
Investment Optimization
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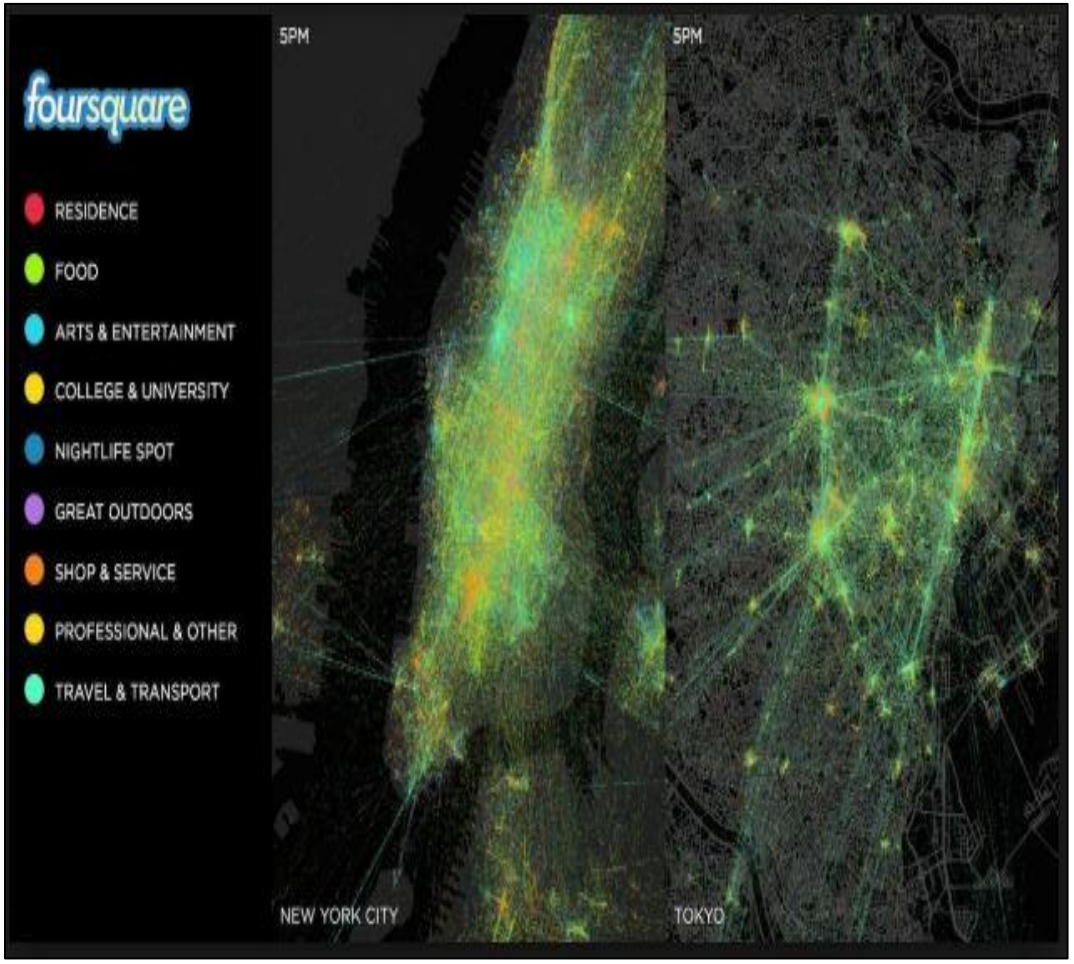
Motivation



- Foursquare check-in data is used in estimating the wealth of local demographics which is then used by firms to plan their investing and marketing strategies. This helps in better catering of product and services to the customers by the firms hence optimizing their investment process.

Data Collection

- **NYC Census Data**: demographic data for 2,167 census tracts in New York City based on 2015 American Community Survey 5-year estimates.
- Link : https://www.kaggle.com/muonneutrino/new-york-city-census-data/

Sample NYC Census Data

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	CensusTract	County	Borough	TotalPop	Men	Women	Hispanic	White
2	36005000100	Bronx	Bronx	7703	7133	570	29.9	6.1
3	36005000200	Bronx	Bronx	5403	2659	2744	75.8	2.3
4	36005000400	Bronx	Bronx	5915	2896	3019	62.7	3.6
5	36005001600	Bronx	Bronx	5879	2558	3321	65.1	1.6

nyc_census_sample.csv hosted with ❤ by GitHub

- **Foursquare Check-in Data**: 227,428 check-ins collected from 12 April 2012 to 16 February 2013.
- Link : https://www.kaggle.com/chetanism/foursquare-nyc-and-tokyo-checkin-dataset/

- **FourSquare Check-in Data in NYC**: 227,428 (
2013. [2]

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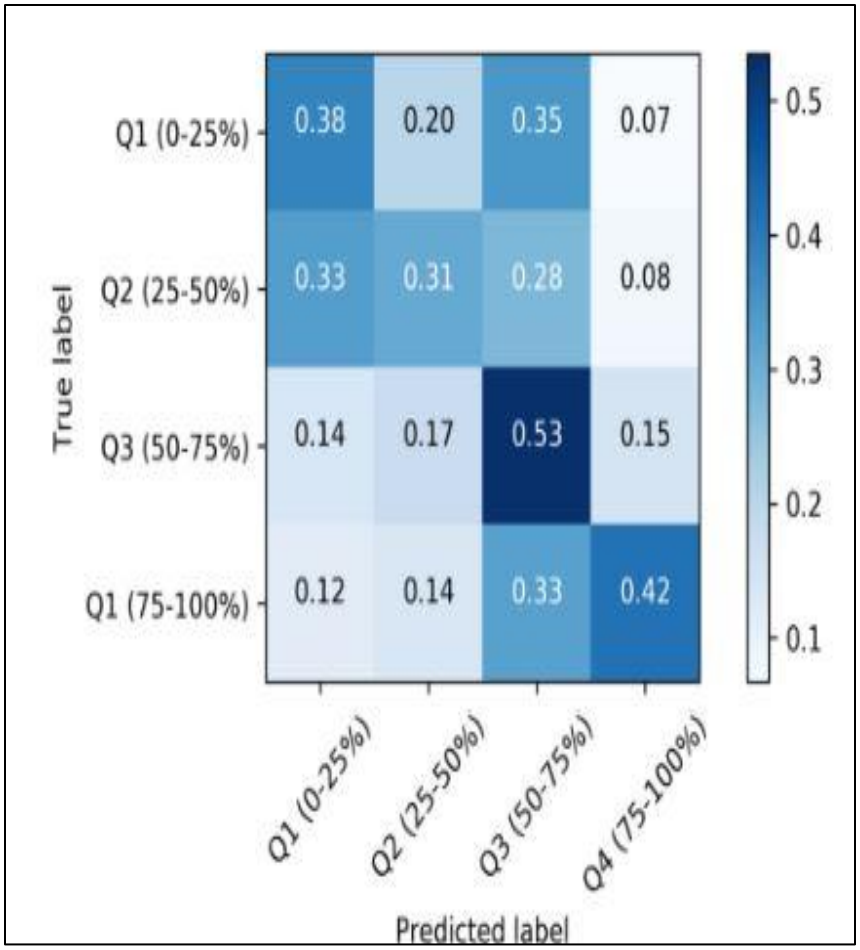
	userId	venueId	venueCategoryId	venueCategory
2	470	49bb....	4bf5....	Arts & Crafts Store
3	979	4a43....	4bf5....	Bridge
4	69	4c5c....	4bf5....	Home (private)

Model Evaluation – Result Interpretation



- In the confusion matrix we see darker squares for Q3 and Q4 (bottom-right), compared to Q1 and Q2 (top-left), which means that we did a better job predicting high-income than low-income. We hypothesize that this is because we have more data from people who 1) have access to smartphones and 2) use apps like FourSquare to check-in to businesses, and we're willing to bet that people who fulfill that criteria are wealthier than those who do not. In other words, *because our dataset might be derived largely from people of a specific demographic, we are more likely to have predictive signal for those classes of people