**Report: New York Citi Bike Program Analysis**

**Introduction**

The New York Citi Bike program has implemented a robust infrastructure for collecting data on the program's utilization since 2013. This report summarizes the analysis conducted on the Citi Bike Trip History Logs data from 2016 to 2019. The objective is to provide insights that can help city officials publicize and improve the program.

**Analysis and Findings**

**Gender Distribution and Outreach**

* **Male Riders** dominate the usage at 72%, primarily aged 25-40.
* **Female Riders** account for 21%, with a notable increase in ridership over the analyzed period.
* **Unknown Category**: 7%, indicating potential data issues.

**Total Trips and Growth**

* **Total Trips**: 1 million rides recorded.
* **Growth Trends**: Significant increase in 2017, a peak in summer, and a drop in 2019.
* **Monthly Changes**: February 2017 saw the largest monthly increase.

**Customer vs. Subscriber Trends**

* **Annual Subscribers**: Predominantly long-term riders.
* **Short-Term Customers**: Peak during summer and fall, higher percentage in 2019.
* **Age Group**: 25-40 has the highest number of annual subscribers.

**Usage Patterns**

* **Weekday Peak Hours**: 7 AM - 9 AM and 5 PM - 7 PM.
* **Weekend Peak Hours**: 11 AM - 3 PM.
* **Weekday Usage**: 78%.
* **Weekend Usage**: 22%.

**Seasonal Trends**

* **Summer and Fall**: Highest usage.
* **Winter and Spring**: Lower usage.

**Trip Duration**

* **Average Trip Duration**: Most trips under 30 minutes.
* **Median Duration**: Similar on weekdays and weekends.
* **Age Group Trends**: Teenagers had the highest average trip duration in 2017 and 2018, while older riders (60-70) had longer durations in 2016 and 2019.

**Popular Stations**

* **Starting Points**: Grove St PATH, Hamilton Park.
* **Ending Points**: Grove St PATH, Exchange Place.

**Least Popular Stations**

* **Starting Points**: MLK Light Rail, Bayside Park.
* **Ending Points**: Columbia Park, West Side Light Rail.

**Bike Maintenance Needs**

* **Longest Distance**: Bikes like ID 26222 may have locking issues.
* **Longest Duration**: Bikes like ID 24519 may have mileage efficiency problems.
* **High Usage**: Bikes with many trips are more likely to need service or repair.

**Average Distance by Age**

* **Age Groups**: 20s and 60s travel the most average distance (~14 miles).

**Data Anomalies**

* **Zero Duration**: Trips with zero duration but non-zero distance due to incorrect end station data ("Don't Use" stations).

**Conclusion**

This analysis provides comprehensive insights into the New York Citi Bike program, highlighting key trends and areas for improvement. The findings can help city officials enhance the program's effectiveness, user experience, and overall growth.