

# CAPSTONE COURSERA

## BATTLE OF NEIGHBORHOODS

# CLUSERING RESTAURANTS IN PEORIA,IL

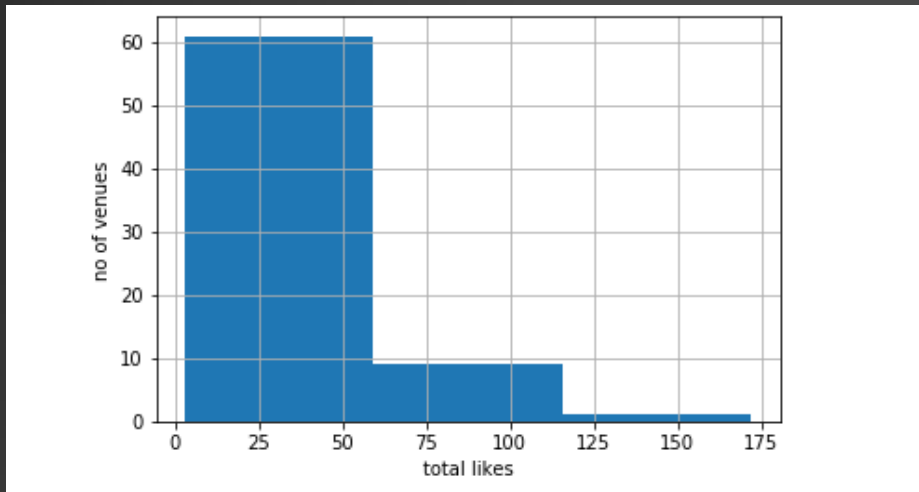
- Good restaurants are liked and shared by social media users
- Foursquare api provides the data for venues around city as well as how many people liked
- Using clustering algorithm, provide user the best choices in a region grouped by its cuisine type

# DATA ACUSATION AND CLEANING

- Use geopy to get lat, long information of Peoria, IL
- Use Foursquare apis to get all venues in and around Peoria
- Use categories information from the returned result to filter out desired type of places
- Get likes from Foursquare for each venue

# DATA PREPERATION

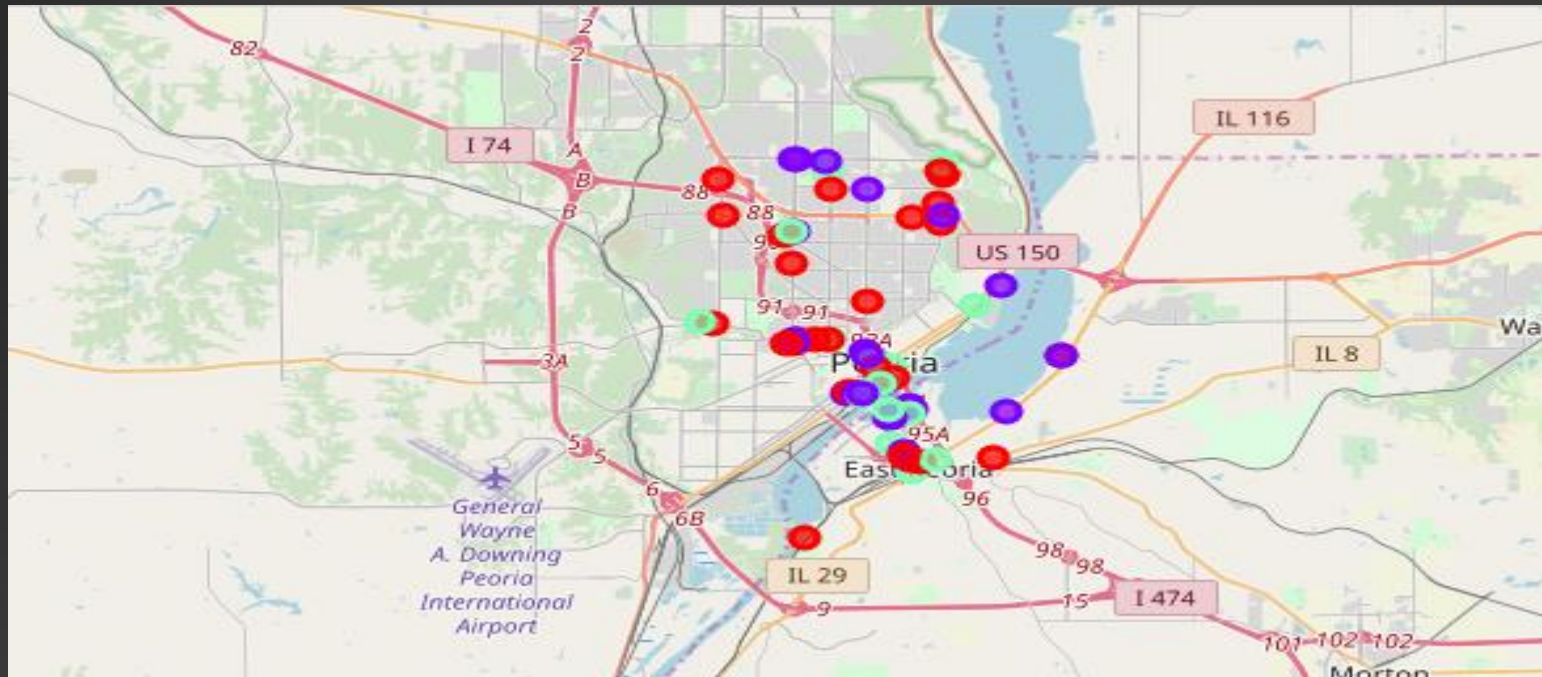
- Divide each venue into one of the four regions based on its location from the center
- Based on total likes and venues create 3 categories



- Group similar categories to reduce the variants in categories

# DATA MODELING

- Run K means clustering algorithm and create map to visualize distribution of various clusters





# RESULTS

North-East side of the city have mostly below average bars barring couple of great restaurants and cafes

```
peoria_venues.loc[peoria_venues['location direction']=='North-East'].sort_values(by='categories_new').sort_values(by='total_likes')
```

25]:

	name	id	lat	lng	total likes	location direction	total_likes_cat	categories_new	label
93	Leaves And Beans Roasting Company (LnB Coffee)	44ed6c95f964a520dd371fe3	40.745525	-89.573787	28	North-East	above avg	Cafe or Bakery or Ice cream shops	2
45	Hofbrau	4586ec20f964a520c03f1fe3	40.708671	-89.565249	25	North-East	above avg	european	2
65	Emack & Bolio's	4bccfab268f976b00eb36383	40.743176	-89.573906	22	North-East	below_avg	Cafe or Bakery or Ice cream shops	0
67	Trefzger's Bakery	4bfb437d65fbc9b6f142916c	40.730295	-89.574017	15	North-East	below_avg	Cafe or Bakery or Ice cream shops	0
73	Peoria Pizza Works	4c1c0f8de9c4ef3b38c045aa	40.735102	-89.574847	22	North-East	below_avg	american restaurant	0
47	Oyster Bar	4be607b72468c928a1f20043	40.695547	-89.542842	21	North-East	below_avg	bars	0
49	Schooner's	4c649edaddfa593642792ff	40.731708	-89.582050	16	North-East	below_avg	bars	0
68	Pour Bros Craft Taproom	5759cb87498e6c0278c00823	40.742317	-89.573255	22	North-East	below_avg	bars	0
69	Hearth	529c5cc2408c8c2d07d72cbe	40.742818	-89.573046	10	North-East	below_avg	other	0

# RESULTS: CONTD...

North west side of the city has the most number of eatiers and bars and it also the best choices from the city

```
peoria_venues.loc[peoria_venues['location direction']=='North-West'].sort_values(by= 'categories_new').sort_values(by= 'total
```

6]:

	name	id	lat	lng	total likes	location direction	total_likes_cat	categories_new	label
84	Hokkaido Restaurant	50ef11f8e4b024b741346051	40.727866	-89.613150	29	North-West	above avg	asian restaurant	2
69	Rizzi's On Sheridan	4dfb7b9ad4c01451df58c04e	40.743794	-89.603698	33	North-West	above avg	european	2
89	Jimmy's Bar	4b89f3adf964a5204a5832e3	40.704484	-89.637310	29	North-West	above avg	bars	2
21	Pitch Karaoke Bar	4c4bd99b46240f475e73e7f3	40.699960	-89.603230	33	North-West	above avg	bars	2
16	Hoops Pub & Pizza	4b89ef1cf964a5202b5732e3	40.694170	-89.592092	29	North-West	above avg	american restaurant	2
40	Bellacino's Pizza & Grinders	4bbe413b9474c9b64054d9b6	40.699187	-89.611779	8	North-West	below_avg	american restaurant	0
46	Steak & Fries	4bb1400df964a52006873ce3	40.699073	-89.612956	7	North-West	below_avg	american restaurant	0
80	Country Club BBQ	53f0407d498e99b7eca85267	40.704049	-89.633796	17	North-West	below_avg	bars	0
78	Popeyes Louisiana Kitchen	4c1e4ff4b9f876b011e17e46	40.709992	-89.593555	17	North-West	below_avg	american restaurant	0
82	Connected	4ca7b4af97c8a1cdd44c7da5	40.727075	-89.615787	14	North-West	below_avg	american restaurant	0

# RESULTS: CONTD...

South East side of the city has the most concentration of the american style food restaurants. It also has quite a many great places to pick from

```
peoria_venues.loc[peoria_venues['location direction']=='South-East'].sort_values(by='categories_new').sort_values(by='total
```

7]:

	name	id	lat	lng	total likes	location direction	total_likes_cat	categories_new	label
42	Potbelly Sandwich Shop	520134fb498ea627f7061aa5	40.669769	-89.583669	26	South-East	above avg	Cafe or Bakery or Ice cream shops	2
29	Lorena's Mexican Restaurant	4b632fe9f964a5202e692ae3	40.680418	-89.582356	31	South-East	above avg	south american	2
76	Qdoba Mexican Grill	4b291382f964a5203b9824e3	40.681663	-89.587677	27	South-East	above avg	south american	2
48	Johnny's Italian Steakhouse	522a650511d2c4631176233e	40.672950	-89.587658	24	South-East	above avg	american restaurant	2
39	Firehouse Pizza	4b86dbf8f964a5203ba231e3	40.665764	-89.581667	24	South-East	above avg	american restaurant	2
90	Bob Evans Restaurant	4b55f6c8f964a5203af927e3	40.668640	-89.575673	24	South-East	above avg	american restaurant	2
10	Two25	4b7def8ff964a520eada2fe3	40.693379	-89.587394	33	South-East	above avg	american restaurant	2
33	Chick-fil-A	56aff21f498eb78a5c3040da	40.668832	-89.583129	12	South-East	below_avg	american restaurant	0
41	Emack & Bolio's Riverfront	51d3332a498ee27473baa736	40.689933	-89.586950	8	South-East	below_avg	Cafe or Bakery or Ice cream shops	0
71	Silver Bullet	4c422f94e26920a13db05fe7	40.668346	-89.579538	14	South-East	below_avg	bars	0
52	Jason's Deli	55f20e1f498edb125dc2cb88	40.668917	-89.582289	21	South-East	below_avg	south american	0
86	Twistee Treat	4c2e89a1ed37a593bad26503	40.669063	-89.560609	10	South-East	below_avg	Cafe or Bakery or Ice	0



# RESULTS: CONTD...

South west has few great bars and couple of above average american restaurants

```
peoria_venues.loc[peoria_venues['location direction']=='South-West'].sort_values(by='categories_new').sort_values(by='total
```

8]:

	name	id	lat	lng	total likes	location direction	total_likes_cat	categories_new	label
5	Jim's Steak House	4c1d4a89b4e62d7f6989dc93	40.692690	-89.590499	25	South-West	above avg	american restaurant	2
15	Rhythm Kitchen	4ba2d01cf964a520441b38e3	40.688171	-89.590582	33	South-West	above avg	american restaurant	2
54	Blue Duck Barbeque Tavern	554265fb498e37f6399d69eb	40.688465	-89.589789	34	South-West	above avg	american restaurant	2
19	8 Bit Beercade	55f21680498ea9ed8c657832	40.685416	-89.595020	23	South-West	above avg	bars	2
6	Zion Coffee Bar	5894d99b1470b050ba3a18c5	40.686305	-89.598495	16	South-West	below_avg	Cafe or Bakery or Ice cream shops	0
85	Kuchie's on the Water	50365a0be4b0419538ac9473	40.648287	-89.609813	20	South-West	below_avg	american restaurant	0
24	Kenny's Westside Pub	5813786138faf033ee9cd05c	40.692526	-89.591149	7	South-West	below_avg	bars	0
3	Sugar	524f526b11d25d7ae15b2ab1	40.685629	-89.599068	67	South-West	great	american restaurant	1
18	Thyme Kitchen and Craft Beer	570453b8498eefdf0c18120	40.685632	-89.596370	43	South-West	great	bars	1
32	Martini's On Water Street	4b5b06cdf964a52097df28e3	40.688508	-89.589353	46	South-West	great	bars	1
64	Kelleher's Irish Pub & Eatery	4c1a5233b9f876b008737846	40.685774	-89.594686	90	South-West	great	bars	1

THANK YOU