Ex 2.2 – Project Planning and Sourcing Data with an API

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Part 1: Make a plan for your dashboard

1. *Create a list of the elements you'd like to have on it—it's OK if you want to use the proposed structure in the Exercise, but if you feel strongly about a different format/plot, feel free to approach the research question in your own way.*

- Summary of Key Performance Indicators such as total trips, active stations, peak usage month.
- Bar chart showing top 10-20 busiest start stations.
- Line graph of usage against time showing monthly trip numbers.
- Line graph showing density of trips throughout the day.
- Two lines on a graph showing weekday and weekend use.
- Bar chart of net departures per station, colour-coded map showing station imbalance.
- Map showing station locations as as well as trip density on routes.
- Filters for year, season, user type etc.

2. *Write down some questions to guide your analysis in a new word-processing document and explain how you intend to visualize the result to answer each of your questions.*

1.
Question: What stations in the city are the most popular?
Visualization: Bar graph of busiest stations
Why it matters: Shows where the greatest demand for the service occurs.

2.
Question: In which months are most trips taken? Is weather a factor in this?
Visualization: Line graph of monthly usage
Why it matters: Important for planning how many bikes to make available throughout the year.

3.
Question: How how demand vary throughout the day? At what hours of the day is the CitiBike usage highest?
Visualization: Line chart showing trips by hour of day.
Why it matters: Helps identify if shortages are a result of commuters.

4.
Question: How does weekend usage compare to that during the week?
Visualization: Two lines on a graph showing average use throughout the day for a weekday and for a weekend day.
Why it matters: Distinguishes between commuter demand and leisure demand.

5.
Question: Which stations are most imbalanced in terms of number of arrivals vs departures?
Visualization: Bar chart of net departures per station, colour-coded map showing station imbalance.
Why it matters: Identifies stations likely to run out of bikes or run out of spaces.

6**.**
Question: What are the most popular routes?
Visualization: Map showing most common bike trips with aggregation to distinguish one-time trips from recurring ones.
Why it matters: Identifies how CitiBike is most commonly used.

7.
Question: Are the stations evenly distributed?
Visualization: Map showing location of the stations.
Why it matters: May assist in decisions regarding new station locations.