

Insights from EDA

Respective columns and inferences from each

- **Year:**

The count of bikeshare rides in 2012 are higher than in 2011.

- **Casual/Registered:**

The number of registered users outnumber casual users.

- **Season:**

Bikeshare rides peak in summer, are moderate in spring and fall, and drop significantly in winter.

- **days of the week:**

weekdays have higher bikeshare ride counts compared to weekends.

The data for days distribution is almost equal with variance of +/- 1%.

- **Holidays:**

bikeshare usage significantly drops on holidays compared to regular days.

holidays have a notable impact on reducing the demand for bikeshare services.

- **Weekends vs Weekdays**

the count of casual users renting bikes increase on weekends as compared to weekdays.

the count of registered users renting bikes is high on weekdays as compared to weekend.

this says we have more serious-office going users.

- **Hours of the day :**

registered users showing a more concentrated peak during commuting hours (8-9 am and 5-6 pm)

casual users having a broader peak during leisure hours.

majority of bikeshare rides occur between the hours of 6 AM to 6 PM

- **Temperature:**

Bike rentals peak in moderate temperatures (24.928°C to 32.964°C), indicating a preference for warm yet comfortable weather. Extreme temperatures see fewer rentals.

- **Apparent Temperature (Atemp):**

Similar to actual temperature, rentals are highest when the perceived temperature is warm but comfortable (30.0°C to 40.0°C), with fewer rentals in extreme conditions.

- **Humidity:**

Rentals peak at moderate humidity levels (40.0% to 80.0%), suggesting comfort is key.

Very dry or humid conditions see fewer rentals.

- **Windspeed:**

Rentals are highest at low windspeeds, indicating a preference for calm conditions.

High winds reduce rentals, possibly due to discomfort or difficulty biking.

- **Weather:**

People are more likely to use bikeshare services during clear or slightly cloudy weather.

extreme weather conditions have an extremely low number of rides.

Nature of users in bikeshare services varies based on several factors

Usage Patterns: The data indicates that registered users primarily use the service for work commute during weekdays, while casual users use it more for leisure and non-commute purposes. This suggests different user personas and motivations behind bike rentals.

Weekday vs. Weekend Usage: Weekdays see higher usage from registered users, likely due to work commute, while weekends see a higher proportion of casual users, indicating more leisurely or recreational usage.

Holiday Impact: Holidays significantly reduce the demand for bikeshare services, suggesting that users prefer alternative modes of transportation or activities during holidays.

Time-of-Day Patterns: Registered users show a peak in usage during typical commuting hours (8-9 am and 5-6 pm), aligning with work schedules. In contrast, casual users show a broader peak during midday and early afternoon, indicating more flexible usage patterns.

Seasonal Trends: Bike rentals peak in summer and are moderate in spring and fall, suggesting that users prefer biking in warmer and comfortable weather conditions.

Weather Sensitivity: Users are more likely to use bikeshare services during clear or slightly cloudy weather, with extreme weather conditions leading to a significantly lower number of rides.

Actionable Insights for Enhancing Bikeshare Services

Marketing Strategies: Focus marketing efforts on promoting bikeshare services during the peak season of summer, and moderate seasons of spring and fall. Offer promotions or incentives to encourage usage during these times.

Service Optimization: Increase the availability of bikes and customer support during weekdays, especially during commuting hours. Ensure bikes are well-maintained and comfortable, as comfort is a key factor in user preferences.

Holiday Planning: Plan for reduced demand on holidays by adjusting bike availability and staffing accordingly. Consider offering special holiday promotions to attract riders during these times.

User Segmentation: Recognize the different needs of casual and registered users. Target registered users with convenience and reliability benefits, while offering casual users flexibility and leisure-oriented services.

Weather Adaptation: Monitor weather conditions and adjust operations accordingly. Provide incentives for riding during clear or slightly cloudy weather, and consider offering discounts or alternatives during extreme conditions.

Temperature Consideration: Ensure bikes are available and well-maintained during moderate temperatures, as this is when rentals peak. Provide alternatives or incentives for extreme temperature conditions to maintain customer satisfaction.

Humidity and Windspeed: Consider the impact of humidity and windspeed on bike usage. Offer alternative modes of transportation or indoor activities during extreme conditions to mitigate reduced bike rentals.