New York bike usage visualization

Group 6

Team

Member	Role
Angelica	Webpage + Visualization
Connie	Data + Webpage
Hanh	Visualization + Data
Michael	Data Processing

Tools

- Python for processing, cleaning and deriving data
    - Longitude, latitude, neighborhood density, size and area, etc.
- HTML and CSS
    - Project website displaying the visualization
- VegaLite
    - To visually represent our data
- Github
    - Collaborative platform and storage

Analysis

| What: Data	Multidimensional tables
What: Derived	# of stations, area of the neighborhoods, density of the neighborhoods, # of events at station and the neighborhood of each station
Why: Tasks	Explore distribution, trends within items
How: Encode	Map, Bar/Stacked bar charts
How: Reduce	Dynamic filtering
How: Manipulate	Select items (point/interval)
How: Navigating	Make the points representing stations of higher interest darker color. Represent higher station density in darker color and chosen station size bigger.
How: Facet	Neighborhood overview -> neighborhood detail view Neighborhood detail view: multiform with shared spatial positions.
Scale	NYC boroughs & neighborhoods map projection. Timeline: time in a day(24 hrs/1440 minutes), days in a month(30-31).

Visualization first attempt

Having all stations on the map

- Can be visually overwhelming
- Hard for to navigate

Citibike Stations Map
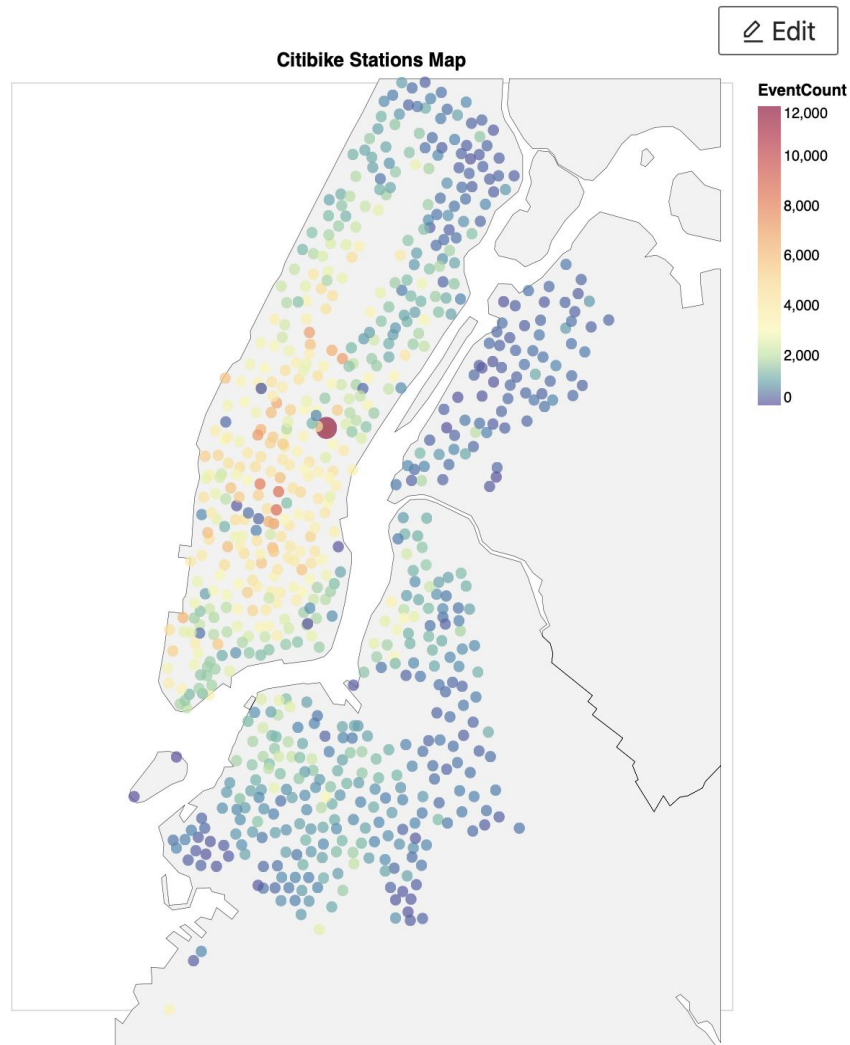
Visualization demo video
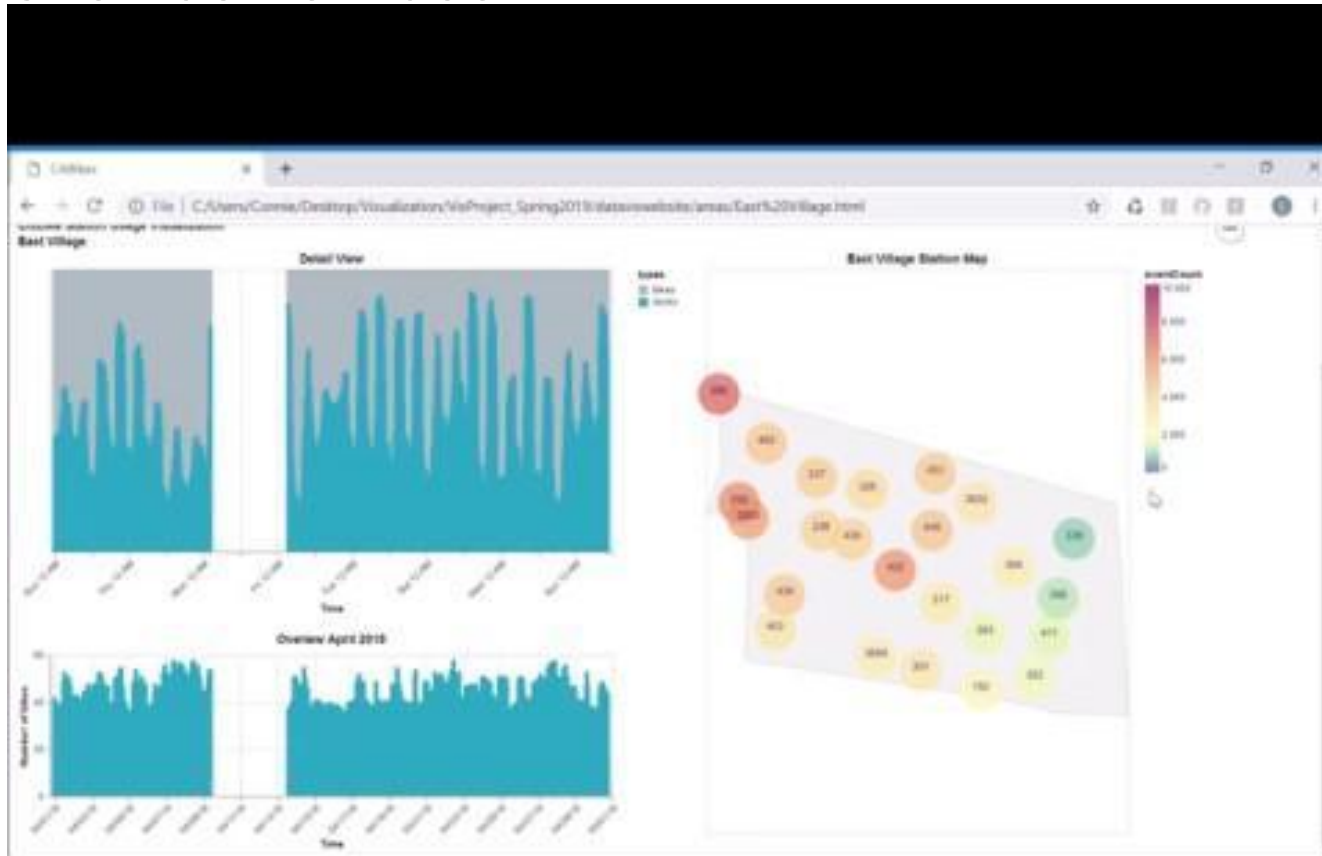
Our Contributions

- Identify the inactive stations and overactive stations

    - To help identify actions to take: close station or expand it to have more docks/bikes/stations in that neighborhood

- Examine trends of the availability of docks and bikes at each station

    - Combining with other current tools to optimize the bike balancing problem.

THANK YOU!