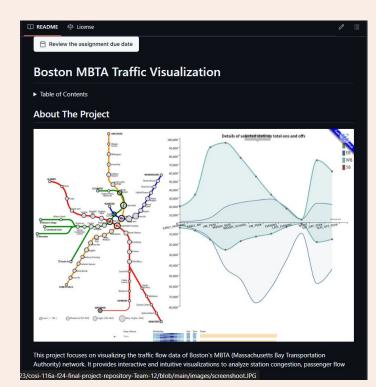
### Project Team # 12:

Navigating Boston-interactive MBTA ridership/flow by

time

Team member: Han Wu, Quinn Zhong, Qiping Zhang, Ziming Zeng

COSI 116A --- Prof. Dylan Cashman, Brandeis University



#### Project Motivation and Objectives

#### Motivation:

Address MBTA ridership, congestion, and improvement opportunities.

#### Objectives:

- Provides insights into Boston's public transportation.
- Analyzing flow differences by time and route.
- Identify ridership patterns.
- Supporting informed transportation planning decisions.

#### **Technologies Used**

- D3.js for interactive visualizations
- HTML/CSS for webpage structure and styling
- JavaScript modules for specific visualizations

#### About Features...



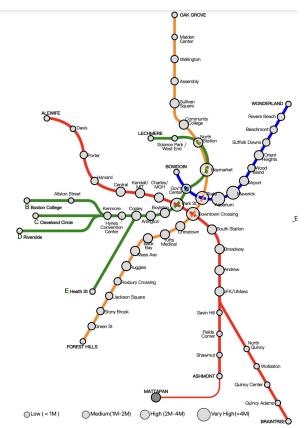
- 1 Interactive MBTA Map with station-linked chart
- Line Chart for passenger flow trends over time
- **3** Bar Chart for detailed flow statistics
- 4 Tree Map categorizing stations by traffics
- Tooltip for enhanced interactivity

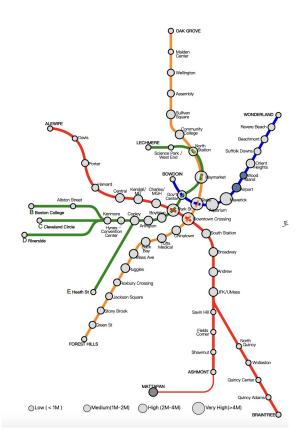
### Visualizations: Treemap

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Government Center: High				4			$\perp$			$\bot$						丄	ᆛ		Щ	4		Aver	rage	
Stony Brook: High	Wood Island: High		Ruggles: High	Broad High				narles/MG gh	Dotavis: High	Field: Corn High		Harvard: High	Copley: High	Tappan Street: Average		Circle: Hi		estnut I: erage	Chest Hill Avenu Avera	ue:	Chiswick Road: Average	Coolidg Corner: Average	er:	Dean Road: Averag
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Tufts Medical	Malden Center: High			Quincy		Boston University			<u> </u>					Street: Average		Averag		Mus		7	_	_	$\perp$	
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ligh	Avenue: High					University East:		Center: High			High	h	High	Brandon		Gilman		New			Saint			
Maverick: High	North Station:	North Station:		awmut: Boyls		ston:		Kenmore High	:				Harvard Avenue: High	Hall: Average		Square: Average			Average		Paul Street: Average			
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Assembly: High	Roxbury Crossing: High	Crossing:		South Symphony: Station: High		ohony:		Longwood: High		Mary's Street: High		ark/West nd: ligh		Low	Low		Low	Lo		Lov				Low

- categorizing stations into High, Average, and Low traffic groups
- hierarchical structure to group stations with similar ridership patterns

### Visualizations: Mbta Map





- 1. Circles
- 2. Size
- 3. Drag to select

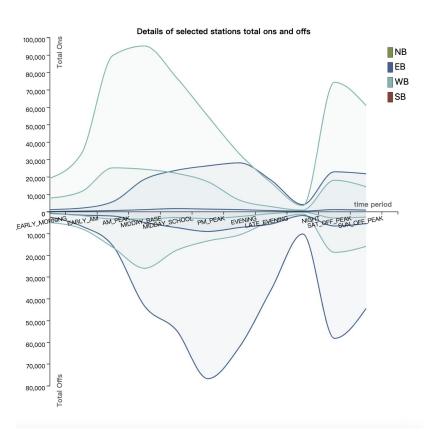
### Visualizations: Bar/table Chart



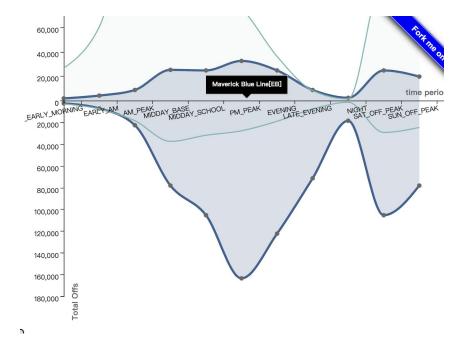
Hynes Convention Center

Wood Island

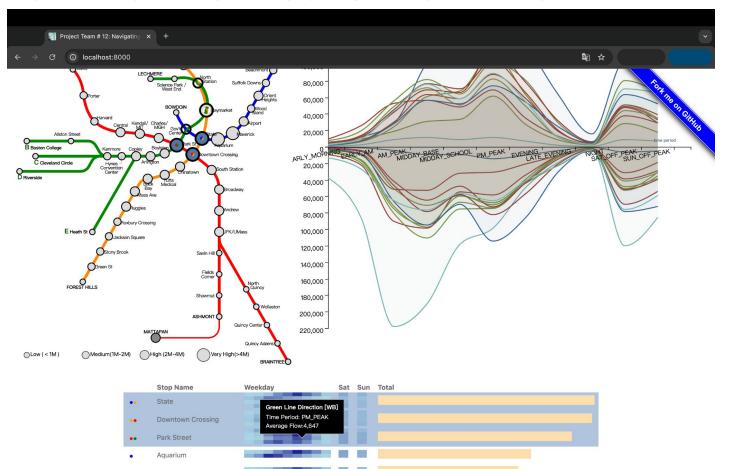
#### Visualizations: Line chart



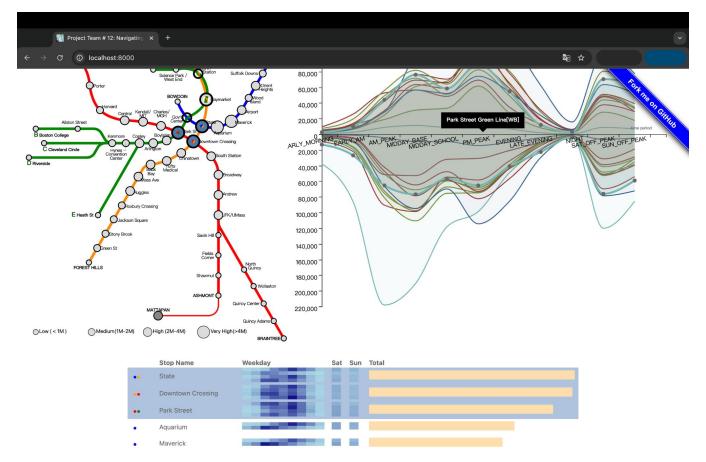
Lines, colors
 axis



### Visualizations: overview



#### Visualizations: overview



## Usage

- Interactive Map
- Tootips
- Trend Analysis
- Pattern Recognition

## GITHUB

COSI116A-Brandeis-Info
Vis-Fall23/cosi-116a-f24-fi
nal-project-repository-Tea
m-12:
cosi116a-brandeis-infovis-

cosi116a-brandeis-infovis-fall24-1-cosi-116a-f24-fina
l-project-repository-Final-Project-Template created
by GitHub Classroom

#### **Future Enhancements**

- Enhanced Interactivity
- Dynamic Filtering
- Real-time traffic data integration
- Predictive Analytics
- Mobile Optimization



#### **DATA**

#### Sources:

- •- MBTA Rapid Transit SVG Map
- •- MBTA Ridership Data

#### Preprocessing:

- Total flow calculation
- Data filtering and grouping by station and time

# Thank You!