Where should I invest in a new bike-sharing program (or station)?

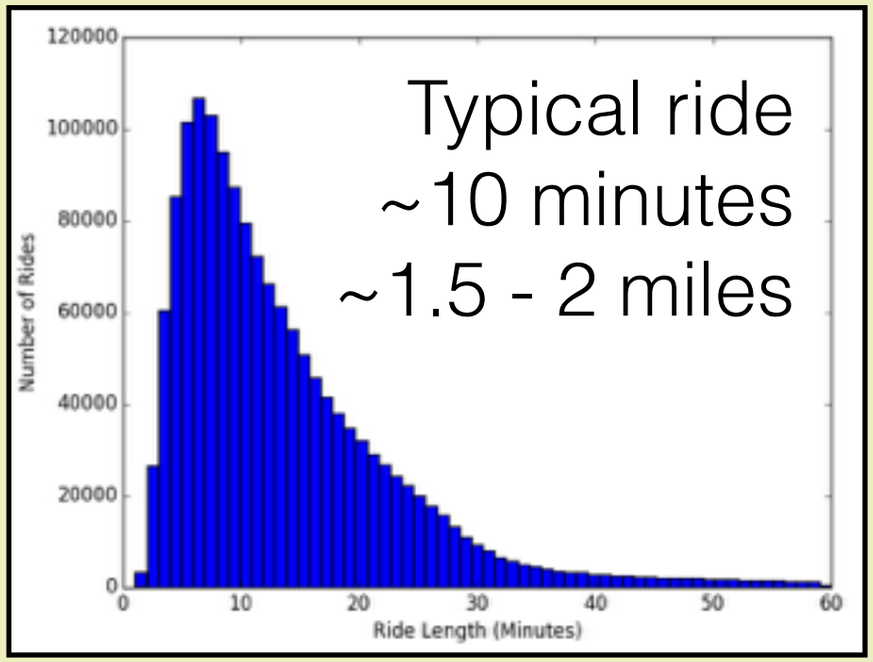
Motivation

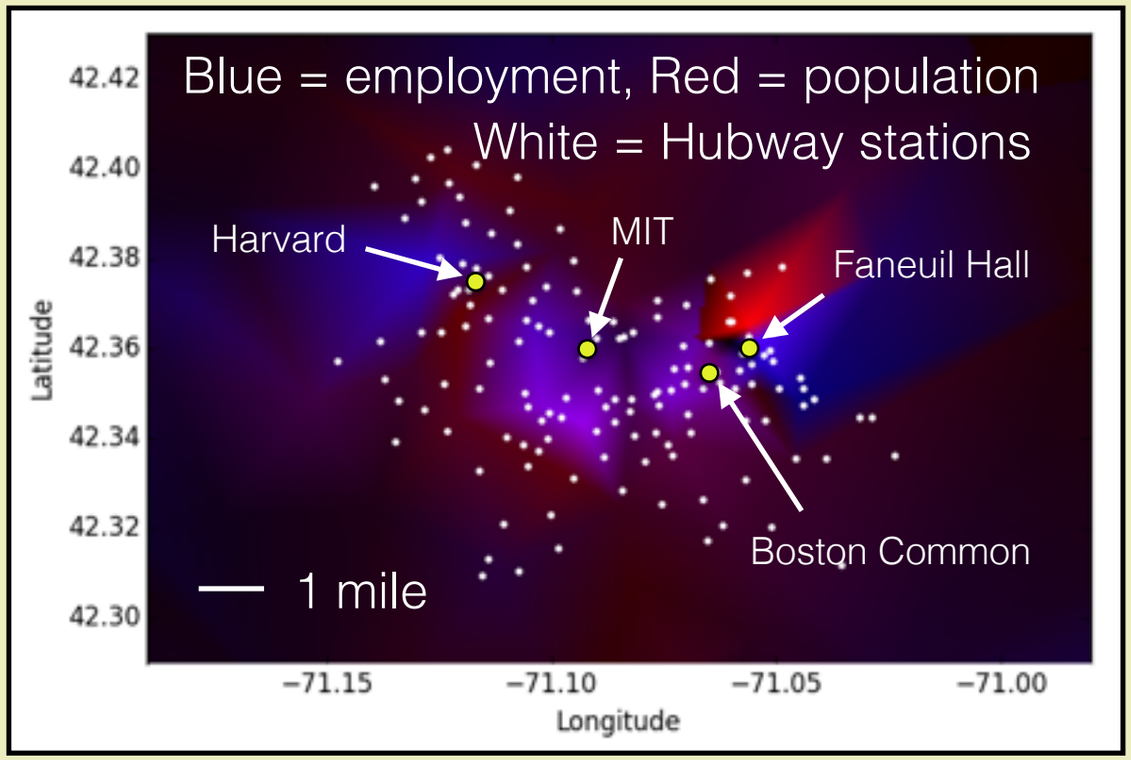
- Massive growth worldwide!
  2011: 375 cities, 236,000 bikes
  2014: 700 cities, 800,000 bikes
- Boston
  2011: 600 bikes
  2014: 1300 bikes
- Health-related aspects
  - increase opportunity for exercise
  - reduce fossil fuel consumption
  - shift public attitude to be bike-friendly

Deliverables

- aimed at city manager and CEO of existing bike-sharing program
- ranked list of cities (or neighborhoods) to optimize selection of a new program (or station)
- web app
  - input: city and state (e.g., Boston, MA)
  - output: ranking and detailed explanation

Datasets





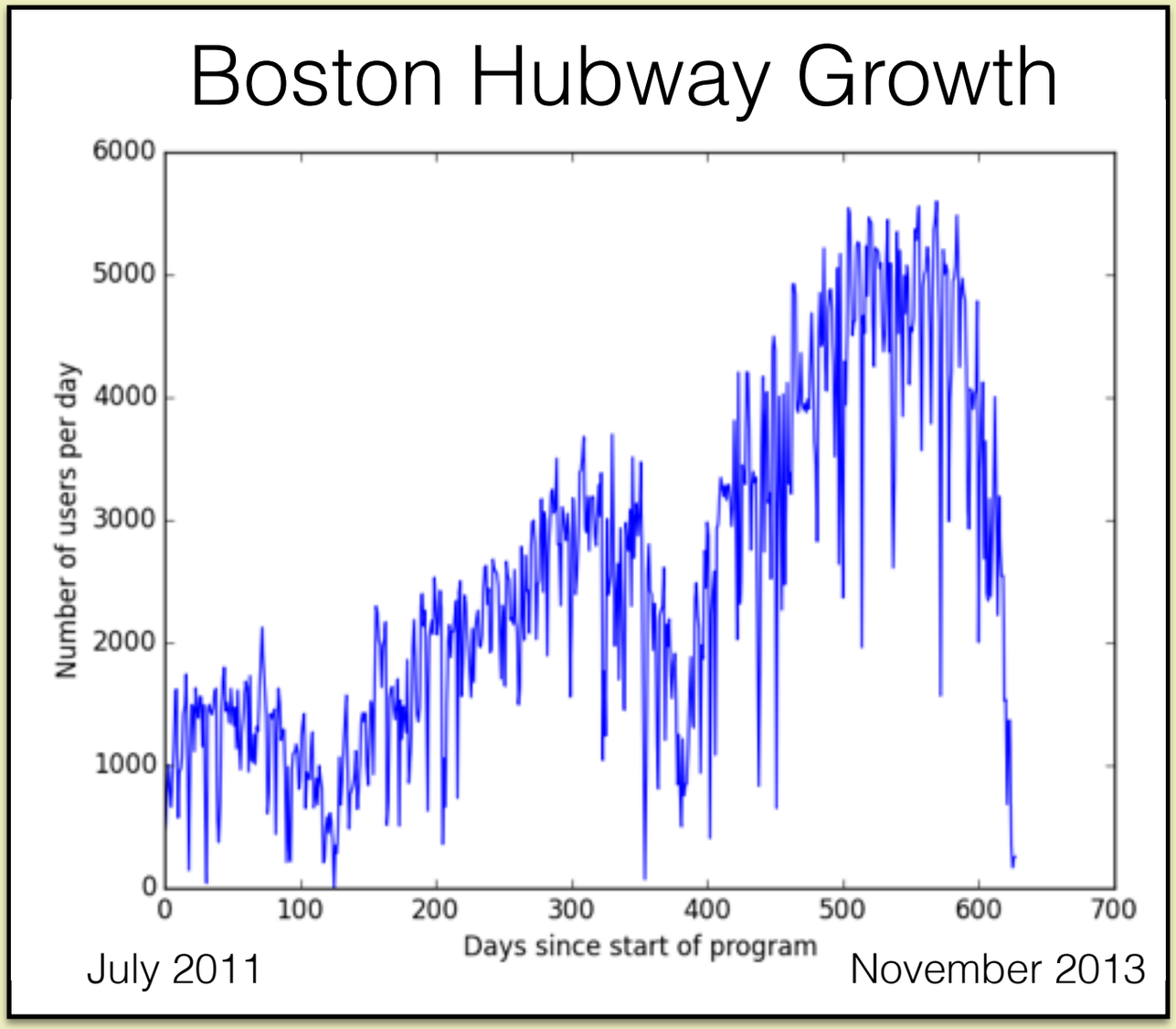
Bike-sharing Data

- 25 existing bike-sharing programs in the US
- 5 publicly share their data: Boston, NYC, Bay area, DC, Minneapolis
- 2-3 years of ride data

Ancillary Data

- US Census: population density, employee density by zip code
- Climate data: NOAA
- Bike lane data: Google maps
- Ambulance data: NEMSIS
- Elevation data: Google maps?
- Location of recreational sites?

Algorithms



- Use linear regression to predict growth trend in a new city given growth trend in Boston, NYC, Bay area, DC, and Minneapolis

Key Features

- Likelihood of
  - living within 2 miles of destination
  - good weather
  - nice bike lane
  - accident
  - a big hill to climb

Validation Plan

- Train on 4/5 public bike-sharing dataset
- Test on the remaining dataset
- Rinse/repeat for all 5 datasets