Task 2.2

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**Citi bike trips 2022**

Data Sourcing Criteria

* Download an open-source data set from Citi Bike for the year 2022;
* Gather weather data for the year 2022 using NOAA’s API.

Objective:

Diagnose distribution issues in New Yorks Citi bike System and recommend expansion strategies based on usage patterns, station imbalances, and weather impact.

To guide my dashboard design and analysis, I’ve selected five core questions that address Citi Bike’s operational challenges and expansion opportunities. Each question is paired with a visualization strategy to ensure insights are clear and actionable for stakeholders

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| Question | Purpose | Visualization |
| 1. What are the most popular starting stations | Identify high demand areas that may run out of bikes | Bar chart showing top 20 stations by trip count. |
| 1. Are there seasonal patterns in bike usage? | Understand how demand shifts across months | Line chart showing monthly trip volume. |
| 1. Where are the biggest distribution issues (empty/full stations)? | Detect stations that consistently run out of bikes or docking space | Interactive Map color coded by shortage risk |
| 1. How does weather affect bike usage | Revealing external factors influencing demand | Line chart with the average monthly temperature |
| 1. Where should Citi Bike consider expanding | Recommend strategic station placement | Map overlay combining demand hotspots, imbalance zones, and underserved areas. |