Finding Ideal Location to Start Restaurant in Toronto

Location, Location, Location Decides Success of Restaurants

▶ High population density = more people passing by restaurant

▶ High number of people per restaurant = less competition for customers

▶ Predominant ethnic group = many customers for restaurants serving food catering to the dominant ethnic group

▶ Growing population trend = more potential customers in the future

Data Acquisition

- City of Toronto Open Data Portal provides datasets on all 25 administrative city wards in Toronto

- Ward data from 2011 and 2016 census on:

  - Land area size

  - Total Population

  - Population segmented by country ethnic origin

  - Population segmented by income brackets

- Foursquare API: most common restaurant venue in wards' land area

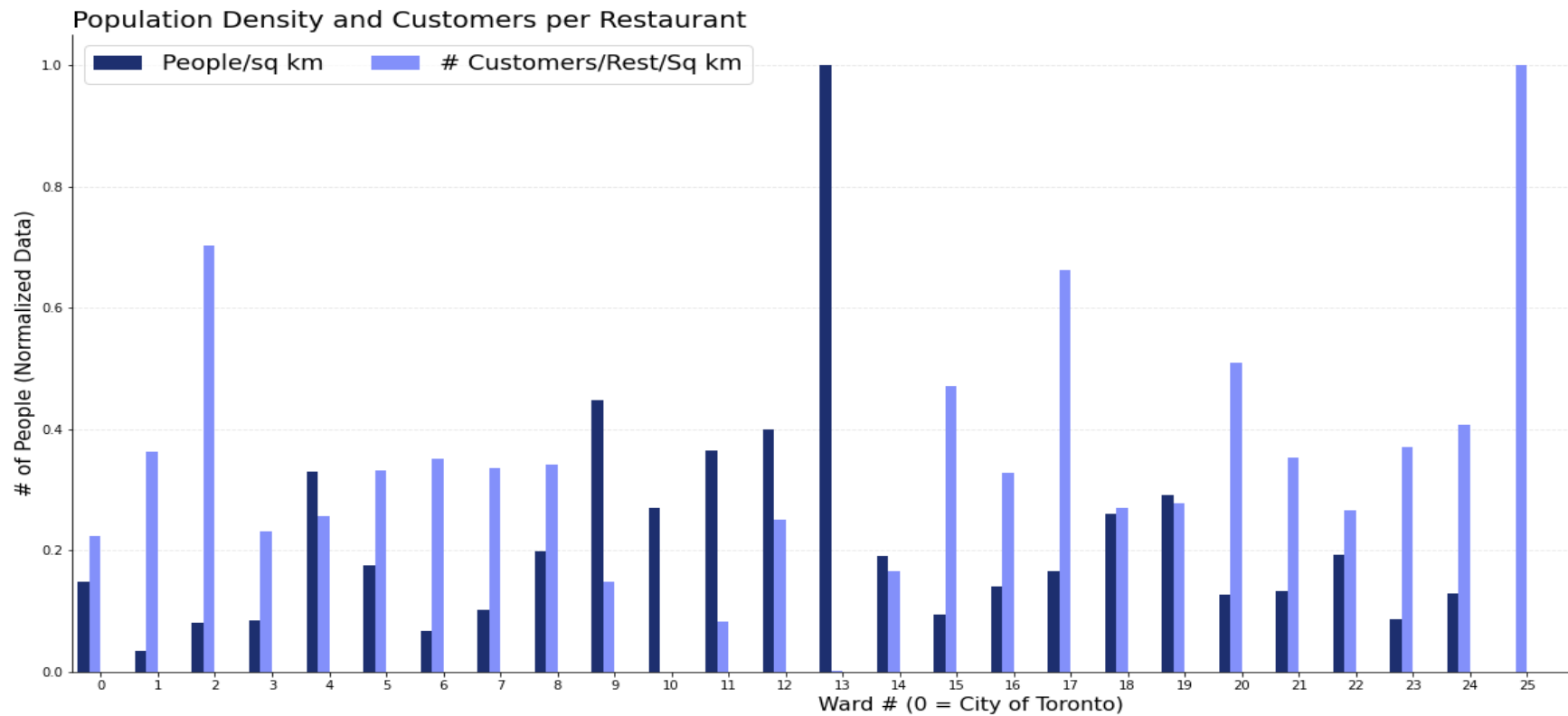- Toronto Food Inspection dataset listing every food establishment in the city

Data Cleaning

▶ [Google Maps](#) to find latitude and longitude of each ward's geographical center point based on approximated center point

▶ # of Restaurants per Ward determined by allocating each food establishment to ward based on the ward center it is closest to

▶ Only food establishments that serve "ready-to-eat food accessible to the general public" were included as possible restaurant competitors in data reducing original data from 62,271 establishments to 14,469 establishments
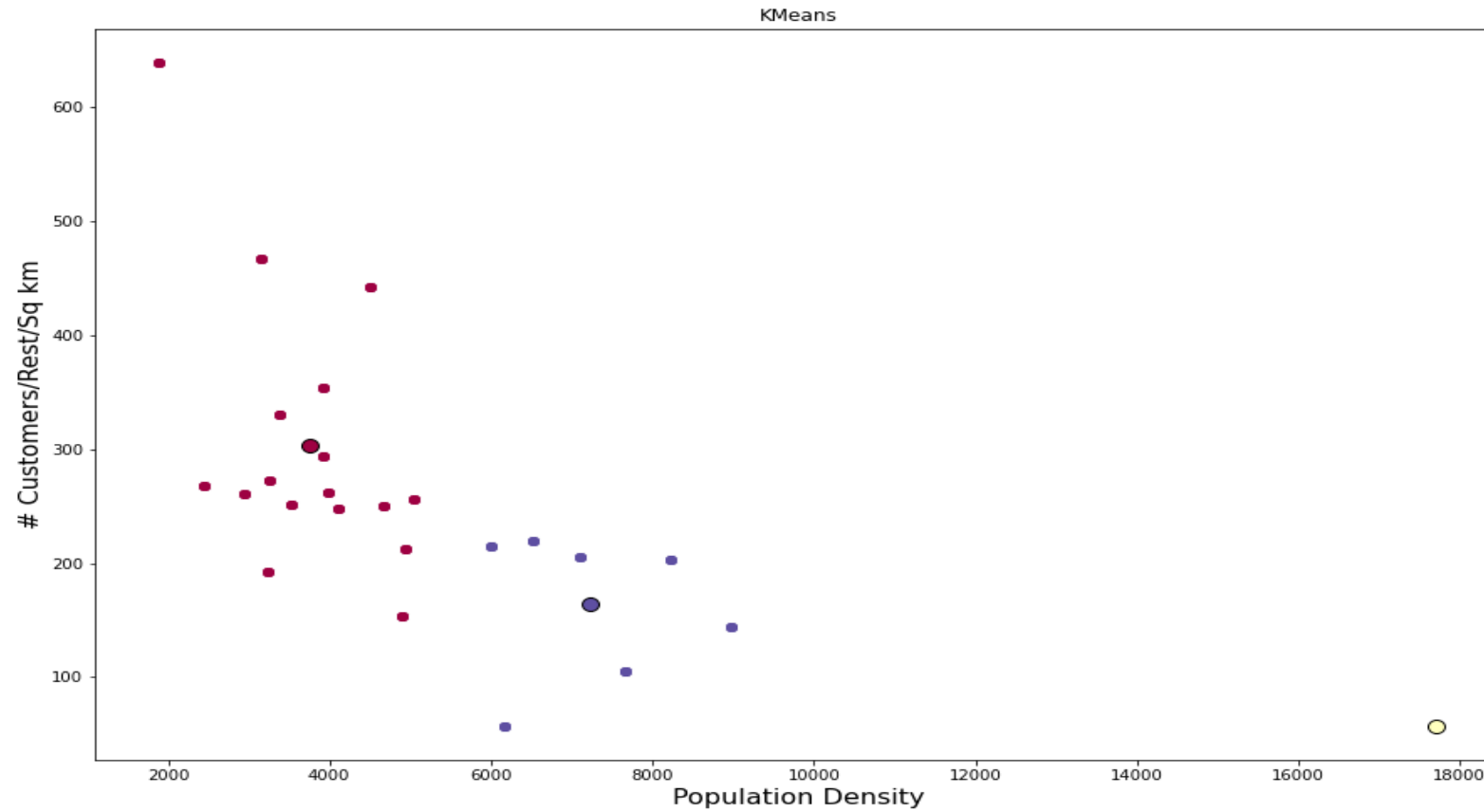
Key Features

- Radius of Wards

- Population Density of Wards (People/Sq km)

- Population Density per Restaurant (# of Customers/Restaurant/Sq km) per Ward

- Top 5 Ethnic Groups per Ward

- Ward Population Growth

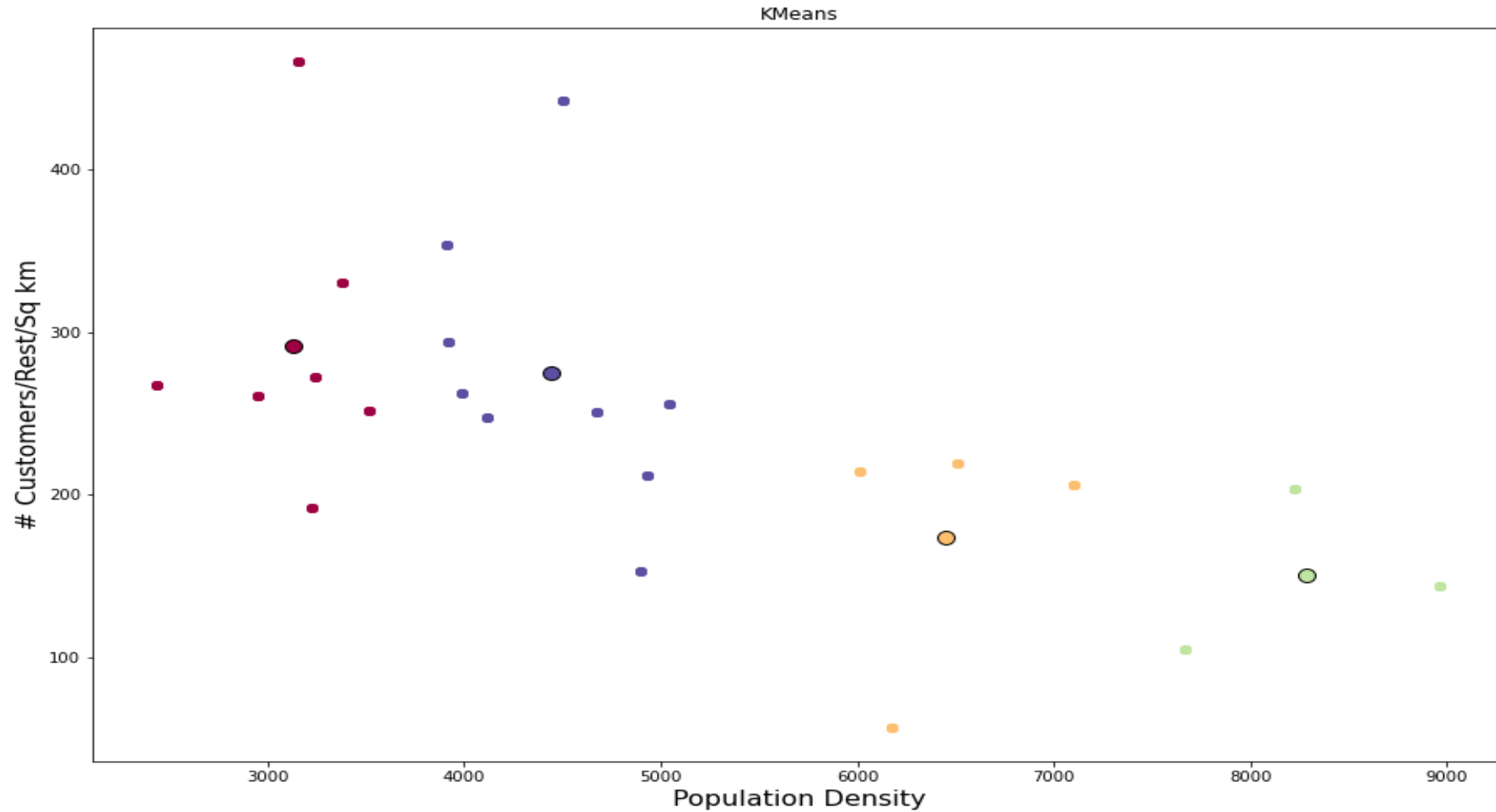- Ward Individual Income Characteristics

- Most Common Restaurants per Ward

Population Density and Customers per Restaurant

K Means Clustering Including Outliers

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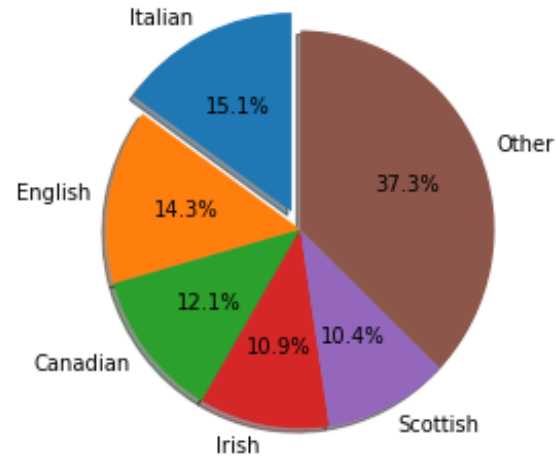
Location of Candidate Wards

4 Candidate Wards

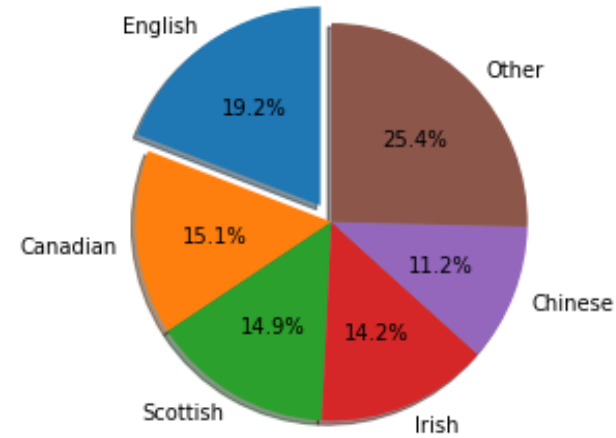| Ward #	Cluster Labels	# of Food Service Businesses	Area (sq km)	Total - Age	People/sq km	rest_per_1000	rest_per_sqkm	# Customers/Rest/Sq km
2	1	253	37.36	118020	3158.993576	2.143704	6.771949	466.482213
15	1	310	30.30	102510	3383.168317	3.024095	10.231023	330.677419
17	2	249	24.43	110080	4505.935325	2.261991	10.192386	442.088353
20	2	312	28.20	110280	3910.638298	2.829162	11.063830	353.461538

► For the 4 Candidate Wards, let's investigate:

- ► Ward Ethnicity
- ► Ward Income Level
- ► Ward Population Growth
- ► Most Common Restaurant per Ward
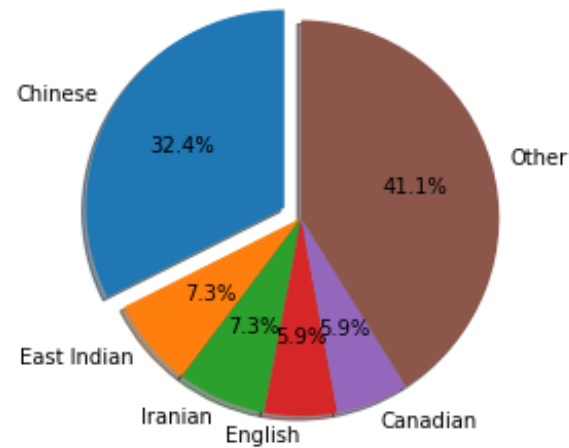
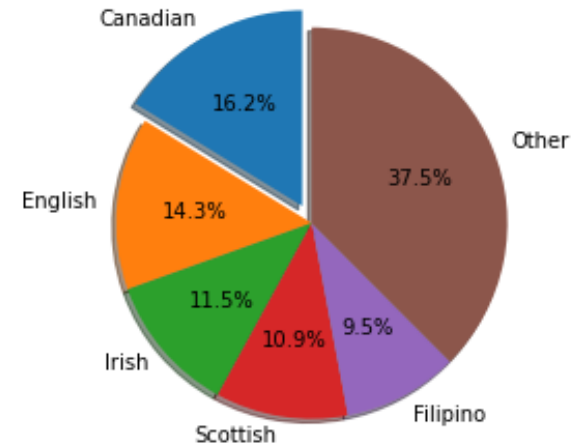# Candidate Ward Ethnicity

Ward 2 Top 5 Ethnicities
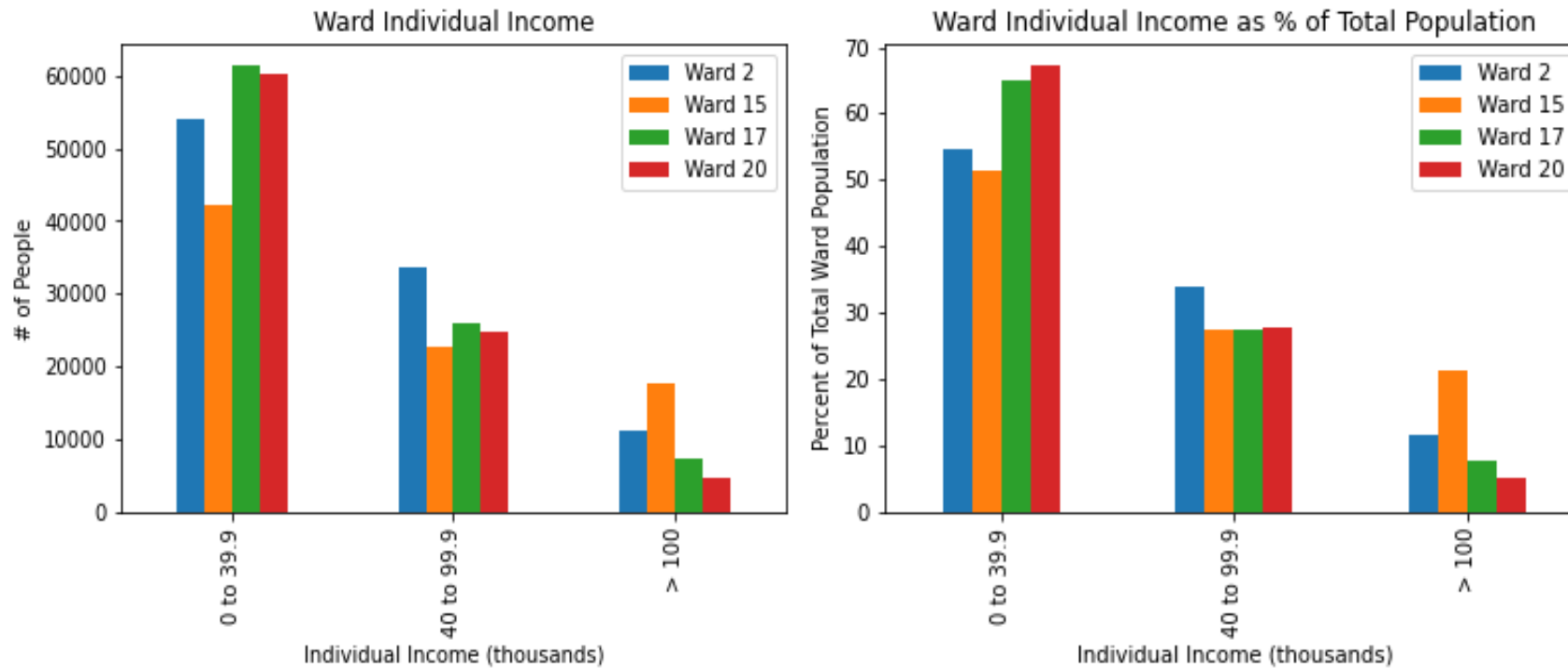
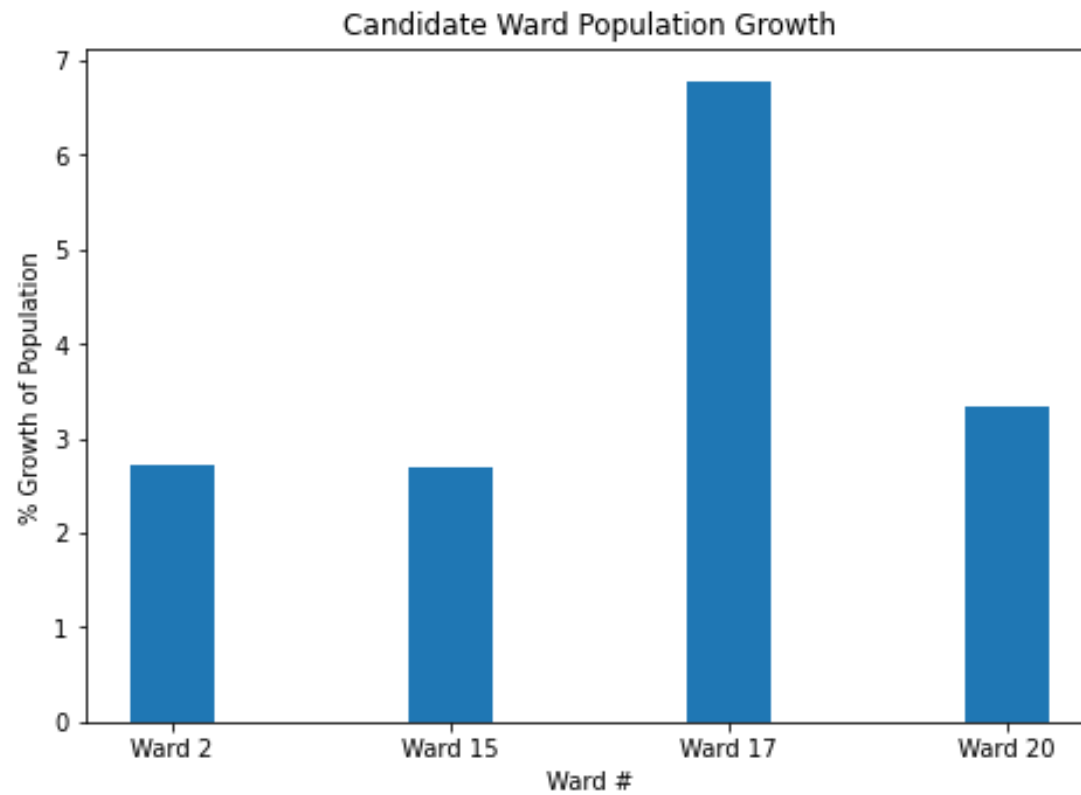Ward 15 Top 5 Ethnicities

Ward 17 Top 5 Ethnicities

Ward 20 Top 5 Ethnicities

Candidate Ward Individual Income

Candidate Ward Population Growth

Candidate Wards Most Common Venues

-Ward 2---

venue	freq %
Coffee Shop	11.0
Bank	7.0
Pharmacy	7.0
Sandwich Place	6.0
Grocery Store	5.0
Pizza Place	3.0
Bakery	3.0
Restaurant	3.0
Beer Store	3.0
Liquor Store	3.0

-Ward 17---

venue	freq %
Coffee Shop	10.0
Sandwich Place	6.0
Bakery	6.0
Bank	6.0
Chinese Restaurant	6.0
Pharmacy	3.0
Pizza Place	3.0
Middle Eastern Restaurant	3.0
Japanese Restaurant	3.0
Caribbean Restaurant	2.0

-Ward 15---

venue	freq %
Italian Restaurant	6.0
Coffee Shop	6.0
Bakery	5.0
Café	5.0
Sushi Restaurant	4.0
Ice Cream Shop	4.0
Park	3.0
Grocery Store	3.0
Sporting Goods Shop	3.0
Burger Joint	2.0

-Ward 20---

venue	freq %
Coffee Shop	9.0
Sandwich Place	7.0
Pizza Place	5.0
Pharmacy	4.0
Grocery Store	4.0
Ice Cream Shop	4.0
Fast Food Restaurant	4.0
Park	4.0
Discount Store	3.0
Burger Joint	3.0

Observations and Recommendation

	Pop Density per km	# Customers/Rest/Sq km	Ethnicities Greater Than 15% of Total Ward Population	Income Level	Population Growth	Most Common Restaurant
Ward 2	3159	466	Italian	Middle	2.71%	Sandwich Place, Pizza Place
Ward 15	3383	331	English, Canadian	High	2.69%	Italian Restaurant, Sushi Restaurant
Ward 17	4506	442	Chinese	Low to Mid	6.79%	Sandwich Place, Chinese Restaurant
Ward 20	3911	353	Canadian	Low to Mid	3.33%	Sandwich Place, Pizza Place, Fast Food
* City of Toronto average population density = 4,250						
* City of Toronto average # Customers / Rest / Sq km = 188						
* City of Toronto average Ward Population Growth = 4.46%						

- 2 Choices:
- Ward 15:
  - High Priced Restaurant
  - Italian and Japanese Restaurant
- Ward 17:
  - Mid Priced Restaurant
  - Chinese Restaurant

Conclusion and Next Steps

▶ Found location by trying to maximize both population density and restaurant scarcity

▶ Wards selected are not saturated by too many restaurants

▶ Need to continue research to find specific locations (intersection or neighborhood) within wards

▶ Need to look into commercial rental prices in the wards for comparison of cost between wards

▶ Need to look at effect of cost of labor on decision about type of restaurant (preparing certain types of food may require more or less expensive workers)