

CS 5630/6630 Project Proposal

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1 Basic Info

1.1 Project Info

Project Title: TubeVis

Github Repository: <https://github.com/GuitarPro6/dataviscourse-pr-TubeVis>

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2 Background and Motivation

This is something that hasn't really been done (and should be done), yet also achievable within the scope of this course. There weren't any research interests or backgrounds that led to us choosing these data sets.

3 Project Objectives

We wanted to answer these questions:

- What are the changes over time for London's underground tube stations (usage, demographic, fares, etc)?

- What does the demographic that use these stations look like?
- Where do people come from and go that use these stations?

We will gain a better understanding of London's public transportation system and improve our coding skills at the same time through the making of this project.

4 Data

The data sets we are using comes from <https://data.london.gov.uk> and <https://api-portal.tfl.gov.uk>. They include the entries and exits of London underground stations, surveys that showcase some background information about the users of those stations, and more statistics about London's underground transportation system over the past decade.

5 Data Processing

The data sets we will be using are already well organized. We just have to break up spreadsheets into parsable data for Javascript and D3. We will be external libraries for this process. The proposed libraries are from Github user [Sheet JS](#).

6 Visualization Design

See Appendix

7 Must-have Features

- See whole map, a certain tube, and specific stations, along with corresponding data
- Stretch a irregularly shaped tube into a straight line when clicked on
- Compare two difference stations/lines
- Filter whole map to show aggregate statistics with a selector
- Show entering and exiting data per line and per station
- Sliders showcasing data for a station based on time of day
- Interactive objects if appropriate

8 Optional Features

- Networking graph with clickable objects (see sketches)
- Time lapse based on what time of day it is for the whole line
- Chord design for common routes taken by London citizens

9 Project Schedule

Time	Goal
October	
Week 3	Rendering a map
Week 4	Plugging in data to the map and building utilities
November	
Week 1	Focus on individual tubes/lines
Week 2	Focus on stations, visualize demographic/station information
Week 3	Additional features not yet completed
Week 4	Optional features if time permits
December	
Week 1	
Week 2	

Appendix

IDEAS (Brainstorming)

Station Entry/Exit Dataset

- Show Sum of Entries, Exits, Bar chart, Line, Scatterplot
- Line totals on main screen (Color Coated)
- Total Average distance by line

(Summary Statistics)

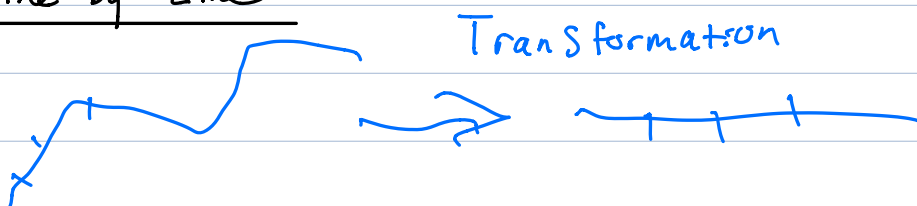
- Number of Borders By line (Segment by time)
- Color Scale the tube map



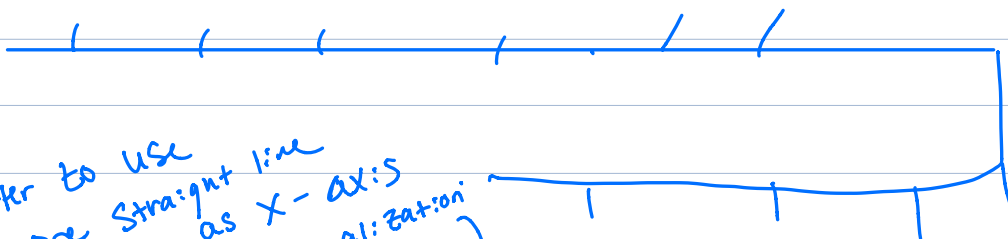
Color Scale based
on average distance
traveled.

- Don't use different colors.
- Make smaller values more transparent.

Line-by-Line

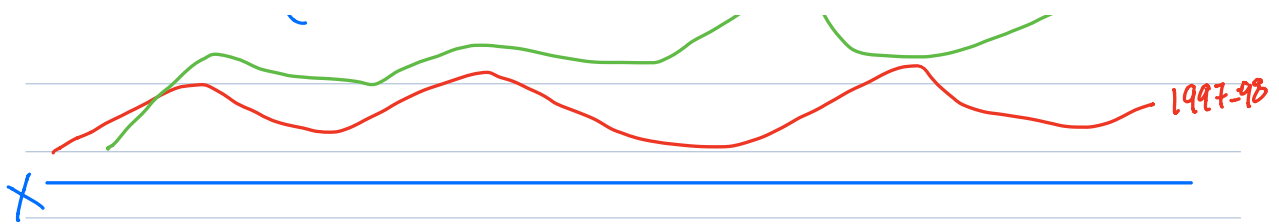


Initial Design 1

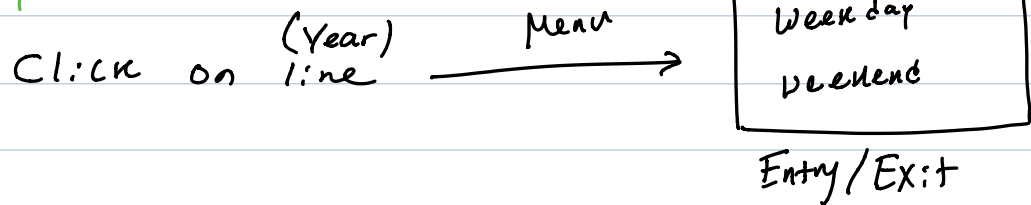


Better to use
one straight line
to use as X-axis
(more visualization
possible)

99-2000

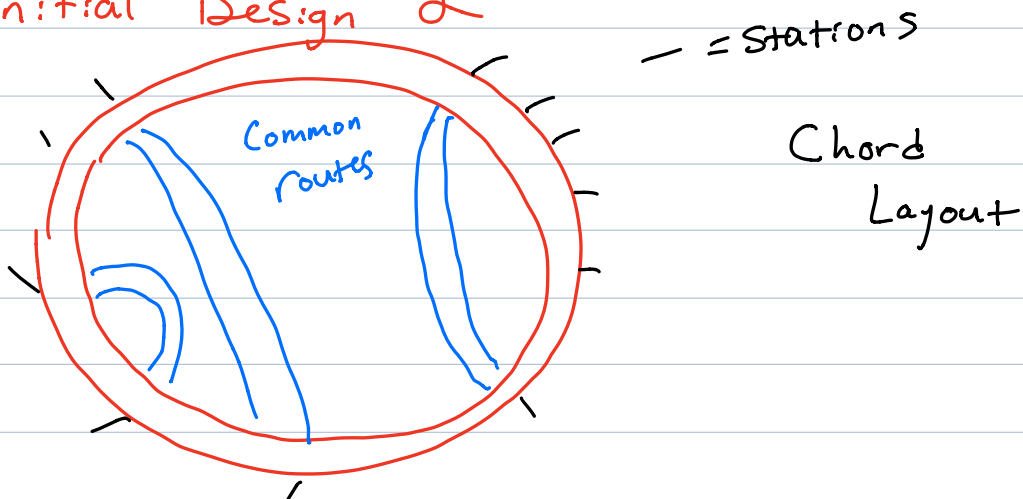


Showing the time component



Time Component Shown in Station View

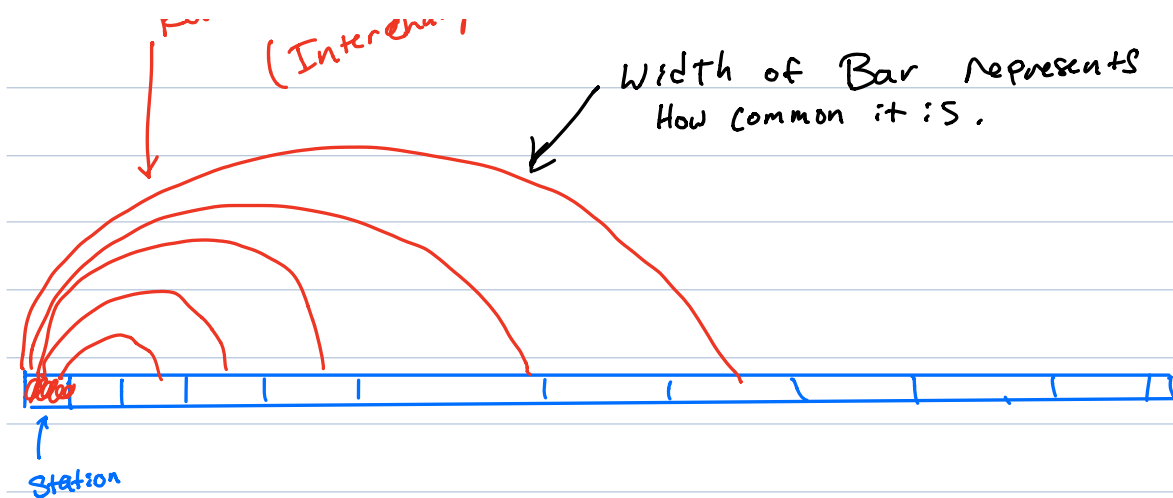
Initial Design 2



Initial Design 3

Routes that are common
(ranges)

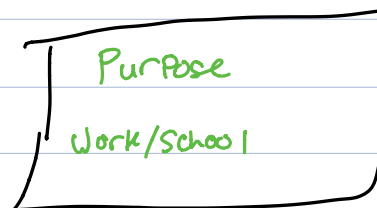
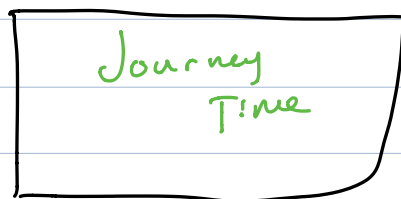
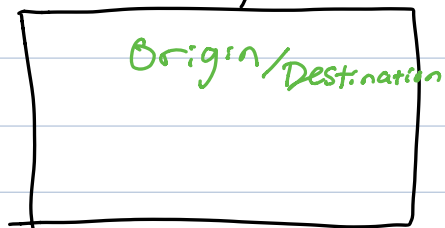
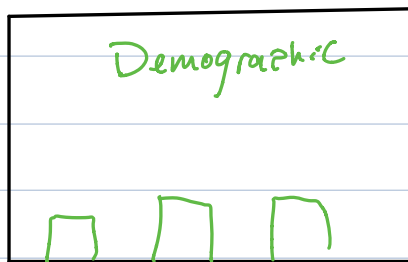
Compare weekends/weekdays



Station View

Station Name

Charts from Survey



Ticket Type

Option to compare to another Station by combining graphs or by comparing Side by Side

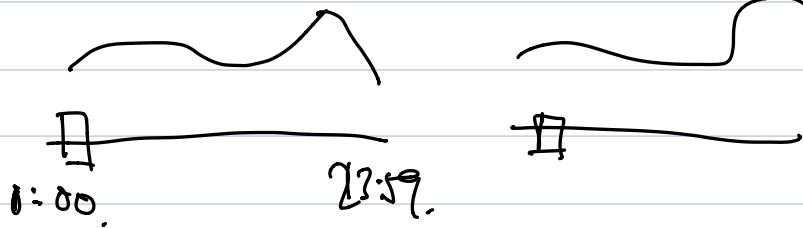
- Incorporating time data set into a visualization on Aggregate Map

- Slider for time. per station

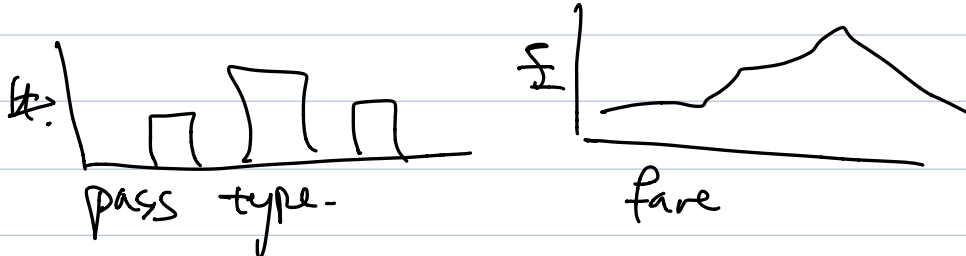
Entry

Fare

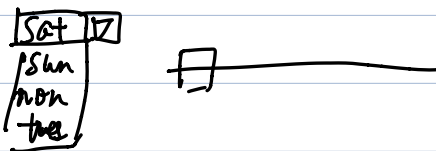
or combine these 2.



- Show type of Pass or £ fare for the rider
bar / line / scatter



maybe separate data into day of the week.
for each slider.

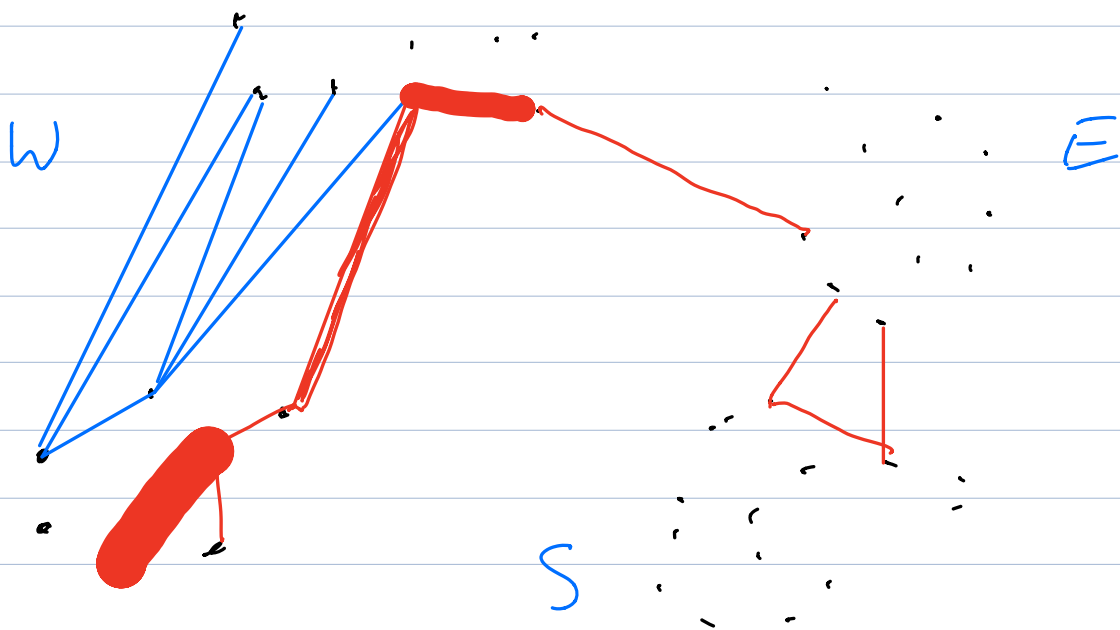


Stretch Goals

Network Graph

- Dataset that shows Destinations
Link origins / Destinations
- Origins and destinations are Nodes
- Link With Edges

N



Groups of stations
near each other

- Shows groups of popular routes

- Click on Line Directly compares two stations