



Bike Sharing Systems

Travel Patterns and Correlation Study

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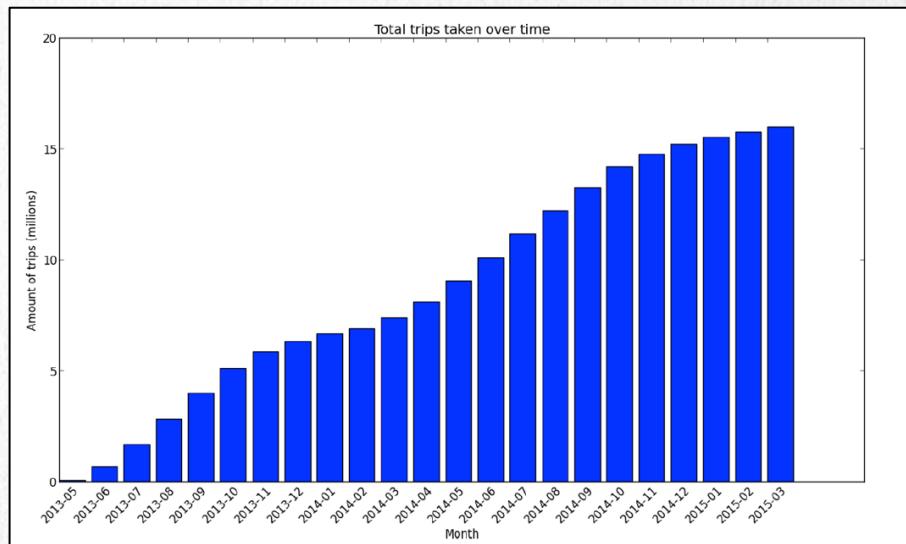
Project Idea

A base study of the **existing bike sharing systems** and identify patterns towards solving the **bike and spots imbalance** problem

- Analysed the citibike station **location** and its **proximity to the subway stations**
- Studied the riders trip data for **other bike sharing systems** for different locations in US to gain insights into the **bike rider's behavior**

Motivation / Background

- Bike Sharing System (BSS), an eco-friendly alternative to commute short distance.
- A Growing Trend – In August 2014, there are over 500 systems with more than half of a million bikes, across the globe.
- Citibike ridership increased to 10 million bike rides in year 2015, a 24 percent annual increase.



Source: Smarter Tools For (Citi)Bike Sharing ([link](#))

Existing Research

- The bike imbalance within the docking stations.
- Research is focused on optimization in below areas of Citibike operations -

Planning Phase



Pre-Balancing



Mid-Rush Balancing



Source: Smarter Tools For (Citi)Bike Sharing ([link](#))

Image ©: Citibike, NYC

Existing Research

Self-Balancing Stations



Image ©: Citibike, NYC

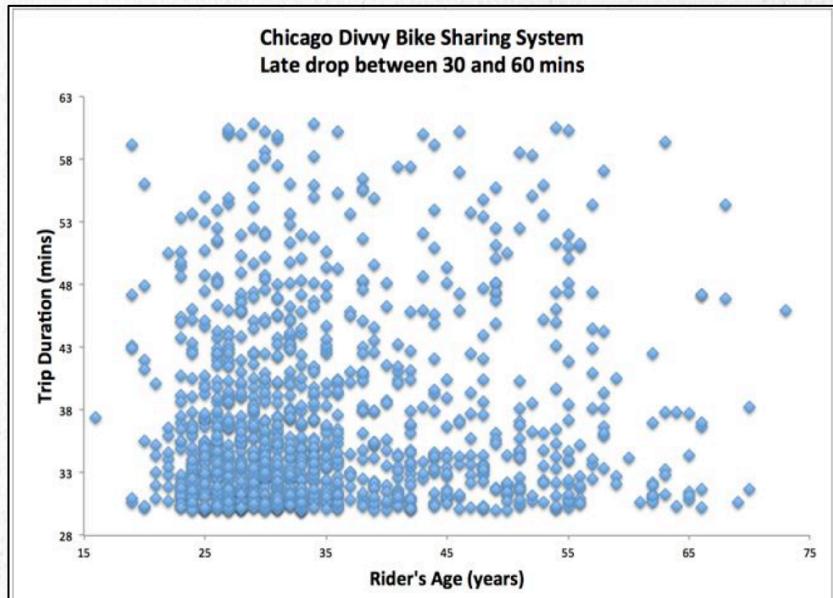
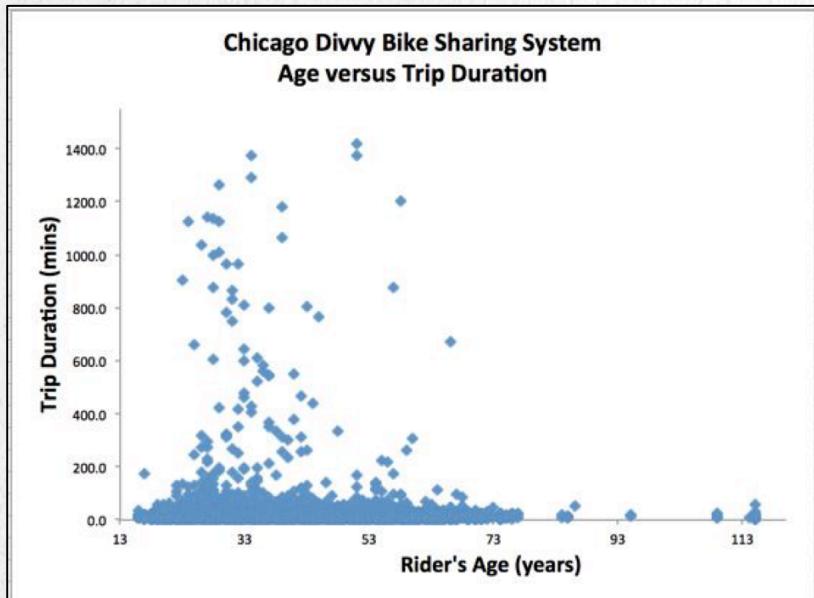
Incentive Schemes to motivate rider behavior change



Source: Smarter Tools For (Citi)Bike Sharing ([link](#))

Data & Analysis

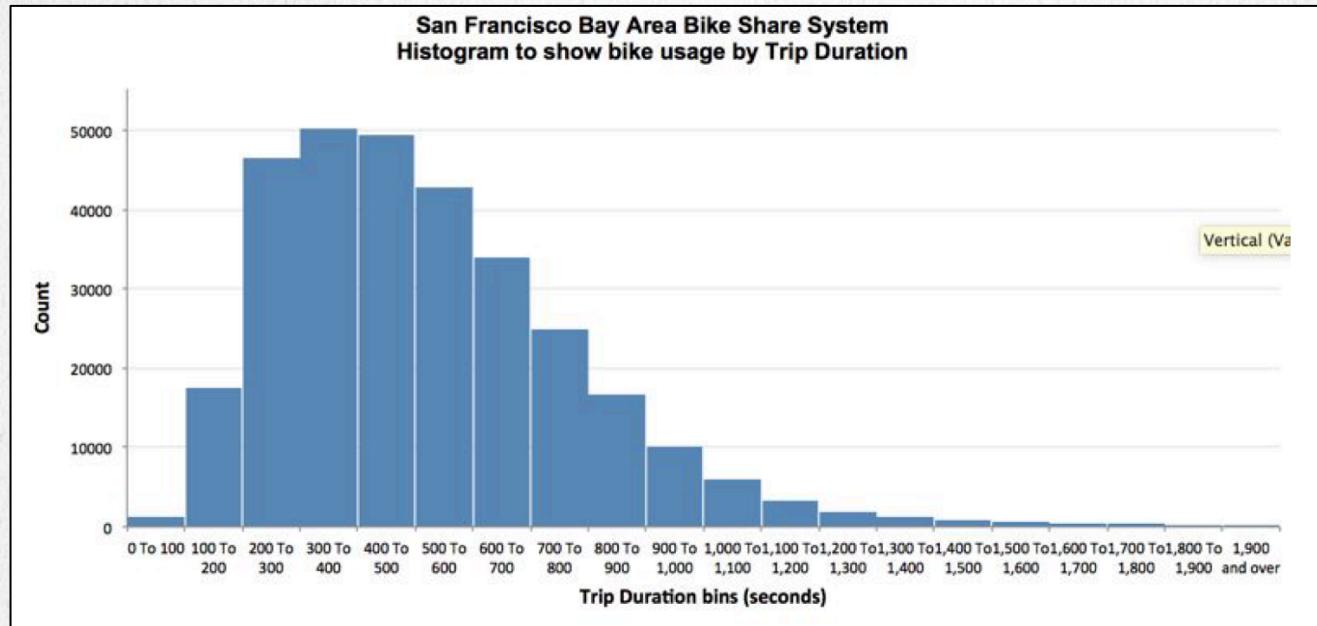
Preliminary Analysis – Chicago Divvy bike riders



Sample trips data for Annual Subscribers for Jan to Jun 2015

Data & Analysis

Preliminary Analysis – San Francisco Bay Area bike riders



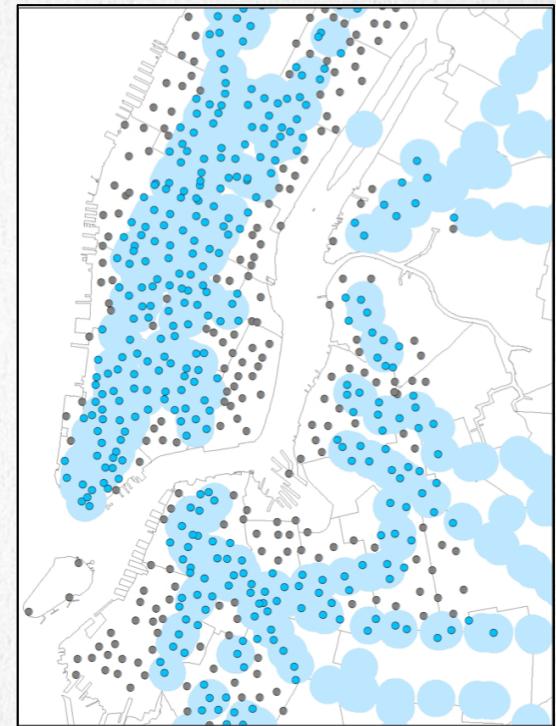
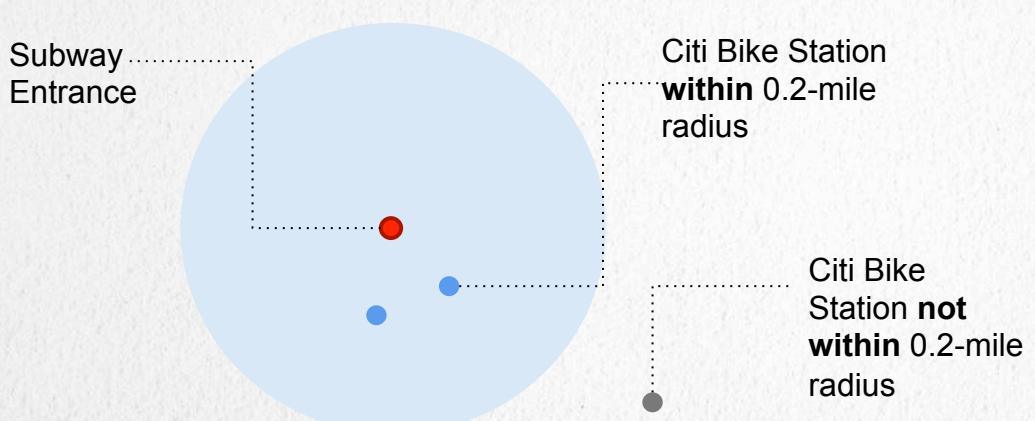
Sample trips data for Annual Subscribers for Sep 2014 to Aug 2015

Data & Analysis

Does **proximity to subway stations** have influence on Citi Bike use?

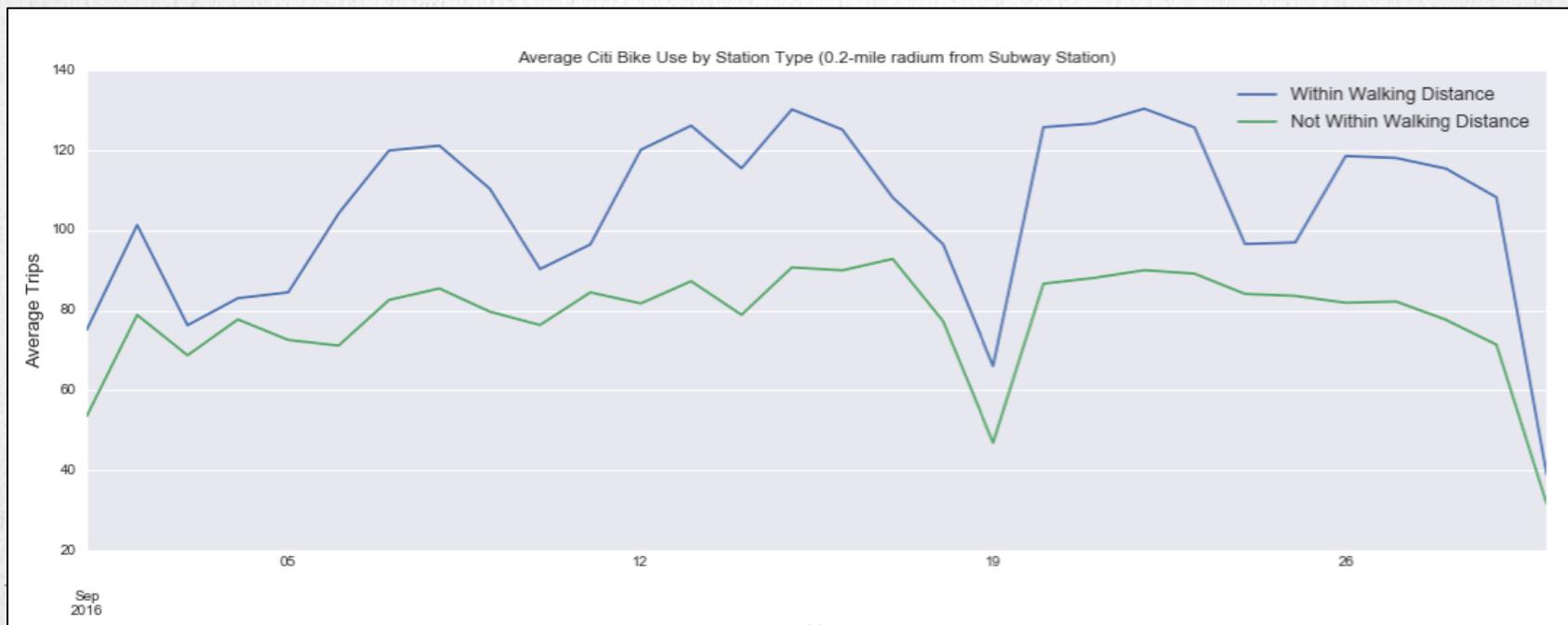
Data & Analysis

- Identify Citi Bike stations' proximity to subway stations



Data & Analysis

Visualize the difference between average number of pick-ups in each station group - by day



Data & Analysis

Visualize the difference between average number of pick-ups in each station group - by hour

