



# TEAM 7: Bicycles

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# AGENDA



- 1. Motivation**
- 2. Data Collection & Preprocessing**
- 3. Visualizations**
- 4. Demo Video**
- 5. Design Process**
- 6. Summary of Results**

A large blue geometric shape, consisting of a triangle and a parallelogram, occupies the right side of the slide. The triangle is on the right, and the parallelogram is on the left, sharing a diagonal boundary.

1.

MOTIVATION

# Motivation



## ► Initial Observations

- ▷ *Low numbers* of cyclists in the area. If there were, they were, more often than not, BLUE**bikes** users
- ▷ There are **4 relevant stations** around the Chester Square area

# Research Focus

Explore the possibility of establishing a new BlueBike station ***to better accommodate Chester Square residents and their biking transportation needs***, with an end goal of promoting bike usage as a whole

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# 2.

## DATA COLLECTION & PREPROCESSING

# Data Collection & Preprocessing

ALL DATA WAS COLLECTED FROM THE **BLUEBIKES SYSTEM DATA** AVAILABLE TO THE PUBLIC

- ▶ Data Cleaning (Demographics in Boston) using R and Excel
  - ▷ October 2018 - September 2019
  - ▷ Removed all irrelevant columns
  - ▷ Calculated age of each user based on their recorded birth year
  - ▷ Combined 12 datasets
  - ▷ Aggregated and grouped all data based on gender and membership type

# Data Collection & Preprocessing

ALL DATA WAS COLLECTED FROM THE **BLUEBIKES SYSTEM DATA** AVAILABLE TO THE PUBLIC

- ▶ Data Cleaning (Hourly Usage in Chester Square) using R and Excel
  - ▷ October 2018 - September 2019
  - ▷ Chester Square BlueBikes stations
    - ▷ Tremont St at Northampton St
    - ▷ Columbus Ave at Mass Ave
    - ▷ Washington St at Rutland St
    - ▷ South End Library
  - ▷ Derived start and end hour of each trip
  - ▷ Member, non-member, and total user count
  - ▷ Calculated hourly percentage of daily trips in Chester Square vs Boston

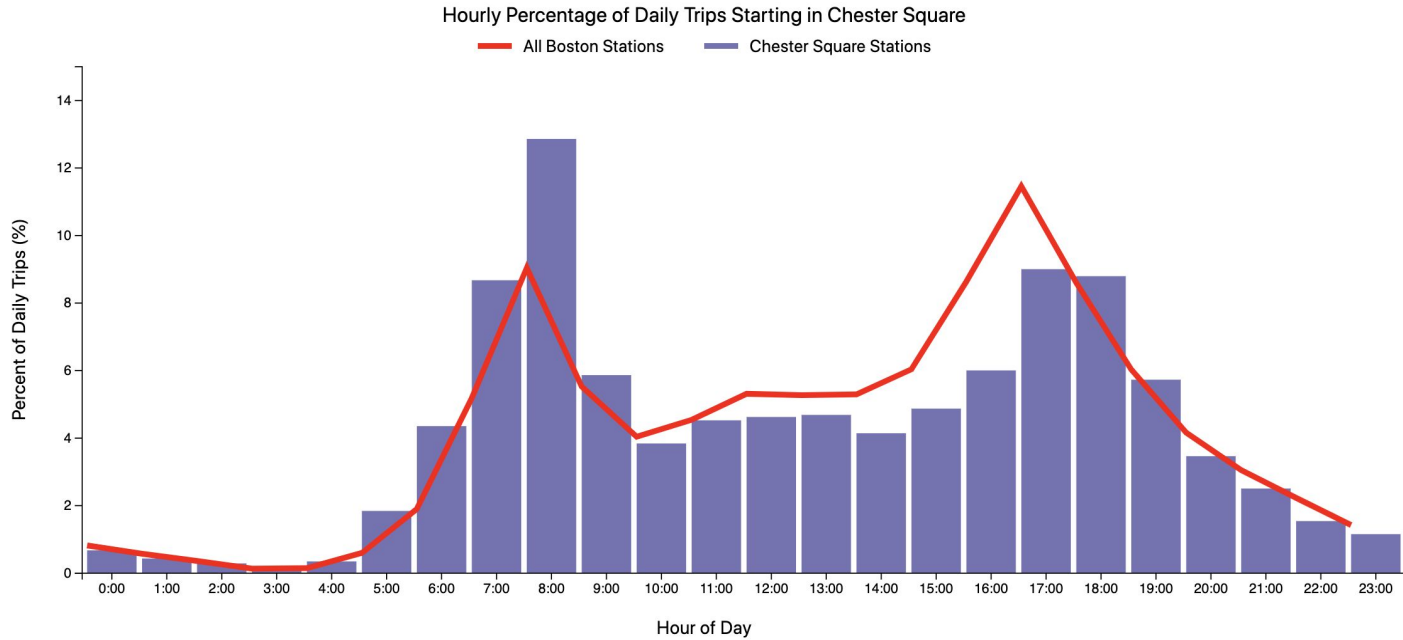


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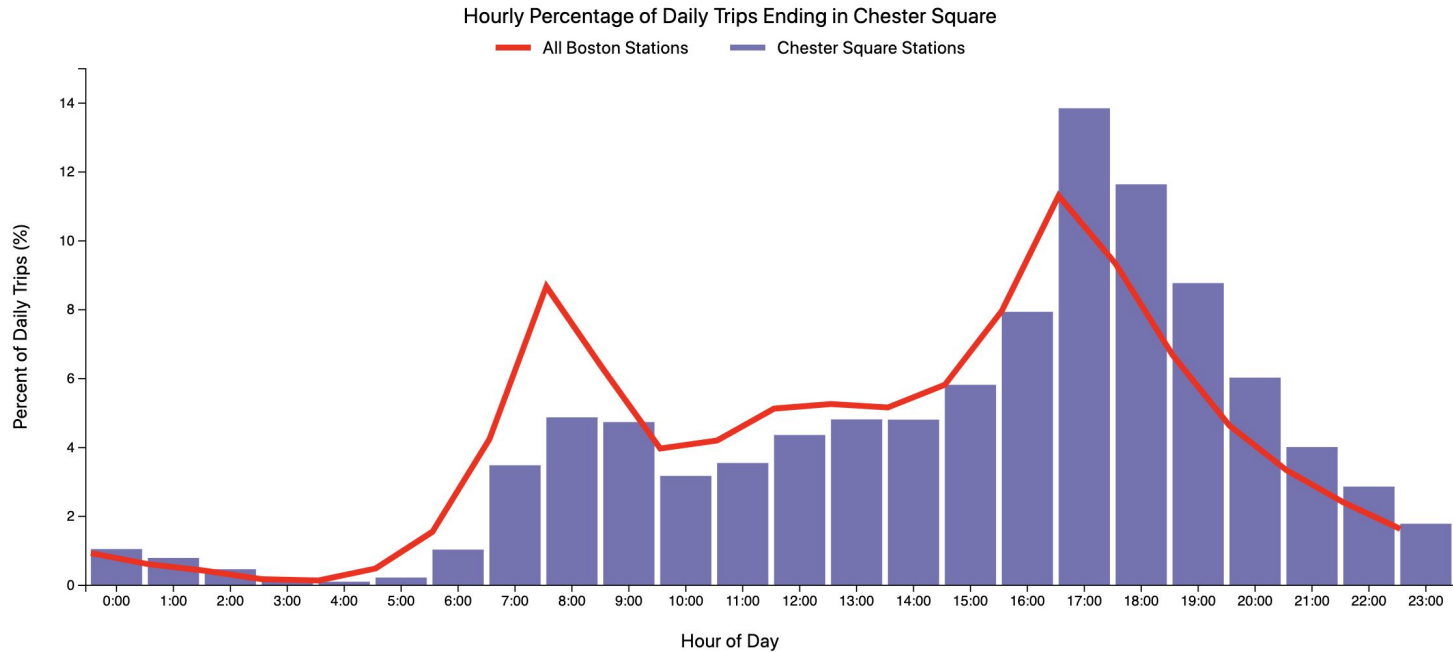
# 3.

## VISUALIZATIONS

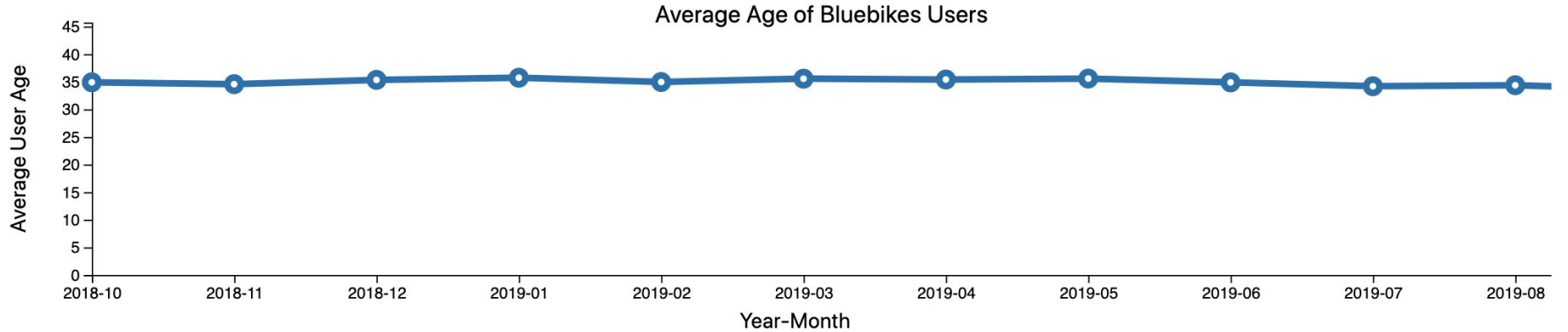
# Trips **Starting** In Chester Square



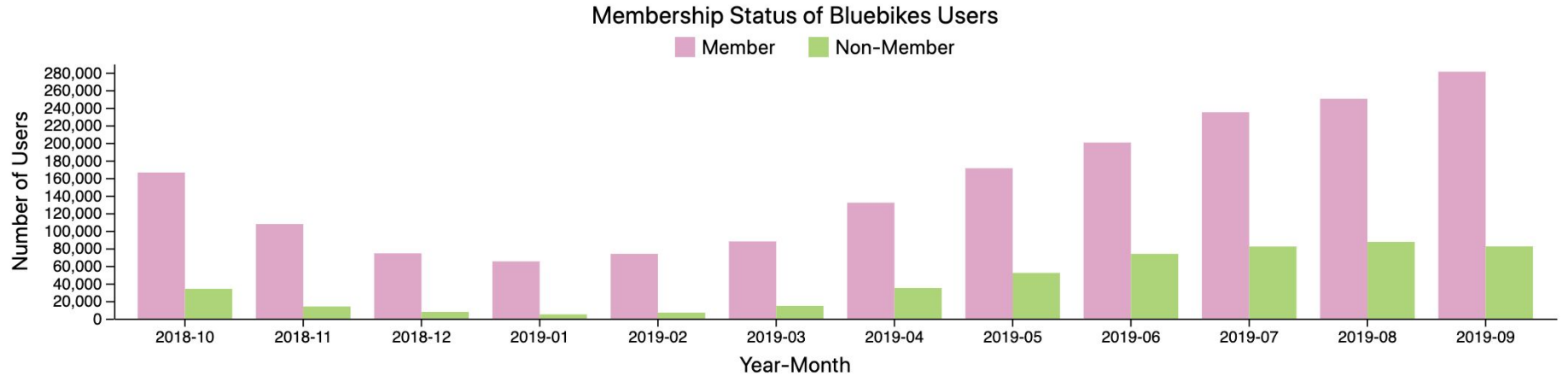
# Trips **Ending** In Chester Square



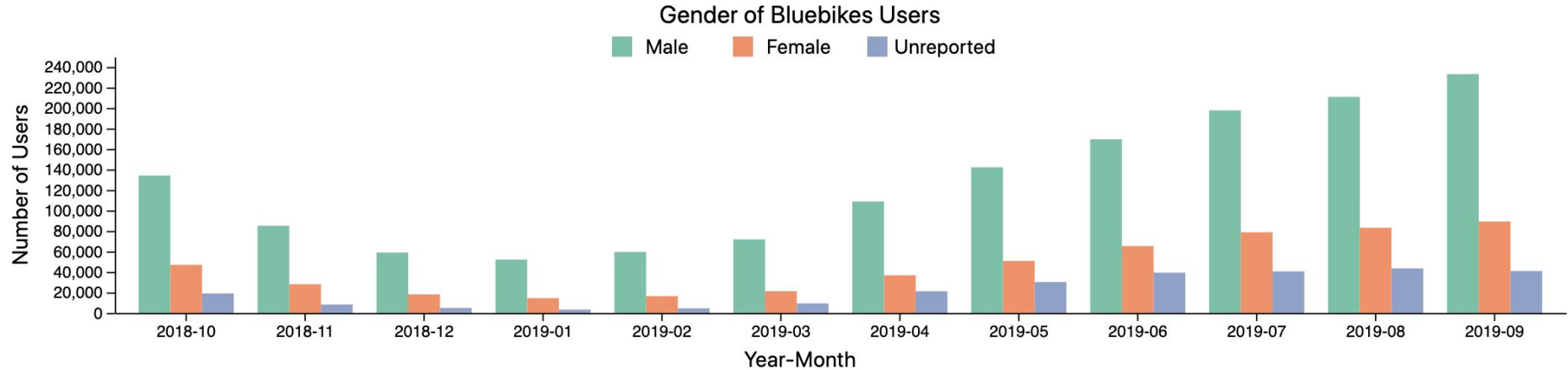
# BLUEbikes Usage by Age



# BLUEbikes Usage by Membership



# BLUEbikes Usage by Gender



The background of the slide is white on the left and blue on the right, separated by a diagonal line. The blue area has a subtle gradient and a darker blue shadow-like band along the diagonal.

4.

DEMO VIDEO



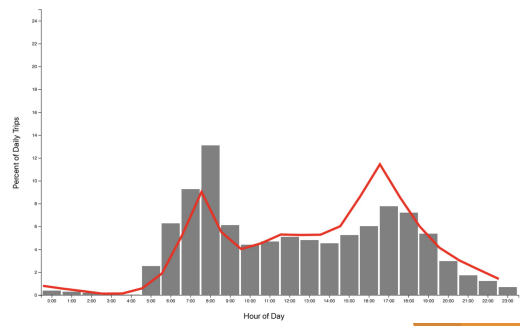
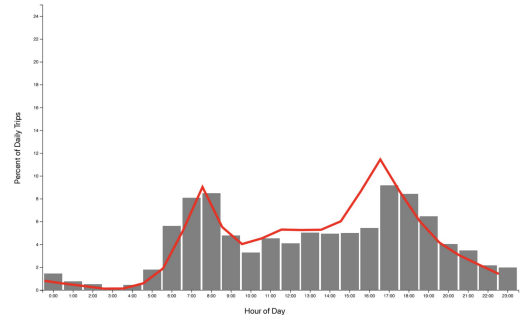
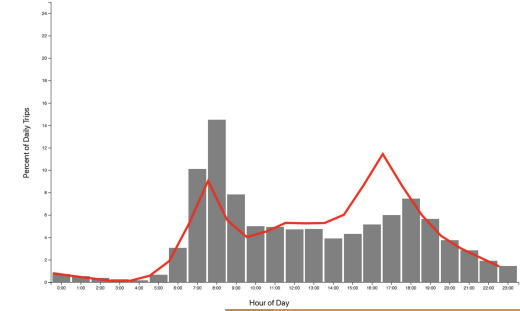
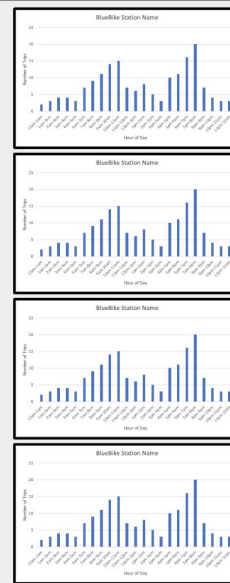
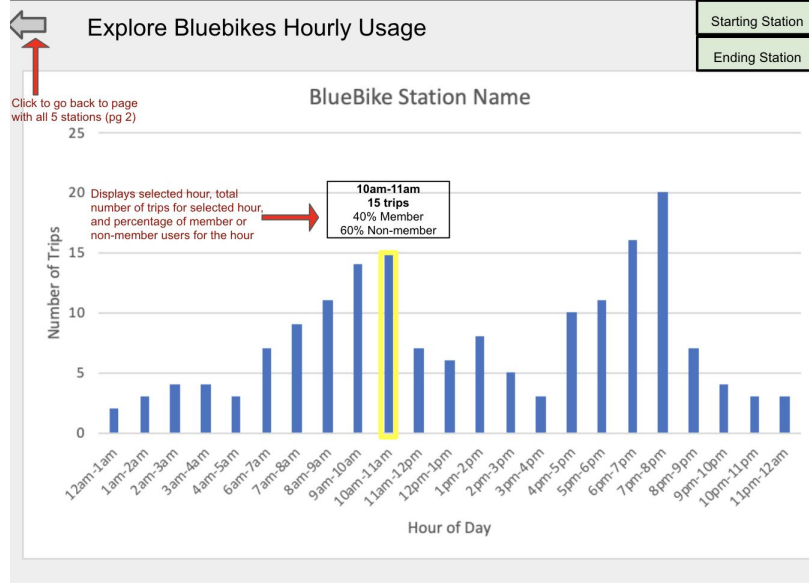


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**5.**

**DESIGN PROCESS**

# Design Process

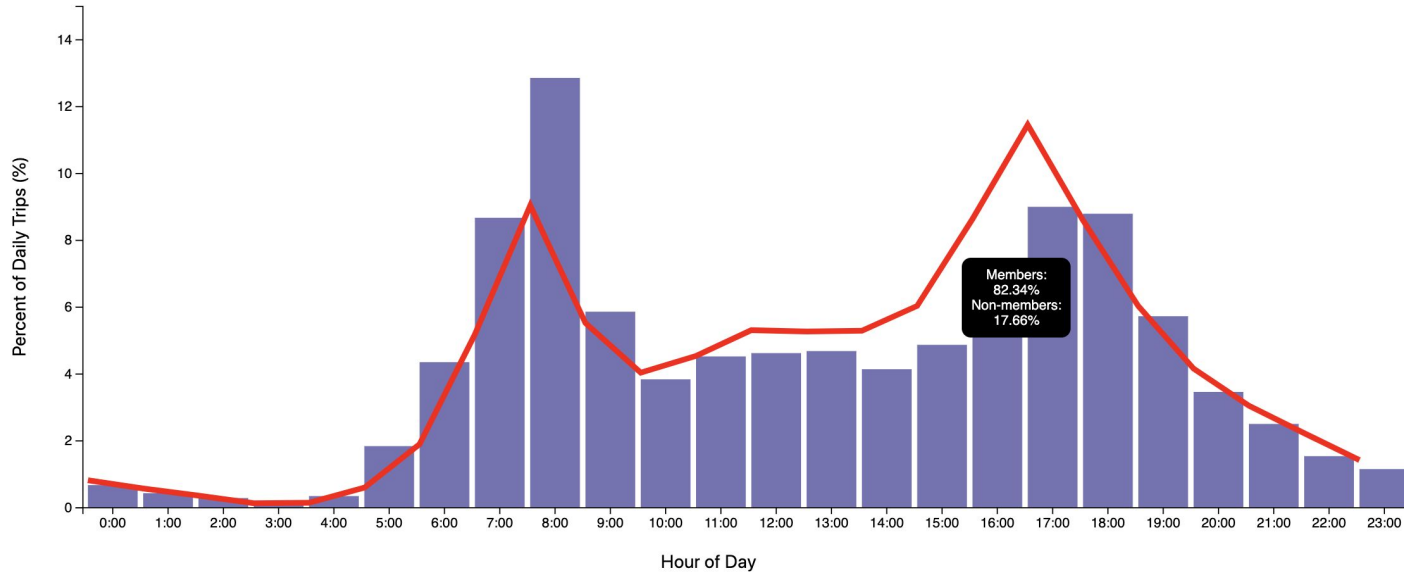


# Design Process

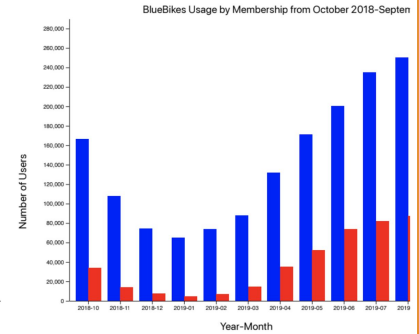
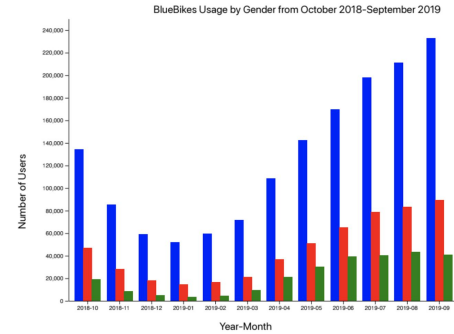
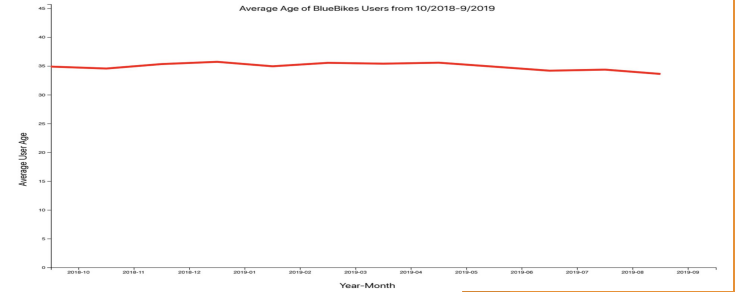
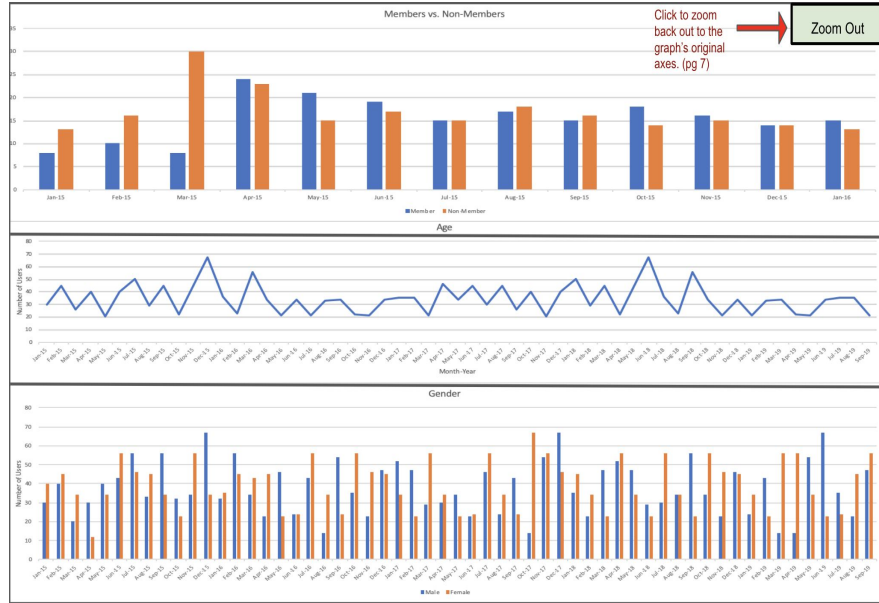
TOGGLE TRIPS

Hourly Percentage of Daily Trips Starting in Chester Square

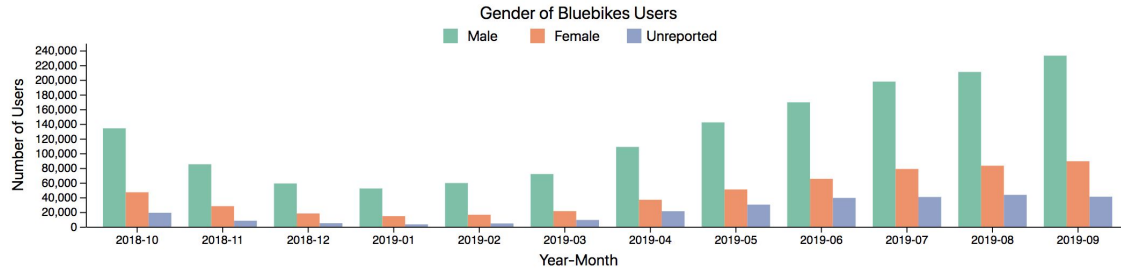
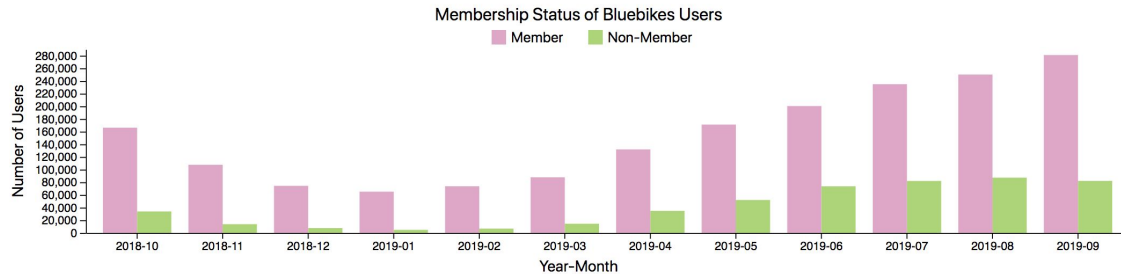
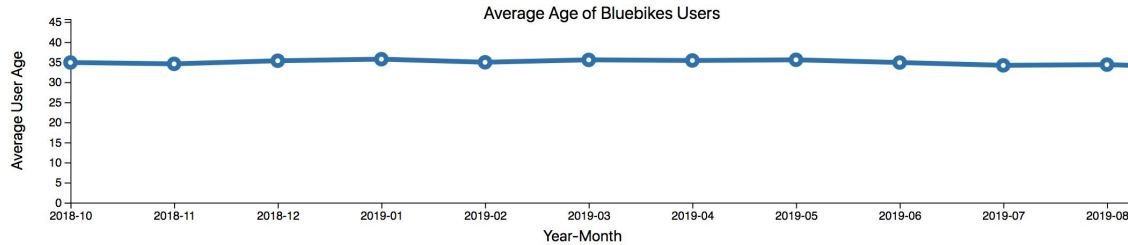
— All Boston Stations — Chester Square Stations



# Design Process



# Design Process



# Design Process

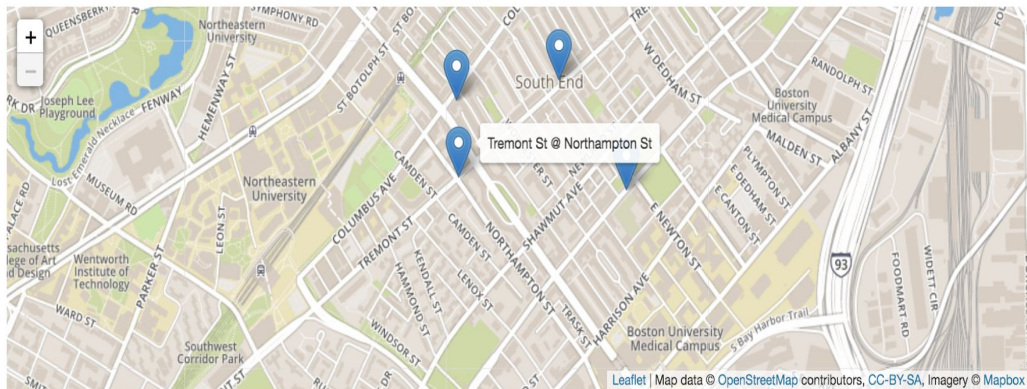
Below you can find a map of Chester Square. The four blue markers represent the four BlueBikes stations closest and most relevant to the Chester Square neighborhood that is included in our analysis. You can zoom in and out of the Chester Square neighborhood area in the map. You can hover over a blue marker to see the name of the BlueBikes station.



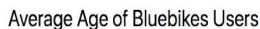
Below you can find three graphs presenting demographic data for BlueBikes users in Boston. The first line chart displays the change in average age of BlueBikes users in the past year. The next grouped bar chart displays the number of BlueBikes members versus non-members for each month in the past year. The last grouped bar chart displays the gender counts of BlueBikes users (self-reported) for each month in the past year. You can brush over the points on the average age line chart in order to highlight on the other two graphs the member versus nonmember breakdown and gender breakdown for the selected months.



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# 6.

## SUMMARY OF RESULTS

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- ▶ The number of Bluebikes users *has grown over the past year*
- ▶ *Chester Square residents seem to be using the nearby Bluebikes stations* to commute to and from the area
- ▶ The usage of the four stations near Chester Square is *comparable to usage in all of Boston*
- ▶ It may be worth looking into adding a fifth station in the neighborhood



**THANKS!**

# Any questions?

You can contact us at

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