Zisu Xia, Jenna Cheng, Boyan Sun

Project Book

Congestion Relief Zone (CRZ) Analysis

Meeting Notes

March 1 - First Meeting

- Get to know each other
- Dataset options:
  - ☐ Dog Food Packaging (too small)
  - ☑ **London Congestion Charge dataset (2003)**
  - ☐ NYC Congestion Charge dataset (2025) (implemented for too little time)
  - ☐ Walkability and Mental Health in NYC (not particularly interested in)
  - ☐ Hotels in NYC (hard to visualize)

March 5 - First Proposal

- Visualizations planned:
  - Vehicle Entry Analysis (total CRZ entries vs. Excluded Roadway entries).
  - Hourly Traffic Patterns (time-series analysis).
  - Vehicle Category Distribution (different vehicle types entering CRZ).
- Visualization types:
  - Maps
  - Time-series
  - bar charts
  - Box charts

☑ Proposal submitted

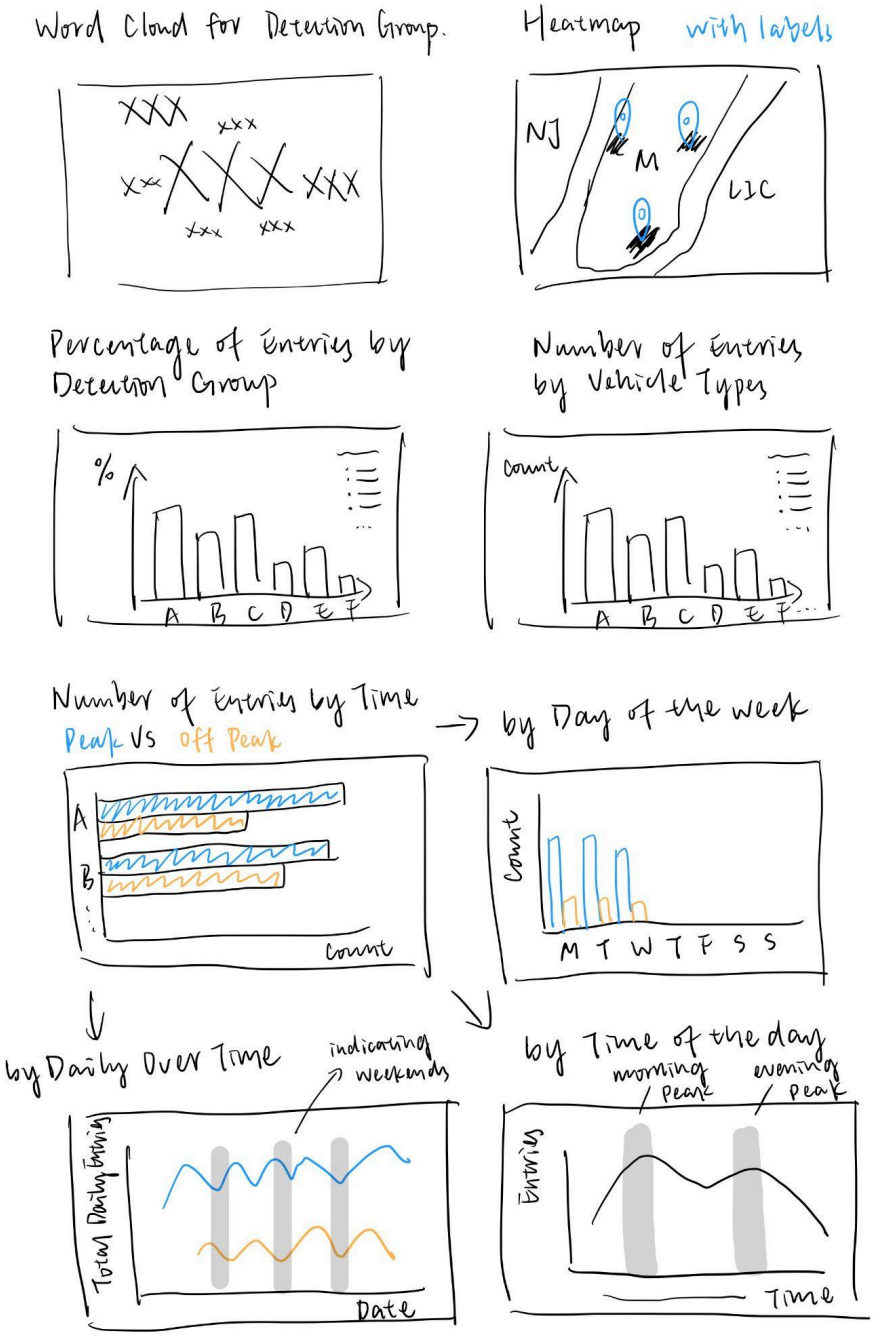
March 14 - Topic Shift and New Visualization Plans

- **Switched to Manhattan congestion fee**: for its more recent data and workable volume
- Visualizations Plan:
  - ~~Time-series~~
  - Entry Point Analysis
  - Vehicle categories and their distribution across entry points
  - CRZ vs Excluded Roadways traffic comparisons.
  - ~~Dashboards of everything~~
  - Maps (Heatmap, Geographic Map, ~~Bubble Map~~)

☑ New proposal submitted

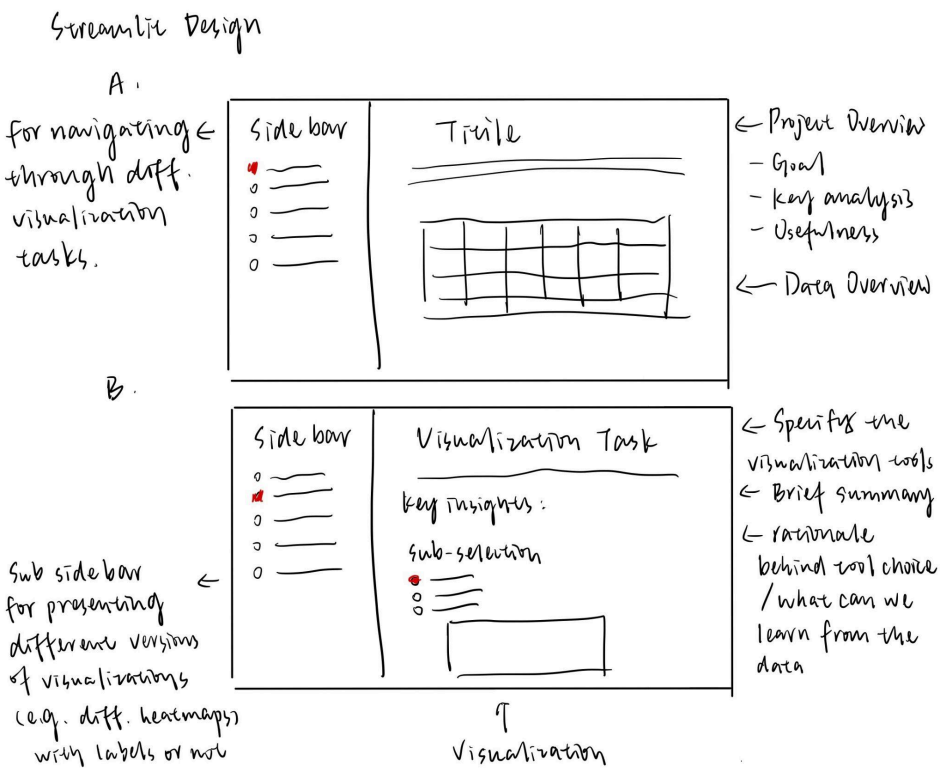
April 10 - Collaboration on Code

- Work divided:
    - Zisu: Vehicle Class Analysis (examining traffic by vehicle types), temporal Traffic Analysis (traffic patterns during peak and off-peak times).
    - Jenna: Entry Location Analysis (identifying entry points and their traffic).
    - Boyan: Word Cloud, Streamlit Website Design ~~try to do a dashboard~~



April 17 - Code Integration & Website Sketches

- Integrated separate code, final code
- Final Testing: *uniform format, color, style*



April 24 - Website Development

- Streamlit
- Features added:
  - ☑ Time-based traffic insights.
  - ☑ Vehicle category comparisons (impact of different vehicles on congestion).
  - ☐ Map with entry arrows.
  - ☑ CRZ vs Excluded Roadways traffic comparisons.
  - ☐ Dashboard.
- Website decoration

April 27 - Finalizing Project Notes and Website

Final Thoughts:

The project has been an insightful journey for us!! NYC congestion pricing serves as a real-world case study for analyzing traffic flow and its relationship with pricing policies. Through the process of data exploration, visualization development, and dashboard deployment, we were able to provide meaningful insights into urban traffic management.

Next Steps:

- ☑ Submit website
- ☐ Submit Project Book
- ☐ Presentation
- ☐ Further analysis: Predictive modeling to forecast the impact of congestion pricing in the long run?