

# Capstone Project

--Solving Problems of University Students

# 1. Description

- **Determine the Problem**
- how to choose a good restaurant and a place for fun for a student in University of Toronto to spend weekend time.
- ***Describe the Data***
- Wikipedia [https://en.wikipedia.org/wiki/List\\_of\\_postal\\_codes\\_of\\_Canada:\\_M](https://en.wikipedia.org/wiki/List_of_postal_codes_of_Canada:_M)
- the geographical coordinates [http://cocl.us/Geospatial\\_data](http://cocl.us/Geospatial_data).
- Foursquare API

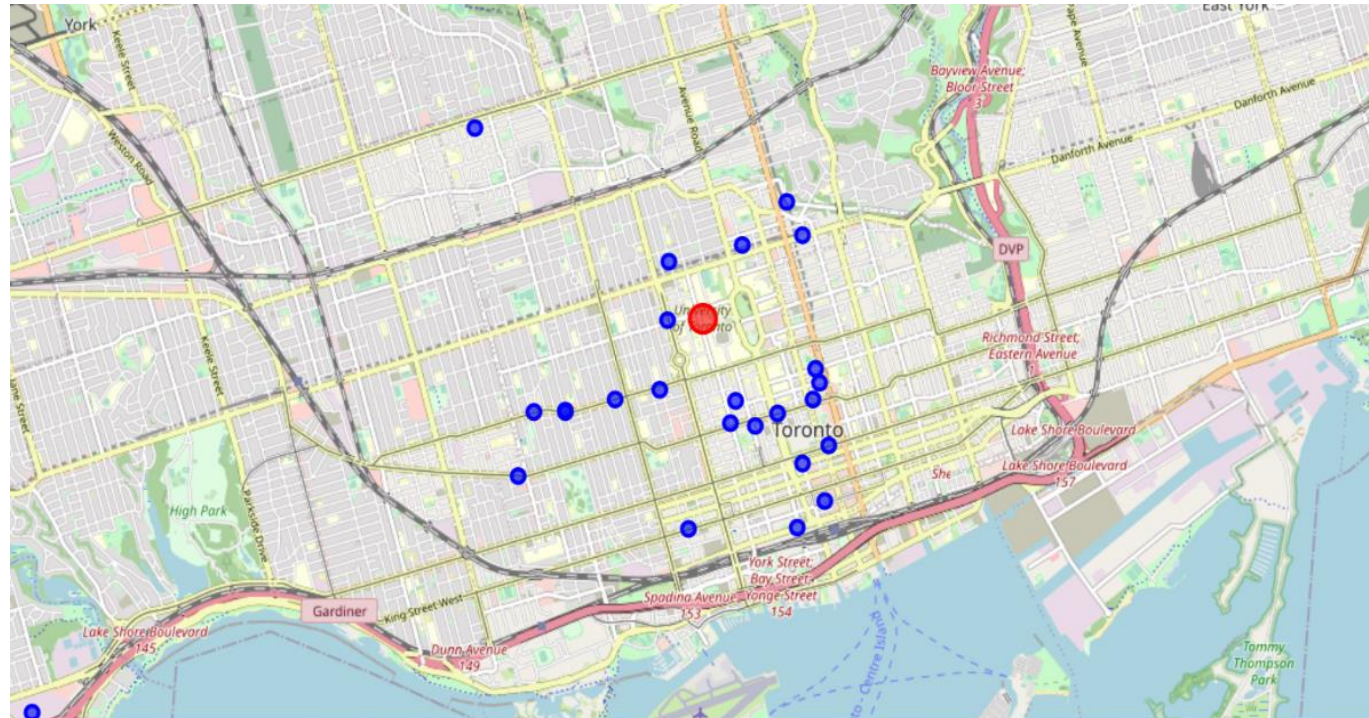
## 2. Evaluation of Restaurants

- *Load and analyze the data*
- the coordinates are 43.663461999999996, -79.39775965337452.

	name	categories	address	crossStreet	lat	lng	labeledLatLngs	distance	postalCode	cc	neighborhood	city	state
0	Punto Gelato, Simply Italian	Ice Cream Shop	146 Cumberland St	btwn Avenue Rd & Bay St	43.669955	-79.392603	[{"label": "display", "lat": 43.66995452843031...	833	M5R 1A8	CA	Yorkville	Toronto	ON
1	Scaddabush Italian Kitchen & Bar	Italian Restaurant	382 Yonge Street, Unit #7	Gerrard	43.658920	-79.382891	[{"label": "display", "lat": 43.65892029202872...	1299	M5B 1S8	CA	NaN	Toronto	ON
2	Fabbrica Rustic Italian	Italian Restaurant	66 Wellington St W	NaN	43.647161	-79.381691	[{"label": "display", "lat": 43.647161, "lng":...	2228	M5K 1E7	CA	NaN	Toronto	ON
3	The Italian Cultural Institute	Art Gallery	496 Huron St	NaN	43.668432	-79.402169	[{"label": "display", "lat": 43.66843245214709...	657	NaN	CA	NaN	Toronto	ON
4	Papa Ceo Fine Italian Foods & Pizza	Pizza Place	654 Spadina Avenue	NaN	43.663300	-79.402317	[{"label": "display", "lat": 43.66329982959619...	367	M5S 2H7	CA	NaN	Toronto	ON
5	Italian Consulate Toronto	Embassy / Consulate	136 Beverley St	Dundas Street	43.654027	-79.394104	[{"label": "display", "lat": 43.65402694219784...	1090	NaN	CA	NaN	Toronto	ON

## 2. Evaluation of Restaurants

- Visualization
- the map of the restaurants around university of Toronto



## 2. Evaluation of Restaurants

- Further analysis
- the rating of Scaddabush Italian Kitchen & Bar is the highest

```
venue_id = '52f6816f11d24a43115dc834' # ID of Scaddabush Italian Kitchen & Bar
url = 'https://api.foursquare.com/v2/venues/{}?client_id={} &client_secret={} &oauth_token={} &v={} '.format(venue_id, CLIENT_ID, CLIENT_SECRET, ACC
url
result = requests.get(url).json()
print(result['response']['venue'].keys())
result['response']['venue']
try:
    print(result['response']['venue']['rating'])
except:
    print('This venue has not been rated yet.')
```

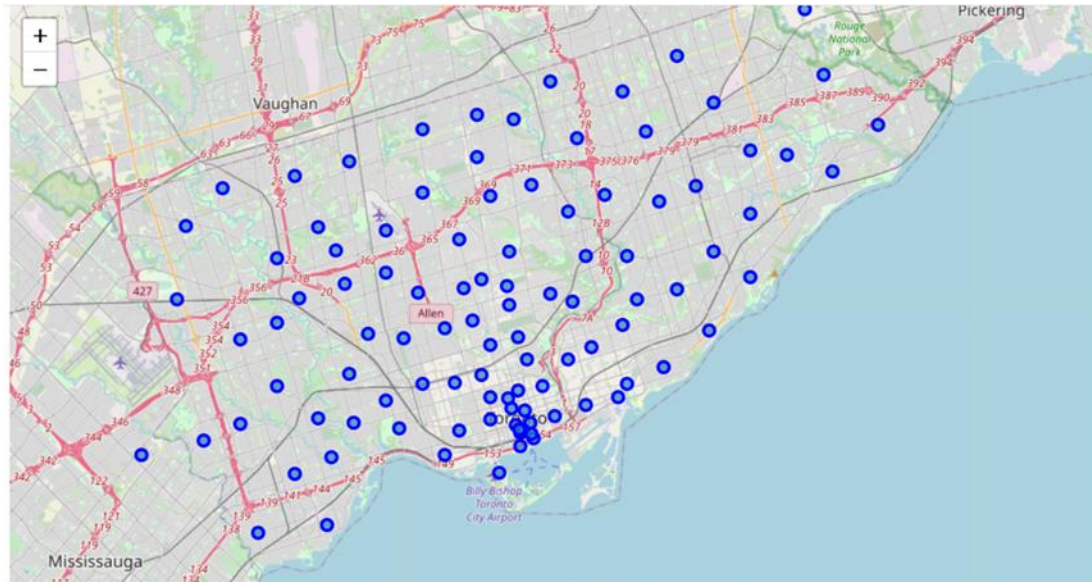
```
dict_keys(['id', 'name', 'contact', 'location', 'canonicalUrl', 'categories', 'verified', 'stats', 'url', 'price', 'hasMenu', 'likes', 'lik
e', 'dislike', 'ok', 'rating', 'ratingColor', 'ratingSignals', 'menu', 'allowMenuUrlEdit', 'beenHere', 'specials', 'photos', 'reasons', 'de
scription', 'page', 'hereNow', 'createdAt', 'tips', 'shortUrl', 'timeZone', 'listed', 'hours', 'popular', 'seasonalHours', 'defaultHours',
'pageUpdates', 'inbox', 'attributes', 'bestPhoto', 'colors'])
7.5
```

# 3. Evaluation of Places in Toronto

- Load and prepare the data

	PostalCode	Borough	Neighborhood	Latitude	Longitude
0	M1B	Scarborough	Malvern, Rouge	43.806686	-79.194353
1	M1C	Scarborough	Rouge Hill, Port Union, Highland Creek	43.784535	-79.160497
2	M1E	Scarborough	Guildwood, Morningside, West Hill	43.763573	-79.188711
3	M1G	Scarborough	Woburn	43.770992	-79.216917
4	M1H	Scarborough	Cedarbrae	43.773136	-79.239476

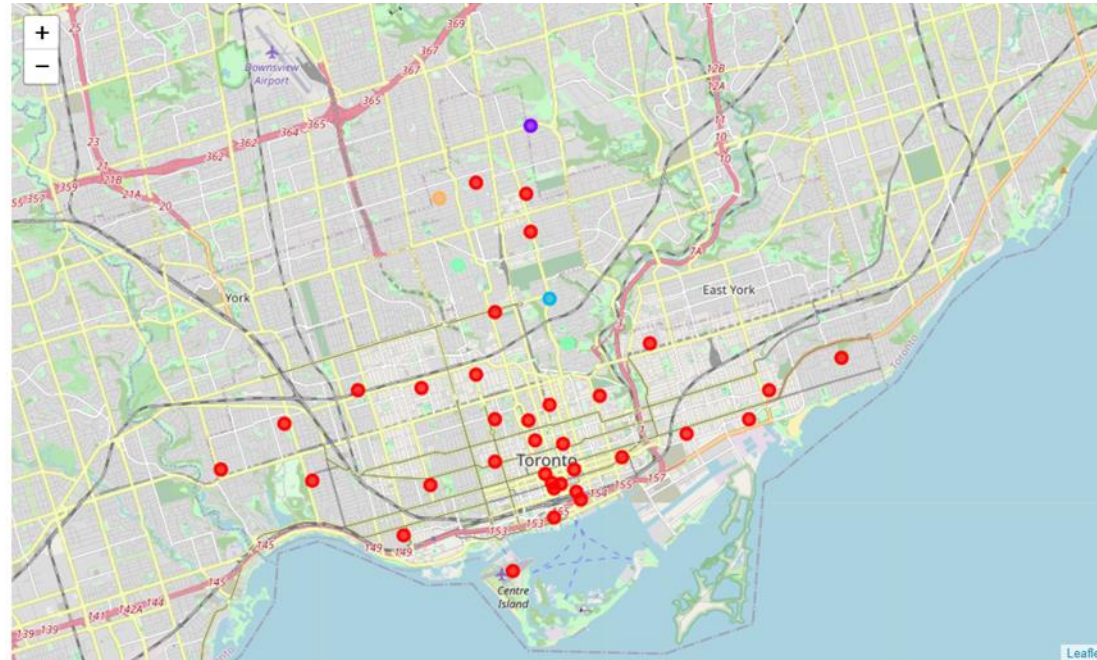
- Clustering Toronto areas





# 3. Evaluation of Places in Toronto

- Check and choose a proper cluster



# 3. Evaluation of Places in Toronto

- cluster 2 and cluster 4

	Borough	Cluster Labels	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	11th Most Common Venue	12th Most Common Venue
8	Central Toronto	2	Lawyer	Tennis Court	Trail	Wine Shop	Doner Restaurant	Diner	Discount Store	Distribution Center	Dog Run	Donut Shop	Department Store	Eastern European Restaurant

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22	Central Toronto	4	Pool	Garden	Wine Shop	Deli / Bodega	Ethiopian Restaurant	Escape Room	Electronics Store	Eastern European Restaurant	Donut Shop	Doner Restaurant	Dog Run	District Centre



## 4. Conclusion

- In conclusion, if a student in university of Toronto wants to spend the time on weekend, Scaddabush Italian Kitchen & Bar is recommended because of its close distance and good ratings. Then Central Toronto and Downtown Toronto are recommended to visit.

Thank you!