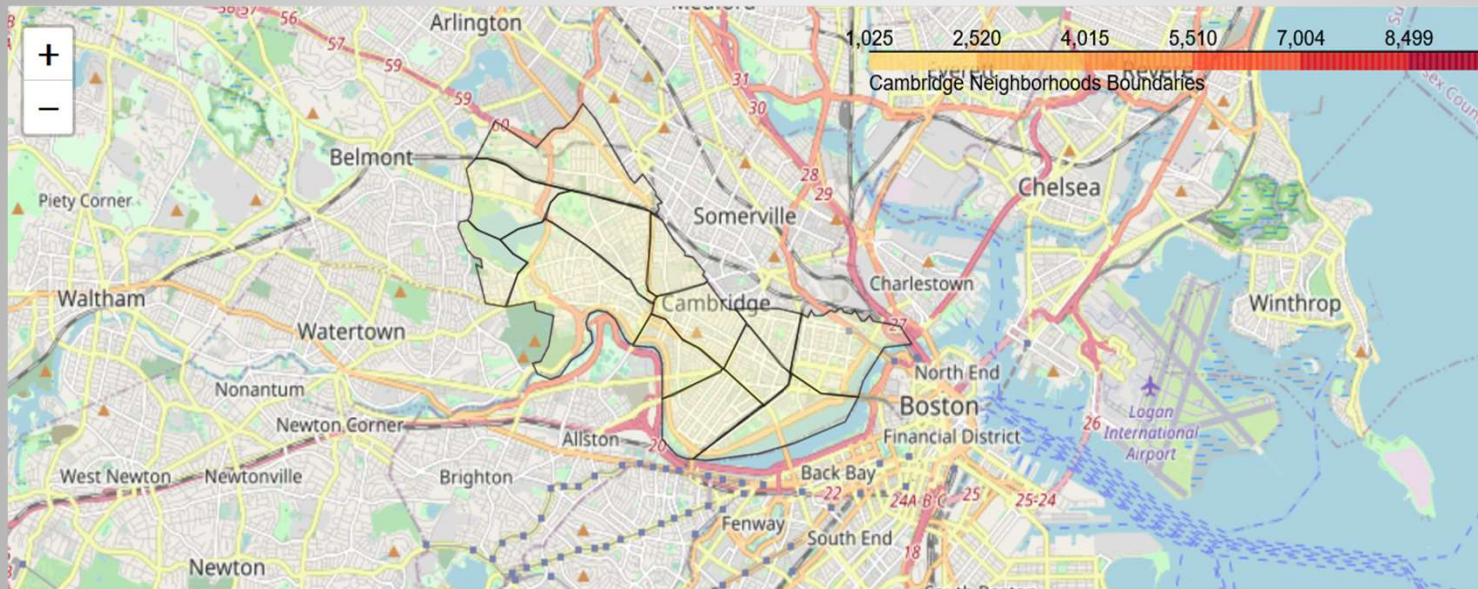


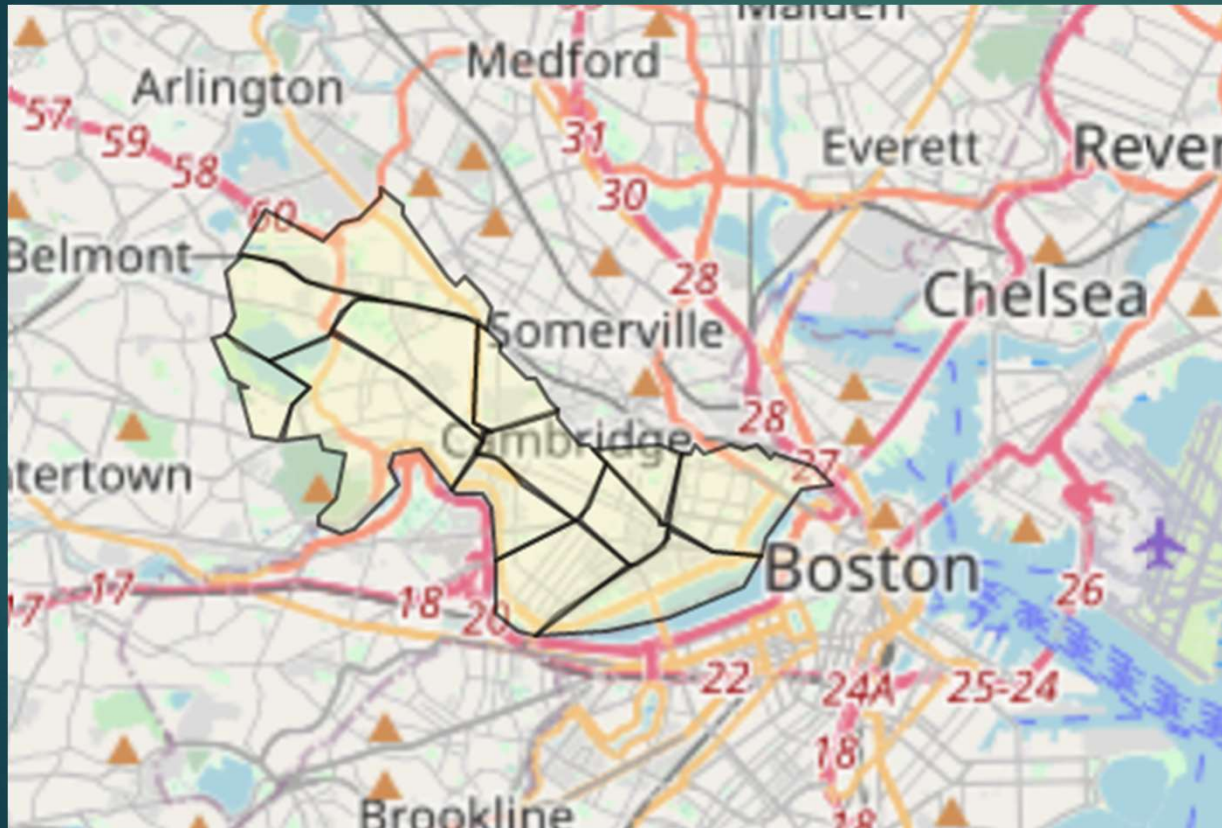
# GV-CAMBRIDGE CAPSTONE



**GUIDO VIARISIO, JUNE 1<sup>ST</sup>, 2020**

**Coursera course Data Science Professions Certificate**

# Cambridge, Massachusetts



- ▶ Located across the Charles River from Boston.
- ▶ Cambridge is known as one of the leading intellectual hubs of the U.S. and the world
- ▶ This is a study of the neighborhoods around Harvard University, MIT and Lesley University.

# Data Acquisition and Cleaning



- ▶ Venues data for each area is obtained using FourSquare APIs
- ▶ From Cambridge Open Data
  - ▶ Zip codes with latitude and longitude
  - ▶ Statistics on crimes by Neighborhood
  - ▶ Neighborhood geo data for the polygon of Cambridge boundaries
- ▶ From [www.payscale.com](http://www.payscale.com)
  - ▶ Salaries information by type of job
- ▶ Scrape from Cambridge Wikipedia
  - ▶ Income by zip code
  - ▶ Main Employers in Cambridge

The name of the Cambridge neighborhoods was not exactly the same from different places and it was necessary to make it the same from all places



# The venues most common



	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
0	Biogen	Greek Restaurant	Garden	Skating Rink	French Restaurant	Event Space	Breakfast Spot	Café	Jewish Restaurant	Gym	Movie Theater
1	Cambridge Innovation Center	American Restaurant	Vegetarian / Vegan Restaurant	Bakery	Skating Rink	Garden	French Restaurant	Event Space	Café	Gym	Mediterranean Restaurant
2	Central Square	Cocktail Bar	Yoga Studio	Martial Arts Dojo	Bookstore	Comedy Club	Dance Studio	Vegetarian / Vegan Restaurant	American Restaurant	Supermarket	Record Shop
3	Harvard Square	Café	Arepa Restaurant	Bakery	Salad Place	Rock Club	Plaza	Pizza Place	Gastropub	Indie Movie Theater	Mexican Restaurant
4	Kendal Square	Coffee Shop	American Restaurant	Hotel Bar	Garden	Event Space	Gym	Vegetarian / Vegan Restaurant	Bookstore	Bar	Burrito Place
5	Lesley University	Ice Cream Shop	History Museum	Record Shop	College Technology Building	Italian Restaurant	Pub	American Restaurant	Science Museum	Sporting Goods Shop	Rock Club
6	MIT	College Gym	Pizza Place	Park	Burrito Place	Concert Hall	Café	Gym / Fitness Center	Bakery	Breakfast Spot	Arepa Restaurant

# The First and Second most common

	Neighborhood	1st Most Common Venue	2nd Most Common Venue
0	Biogen	Greek Restaurant	Garden
1	Cambridge Innovation Center	American Restaurant	Vegetarian / Vegan Restaurant
2	Central Square	Cocktail Bar	Yoga Studio
3	Harvard Square	Café	Arepa Restaurant
4	Kendal Square	Coffee Shop	American Restaurant
5	Lesley University	Ice Cream Shop	History Museum
6	MIT	College Gym	Pizza Place

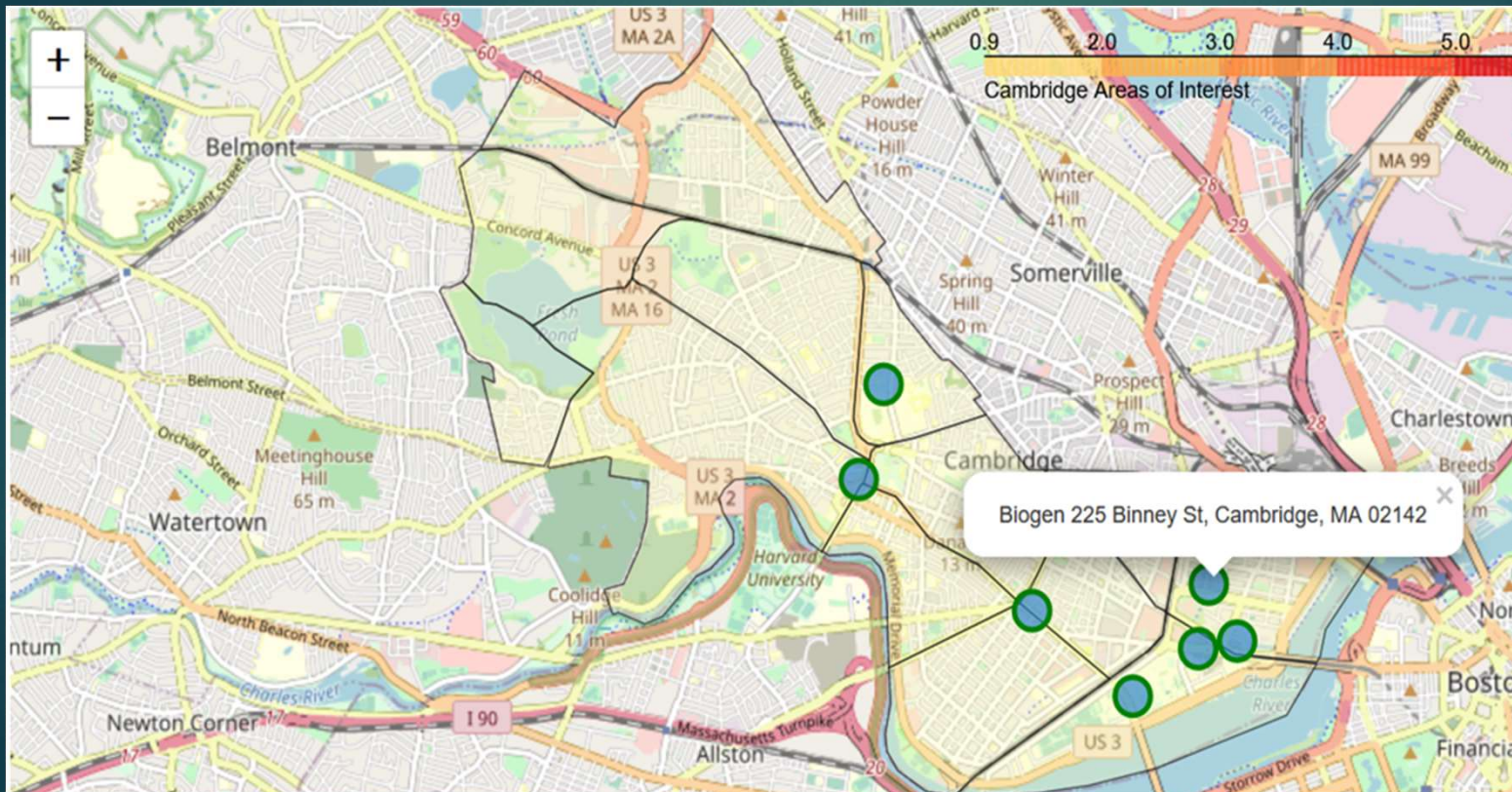
From the first most common

- i. 5 out of 7 neighborhoods chose a place to eat
- ii. Lesley University students (80% women) selected an ice-cream place
- iii. MIT students selected a Gym

From the second most common

- i. 4 out of 7 selected a place to eat
- ii. Biogen selected a Garden
- iii. Lesley University selected History museum
- iv. Central Square a Yoga studio

# Neighborhood Studied in Map



The circles represent the neighborhoods

Clicking on the circle shows the name and address of the neighborhood



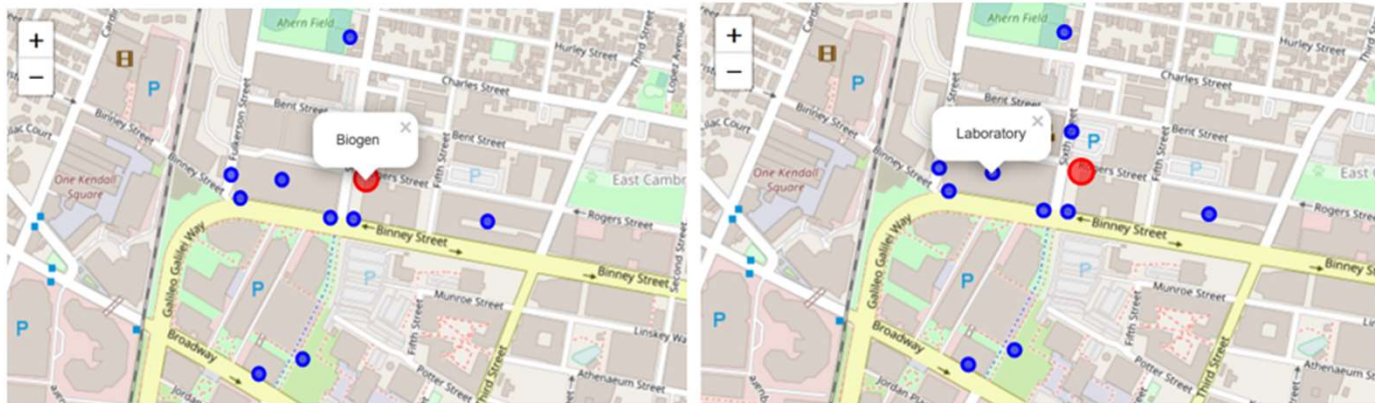
# MIT and Biogen Areas Venues Map

## a. MIT



MIT is a student area

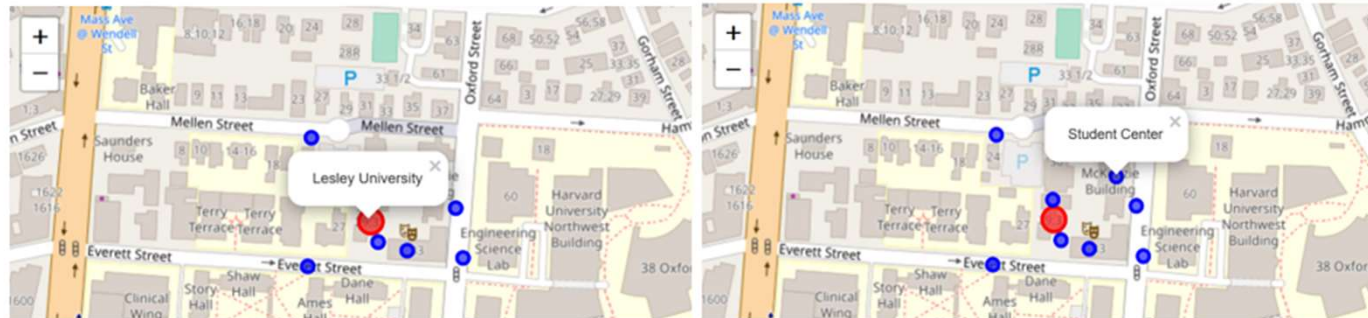
## b. Biogen



Biogen is a business area

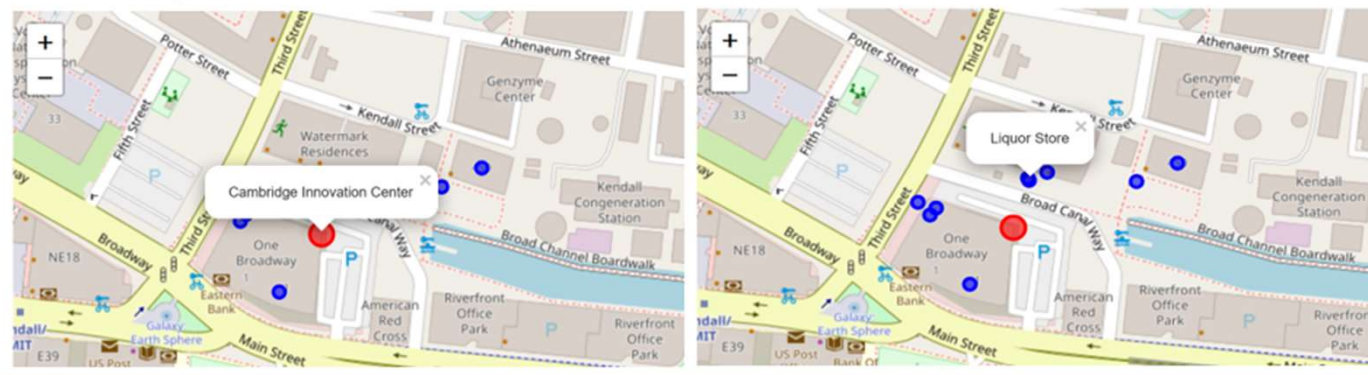
# Lesley University and Cambridge Innovation Center Venues Map

## e. Lesley University



Lesley University is  
a student area

## f. Cambridge Innovation Center



Cambridge  
Innovation Center  
is a business area

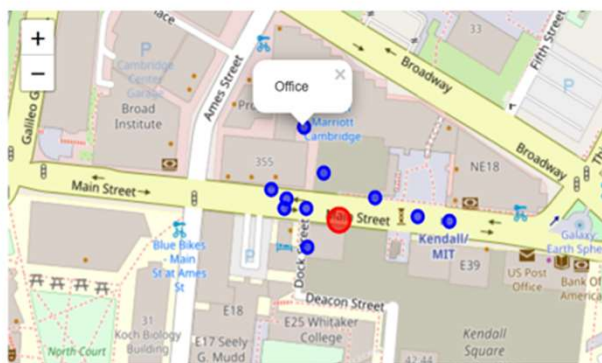


# Harvard Square and Kendal Square Venues Map

## i. Harvard Square



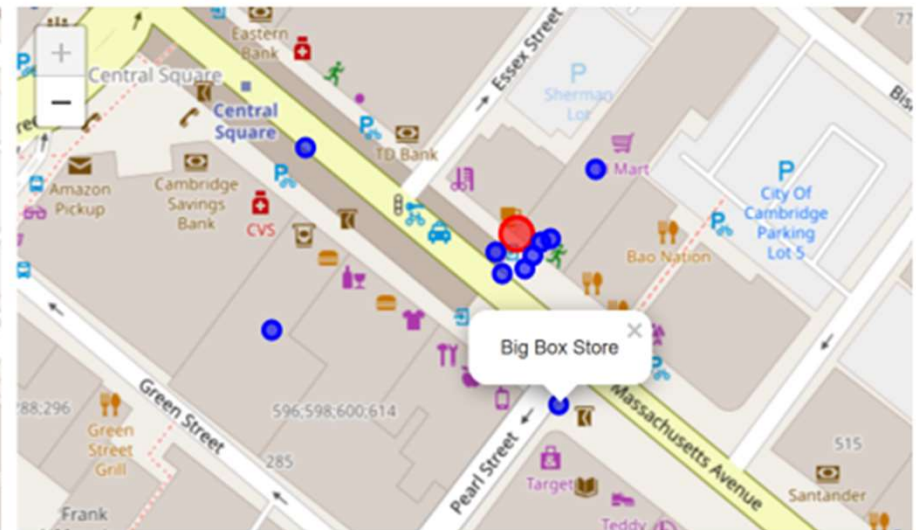
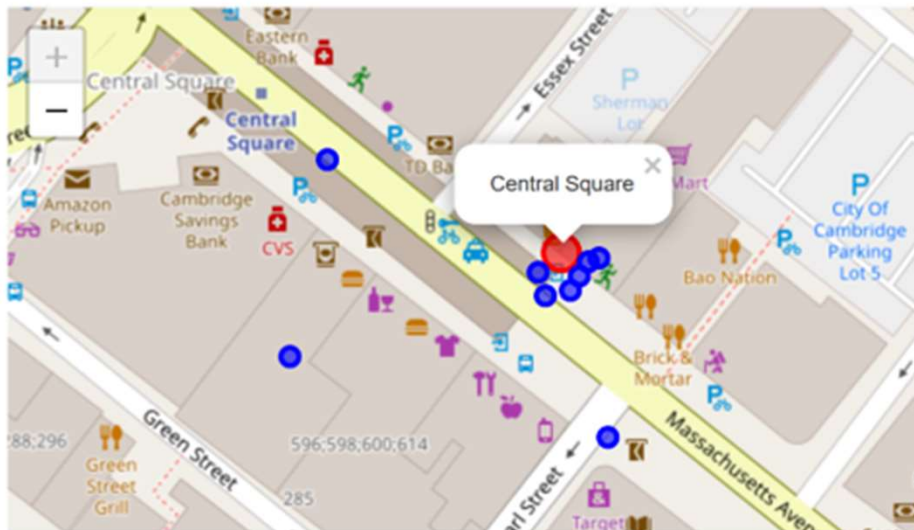
## k. Kendal Square



These two venues are a mix of student and business areas

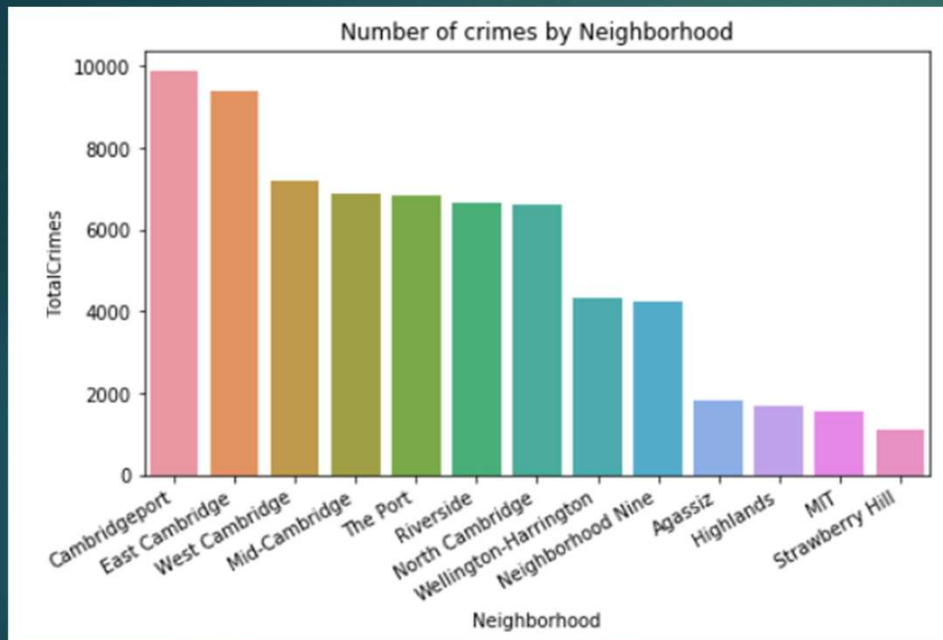
# Central Square Venues Map

## m. Central Square

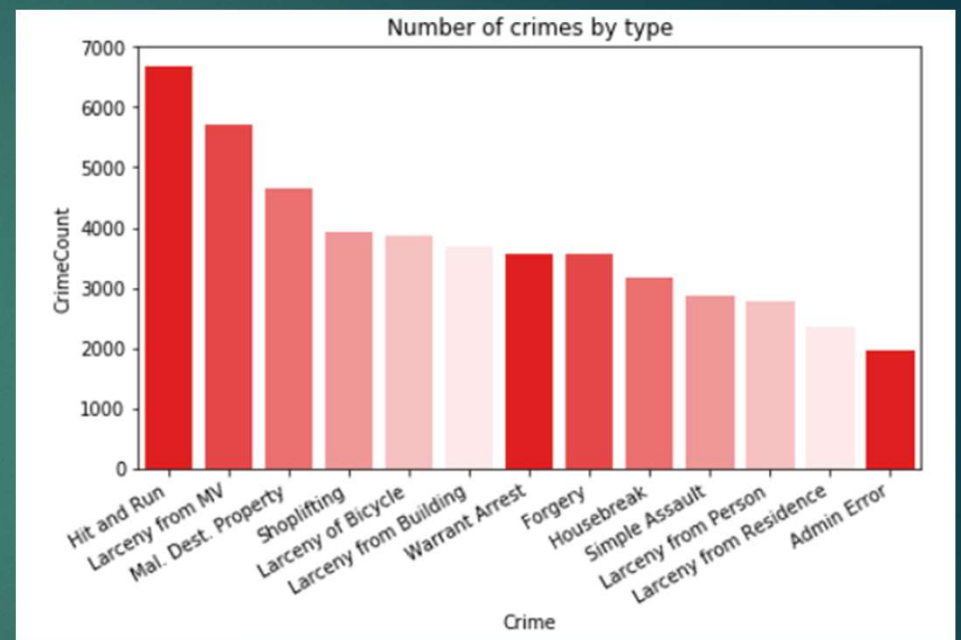


Central Square is a business area

# Crimes Statistics



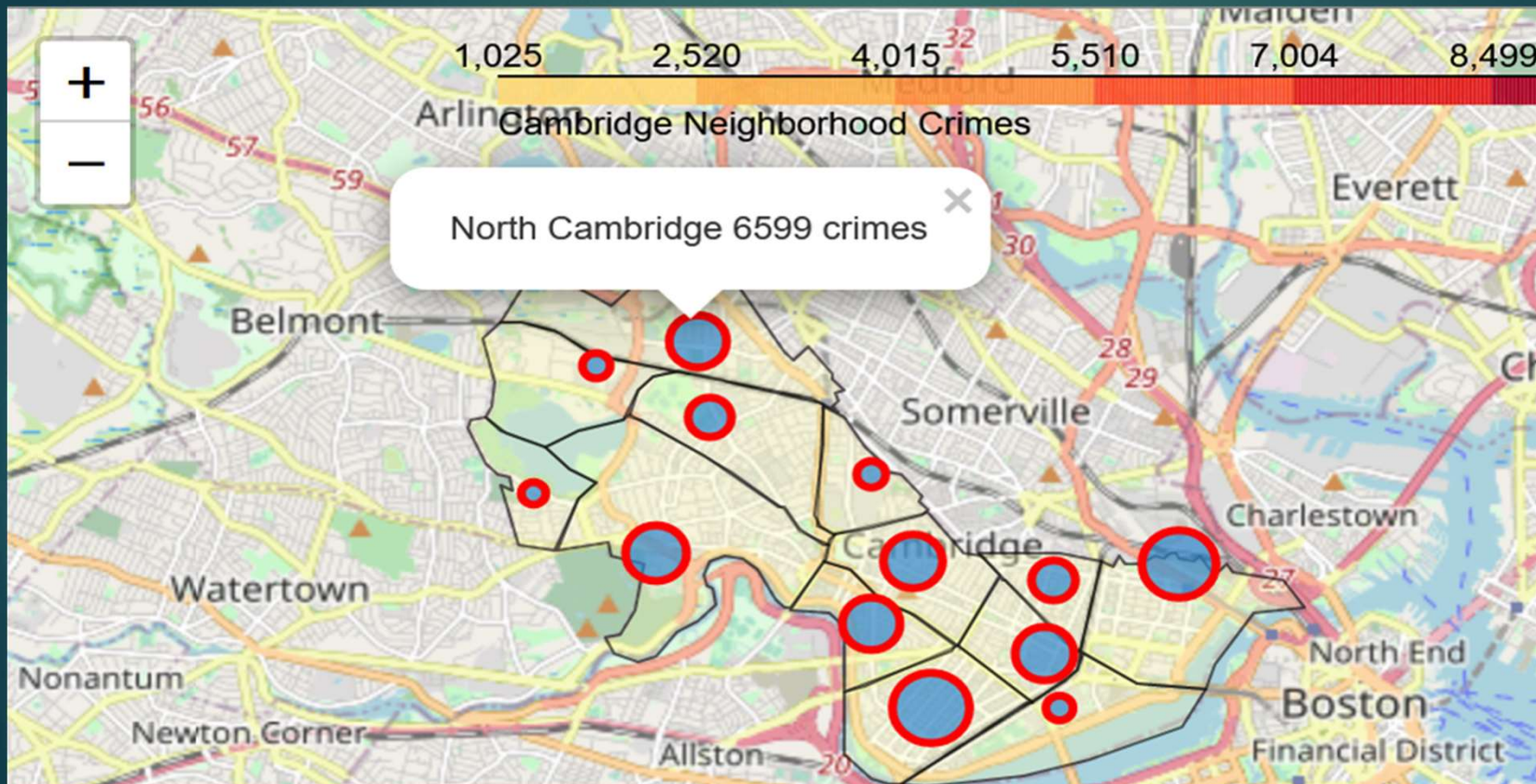
The two areas less safe are:  
Cambridgeport with 9906 crimes  
East Cambridge with 9415



The most frequent crime  
Hit and Run with 6690 cases



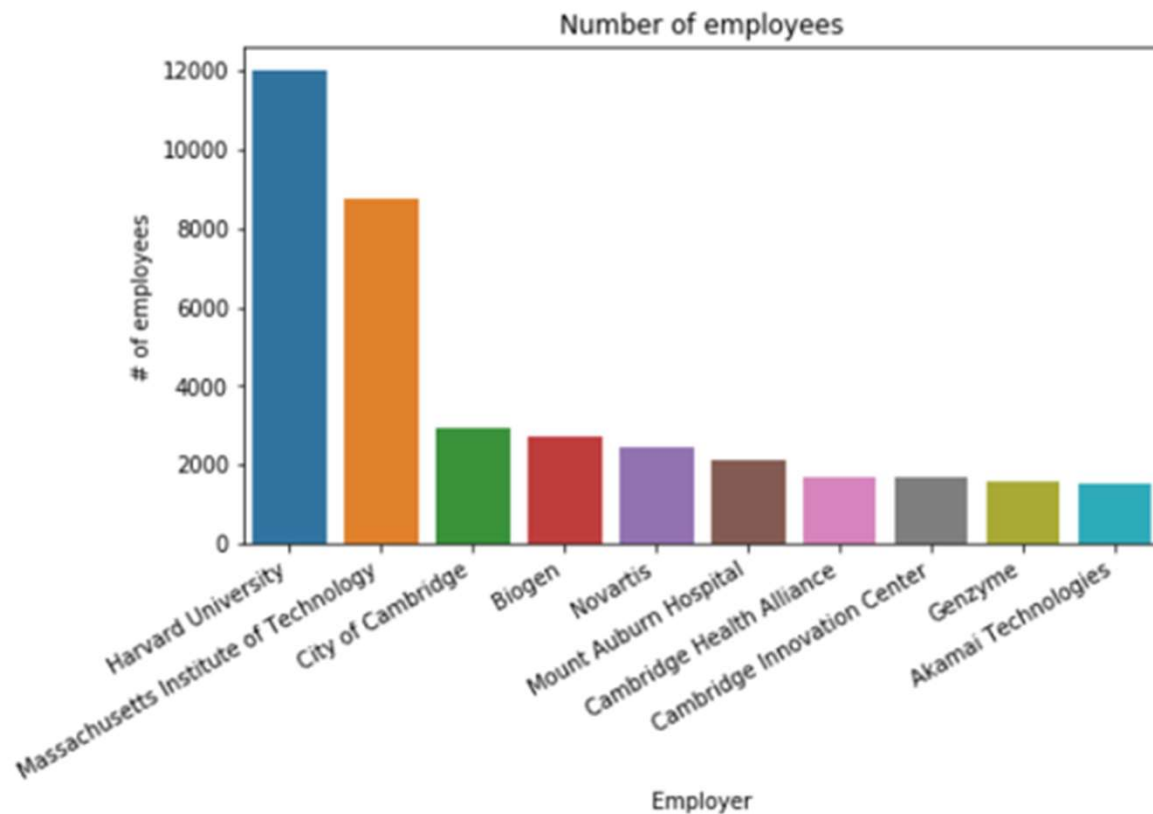
# Crime areas in the Cambridge Map



The circle sizes are proportional to the number of crimes in the area

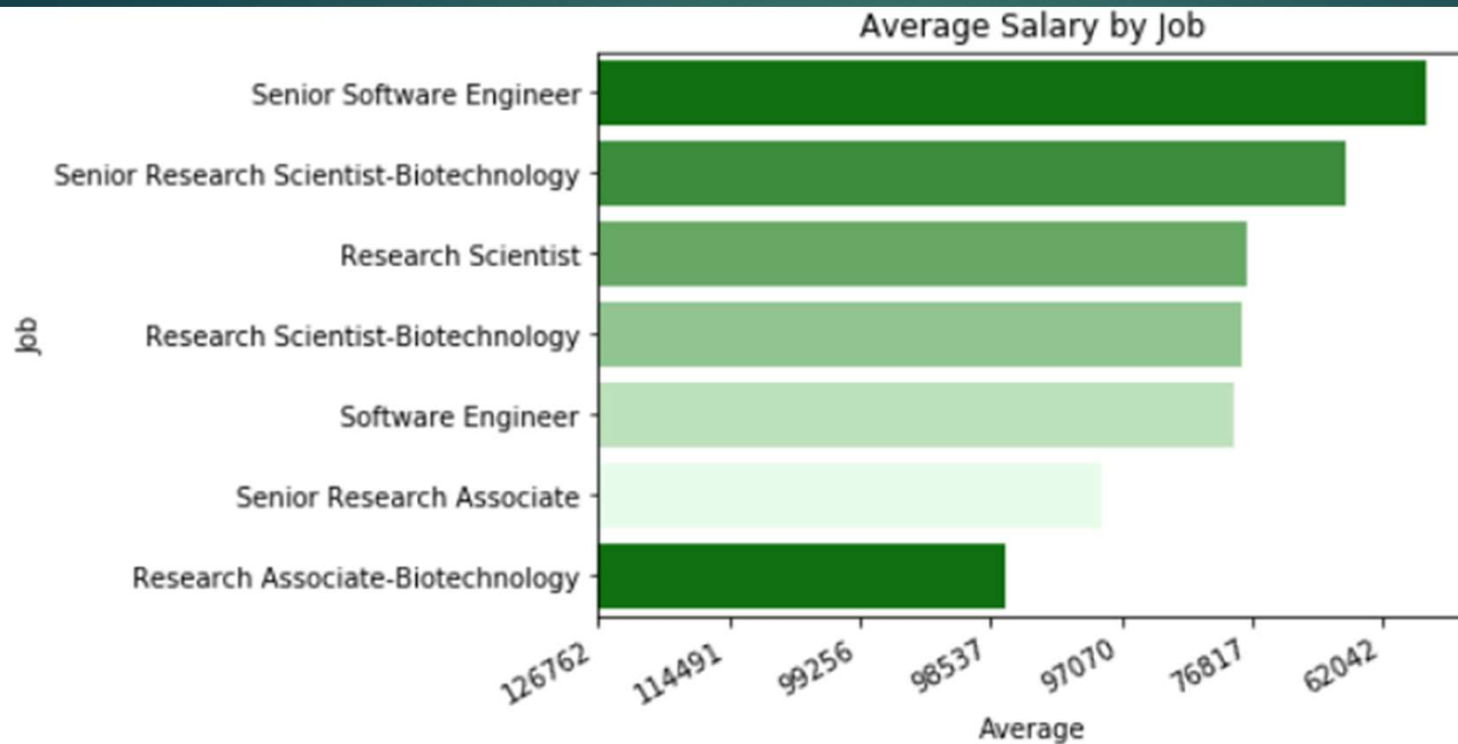
Clicking on a circle displays the area name and the number of crimes

# Employer Statistics



Harvard with 11,997 employees and MIT with 8763 employees have a significant part of the employment in Cambridge

# Salaries by Job type



The technical jobs are the high paying jobs in Cambridge



# Conclusions and future directions

- ▶ This study concentrated on some of the Cambridge neighborhoods near the universities of Harvard, MIT and Lesley Universities
- ▶ A future study could be done considering all neighborhoods in Cambridge which would be of interest for the whole population and not just students
- ▶ Also a future study could study the impact of the transient population (many of the residents are students) during the summer