and Time on Ride Demand

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As we already got year, season, and distance analysis. Lets drill down more into the day and time to understand the factors influencing ride demand on the Uber platform. The 24-hour day was segmented into six distinct categories to identify the most prevalent timeframes for Uber rides.

This categorization aimed to capture variations in demand and rider preferences throughout different parts of the day and night. My Pie graph is indicating the afternoon time is busiest time of the day.

A pie chart with numbers and a few different colored circles

Description automatically generated with medium confidence

The increased demand for Uber in the afternoon in New York could be attributed to several factors:

**Rush Hour and Commuting**: Afternoons often coincide with the end of the traditional workday, leading to increased demand for transportation as people finish work and head home. This period is commonly associated with rush hour, where many individuals are looking for convenient and efficient ways to commute.  
**Meetings and Appointments**: Afternoons might be a time when people have meetings, appointments, or errands to run. They may use Uber for reliable and on-demand transportation to reach their destinations.

**Shopping and Leisure Activities**: In the afternoon, people might be more likely to engage in shopping or leisure activities. They could be using Uber to travel to shopping centers, entertainment venues, or other recreational spots.

**Airport Transfers**: Afternoons are also a common time for domestic and international flights. Many people use Uber to get to and from airports, leading to increased demand during these hours.

**Weather Conditions:** Weather can influence transportation choices. In the afternoon, especially during inclement weather, people might prefer to use Uber instead of walking or waiting for public transportation.

**Business and Professional Travel**: Afternoons can be a busy time for business-related travel, such as meetings, conferences, or corporate events. Professionals may opt for Uber to travel between locations efficiently.

Further down the line then I Identifying Peak Usage Day sought to determine the most frequently chosen day of the week for Uber rides. This involved analysing the volume of rides on each day to identify patterns and trends in user behaviour.

A graph with different colored bars

Description automatically generated

A comprehensive graphical representation was created to showcase the day of the week along with corresponding time frames. This approach enables a holistic view of ride demand patterns throughout the entire week, highlighting peak usage hours within specific days.

And we got Friday as popular day of the week and Sunday is least popular day.  
Why Friday is Popular …….hmm well there are several reasons. People go for

**Weekend Activities**: Friday marks the end of the workweek for many people. As the weekend begins, there is increased demand for transportation to social events, gatherings, restaurants, bars, and entertainment venues. Uber provides a convenient and flexible option for people heading out to enjoy their Friday evening.

**Nightlife**: Fridays are often associated with nightlife and socializing. Many people go out for dinner, drinks, or to attend events in the evening. Uber becomes a popular choice for safe and reliable transportation to and from these destinations.

**Workplace Events**: Some workplaces may have Friday social events, happy hours, or team-building activities. Employees might use Uber to commute to and from these events.

**Late-Night Travel**: Since Friday nights often extend into the early hours of Saturday, there is a demand for late-night transportation. Uber's availability 24/7 makes it a convenient choice for those who need a ride during the night.

**Airport Runs**: Fridays can see increased airport traffic as people travel for weekend getaways or business trips. Uber is commonly used for transportation to and from airports.

**Flexibility and Convenience**: Uber's on-demand model provides flexibility, allowing users to request rides whenever they need them. This flexibility is particularly appealing on Fridays when people might have varying schedules and plans.

**No Need to Drive**: Some people prefer not to drive on Friday nights, especially if they plan to consume alcohol. Uber provides a safe and reliable alternative to driving.

**Special Events and Celebrations**: Fridays may host special events, celebrations, or concerts, contributing to increased demand for transportation services.  
as you see the data, afternoon is predominantly busy compare to any other time on Friday and Sunday.

A screenshot of a computer screen

Description automatically generated

A screenshot of a white table with numbers and red and blue text

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P-Test for Busiest and Least Busy Days:

My hypothesis Friday is the most popular day of the week and Sunday is the least popular, even though the average fare on Sundays is higher than on Fridays, let's break down the findings:

A statistical P-test was performed to test hypotheses related to the busiest and least busy days concerning fare rates. This analysis aimed to determine whether there were significant differences in fares between the most and least busy days, providing valuable insights into potential pricing strategies and user preferences.

By employing these analytical methods, the study provides a nuanced understanding of the temporal dynamics affecting Uber ride demand. The combination of time-based categorization, graphical representation, and statistical testing enhances the depth of insights into user behaviour patterns and preferences.

Most Popular Day:

hypothesis suggests that Friday is the most popular day. To support this claim, we could consider factors other than average fare, such as the number of rides. Check the "No\_of\_rides" column for both Friday and Sunday to see if the number of rides aligns with hypothesis.

T-Statistic: 2.1144

P-Value: 0.0739

Degrees of Freedom (df): 6.7264

Here's how we can interpret these results:

T-Statistic: The t-statistic of 2.1144 indicates the number of standard deviations that the sample mean of Sunday's average fares is away from the sample mean of Friday's average fares.

P-Value: The p-value of 0.0739 is the probability of observing a t-statistic as extreme as the one calculated, assuming there is no difference between Sunday and Friday average fares.

Degrees of Freedom: The degrees of freedom represent the number of values in the final calculation of a statistic that are free to vary. In this case, it's 6.7264.

Interpretation:

The p-value (0.0739) is greater than the commonly chosen significance level of 0.05.

Based on the conventional significance level, you would fail to reject the null hypothesis.

There is not enough evidence to conclude that there is a significant difference in average fares between Sunday and Friday.

It's important to note that while the p-value is greater than 0.05, the decision to reject or fail to reject the null hypothesis also depends on the chosen significance level and the context of your study. A p-value close to 0.05 suggests that you might want to consider the results carefully and potentially gather more data for a more robust analysis