BEST MELBOURNE SUBURBS FOR A NEW RESTAURANT

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INTRODUCTION

- Melbourne is a big city with more than 5 million population and a large diversity of people.

- There are various types of cuisine available in Melbourne and there is a high competition between restaurants in the suburbs with a high concentration of food stores and restaurants.

- Late night restaurants and food stores have concerns about the security of their neighbourhood.

- Opening a new restaurant in a suburb requires attention to these factors:
    1. Number of competitors
    2. Historical data of security and crime

DATA

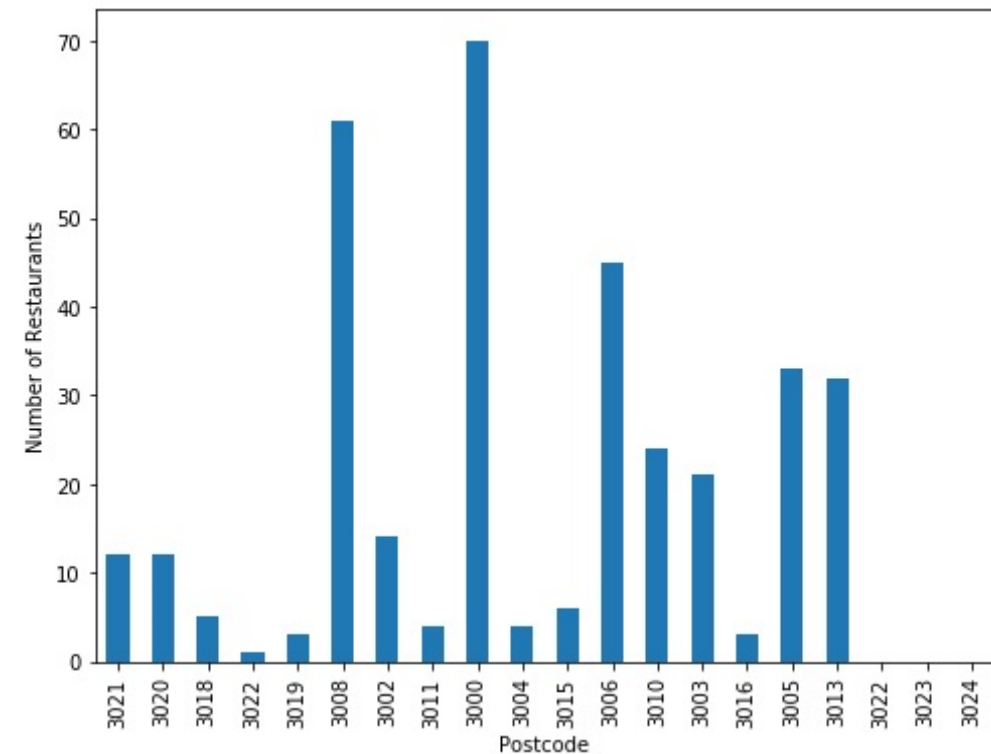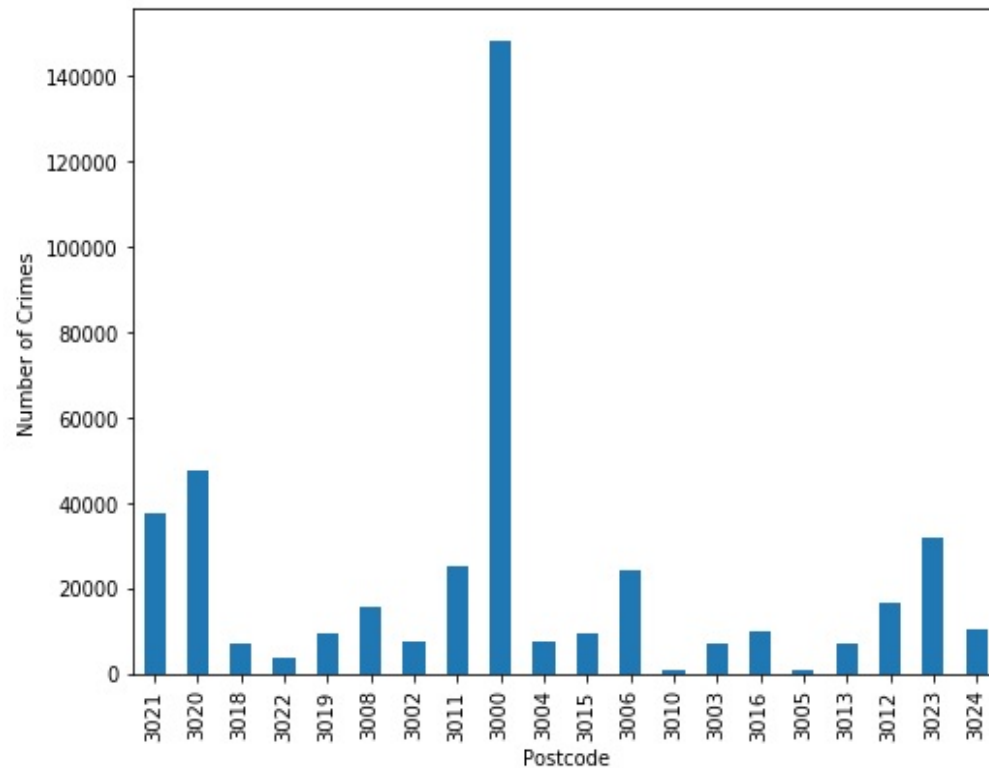The data required for this project includes:

1. List of Melbourne suburbs and their geographical location information

2. Number of restaurants within certain radius of each suburb

3. Crime data of Melbourne suburbs.

These data were collected from:

- https://www.matthewproctor.com/full_australian_postcodes_vic

- Foursquare

- https://www.crimestatistics.vic.gov.au/crime-statistics/latest-crime-data/download-data
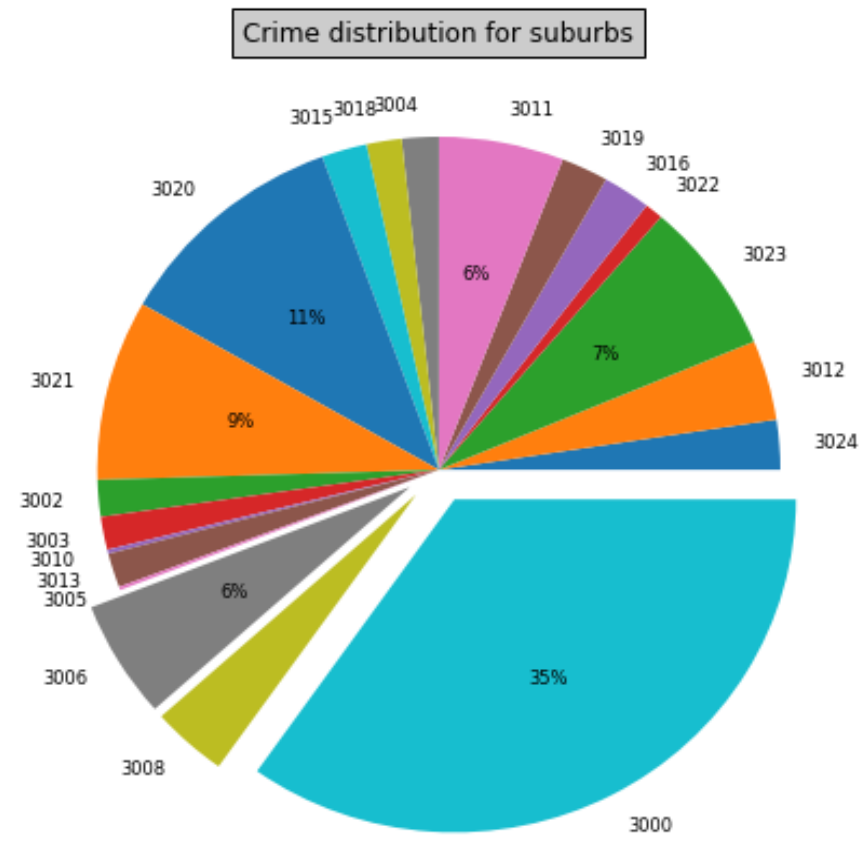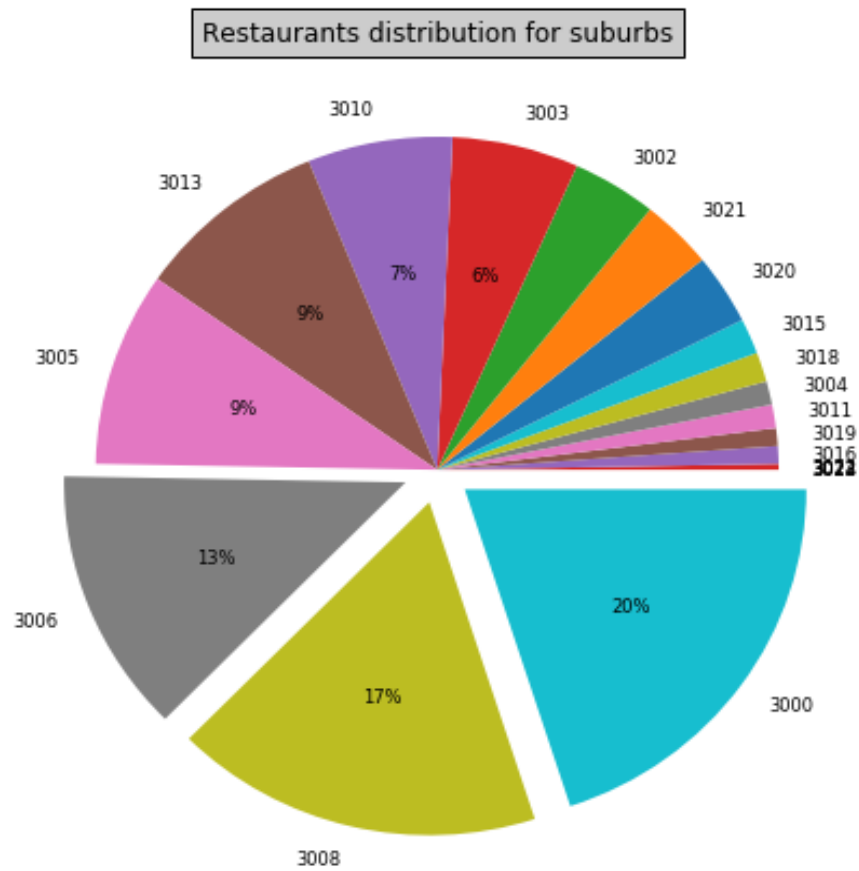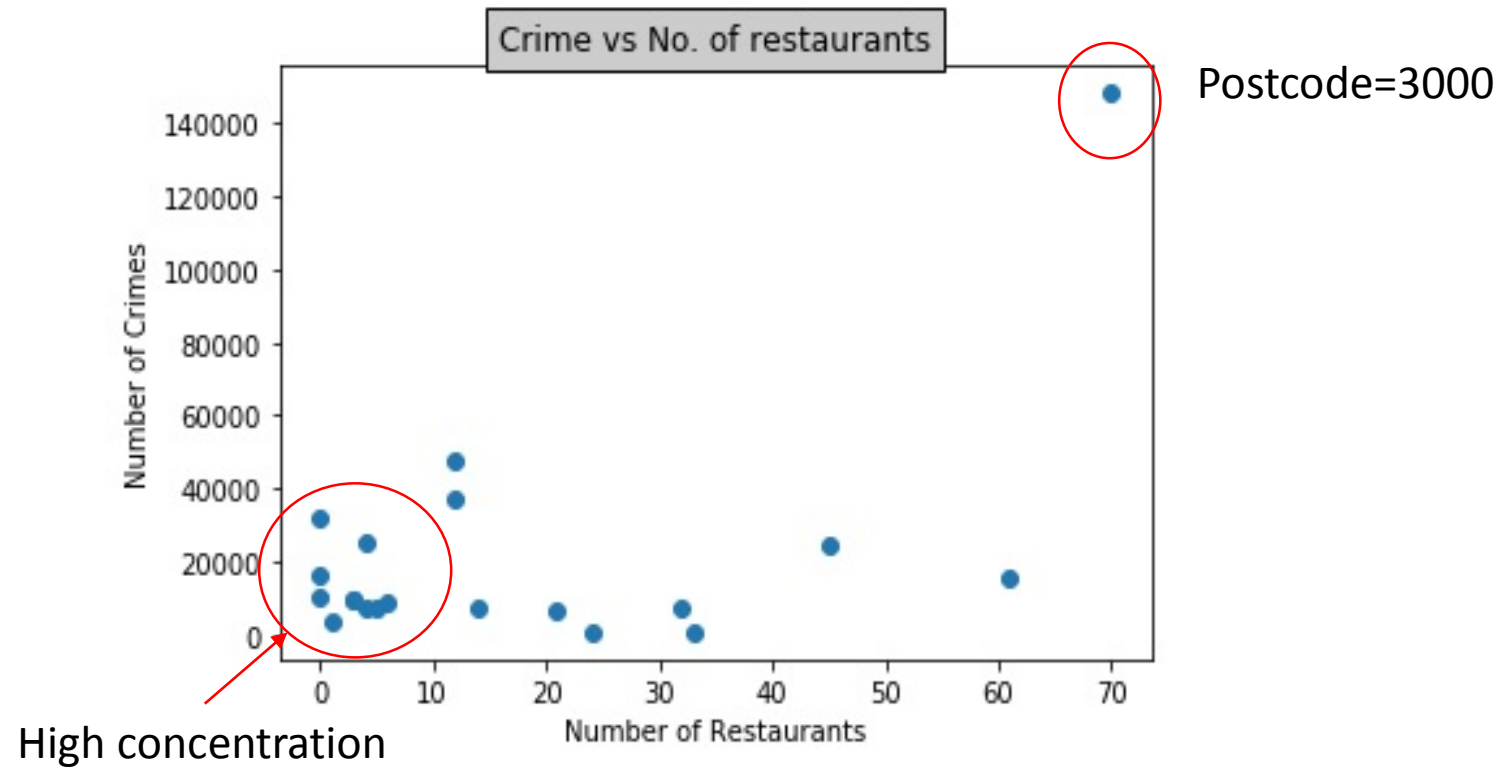
NUMBER OF CRIMES AND RESTAURANTS IN SUBURBS

Note to postcode 3000 which has the highest number of crimes and restaurants.

PERCENTAGE OF CRIMES AND RESTAURANTS IN SUBURBS

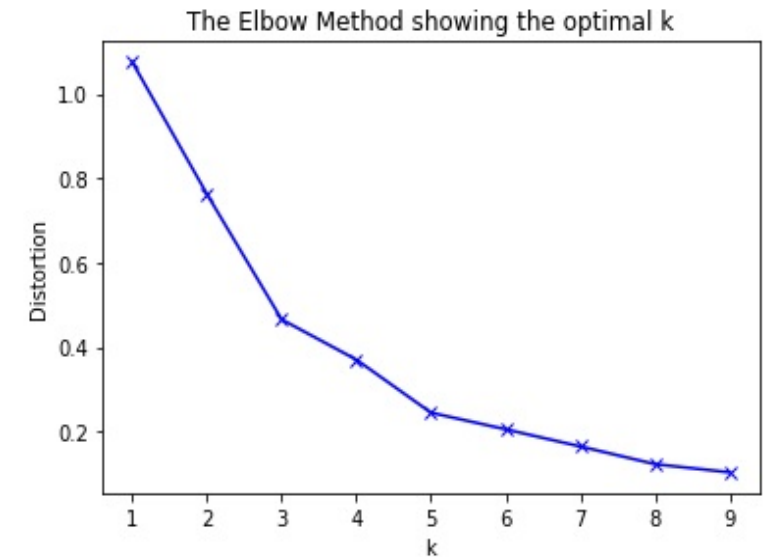Postcode 3000 has 35% of crimes and 20% of Restaurants among all studied suburbs.

NUMBER OF CRIMES VS RESTAURANTS

Crime vs No. of restaurants

Postcode=3000

High concentration
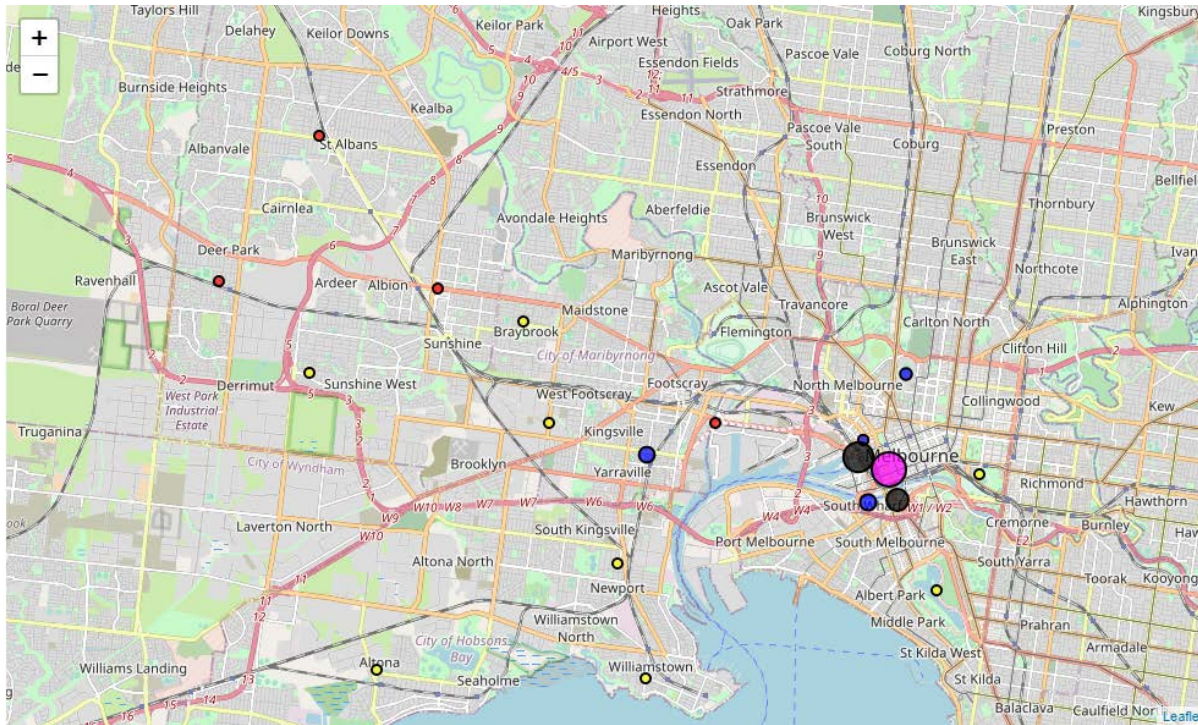
K-MEANS CLUSTERING

- Optimal k was found to be 5.
- Studied suburbs were divided into 5 clusters.
- The following table shows the clustering of all 20 suburbs studied here.

The Elbow Method showing the optimal k

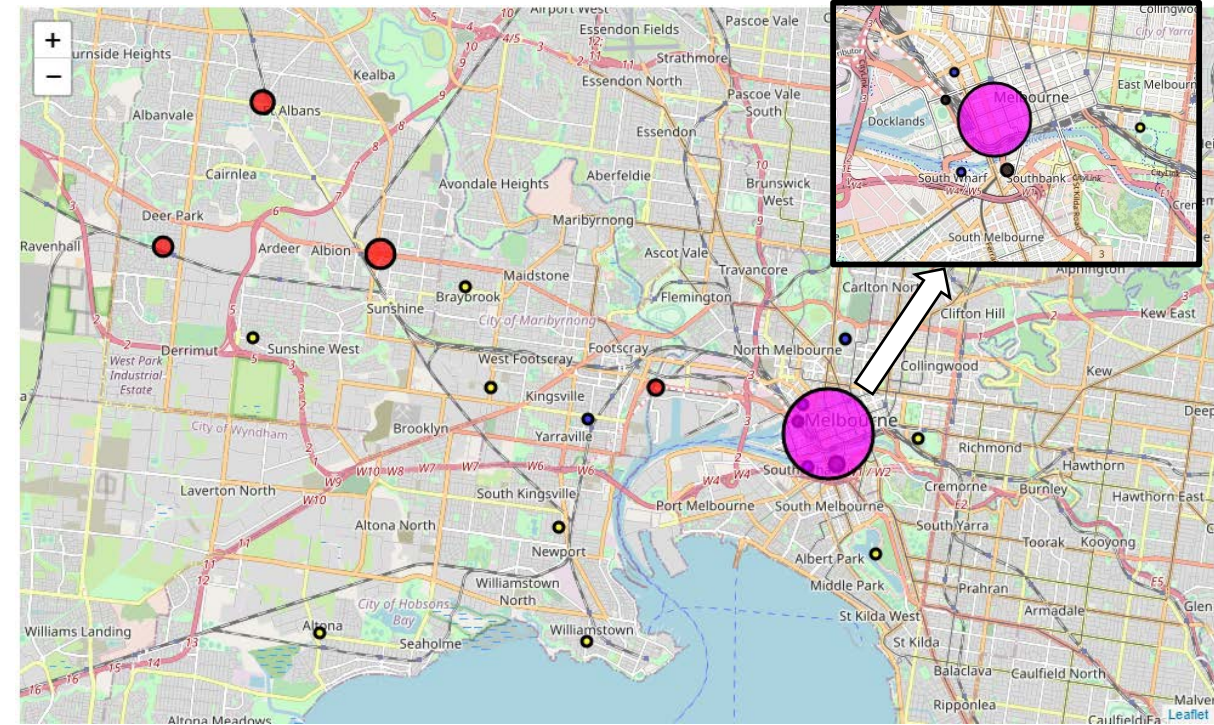|	Cluster Labels	Postcode	Suburb	Latitude	Longitude	No Restaurants	Incidents Recorded
0	1	3021	ALBANVALE KEALBA KINGS_PARKST_ALBANS	-37.743361	144.796693	12	37309
1	1	3020	ALBION GLENGALA SUNSHINE SUNSHINE_NORTHSU...	-37.777204	144.829945	12	47594
2	4	3018	ALTONA SEAHOLME	-37.861720	144.812736	5	7096
3	4	3022	ARDEER DEER_PARK_EAST	-37.795937	144.793961	1	3682
4	4	3019	BRAYBROOK BRAYBROOK_NORTHROBINSON	-37.784683	144.854014	3	9498
5	0	3008	DOCKLANDS	-37.814719	144.948039	61	15308
6	4	3002	EAST_MELBOURNE	-37.818517	144.982207	14	7572
7	1	3011	FOOTSCRAY SEDDON SEDDON_WEST	-37.807101	144.907953	4	25150
8	2	3000	MELBOURNE	-37.817403	144.956776	70	48273
9	4	3004	MELBOURNE ST_KILDA_ROAD_CENTRAL	-37.844246	144.970161	4	7453
10	4	3015	NEWPORT SOUTH_KINGSVILLESPOTSWOOD	-37.838242	144.880556	6	9118
11	0	3006	SOUTH_WHARFSOUTHBANK	-37.824272	144.959000	45	24358
12	3	3010	UNIVERSITY_OF_MELBOURNE	-37.796152	144.961351	24	880
13	3	3003	WEST_MELBOURNE	-37.810871	144.949592	21	6812
14	4	3016	WILLIAMSTOWNWILLIAMSTOWN_NORTH	-37.863743	144.888461	3	9665
15	3	3005	WORLD_TRADE_CENTRE	-37.824608	144.950858	33	671
16	3	3013	YARRAVILLEYARRAVILLE_WEST	-37.814183	144.888686	32	7049
17	4	3012	BROOKLYN KINGSVILLEKINGSVILLE_WESTMAIDSTONE T...	-37.807135	144.861162	0	16537
18	1	3023	BURNSIDE BURNSIDE_HEIGHTSCAIRNLEA CAROLINE_S...	-37.775501	144.768500	0	31644
19	4	3024	FIELDSTONEMAMBOURIN MANOR_LAKESMOUNT_COTTRELLW...	-37.863403	144.580165	0	10275

VISUALIZING ON MELBOURNE MAP

a) Suburbs clusters, radius of circles is proportional to number of restaurants

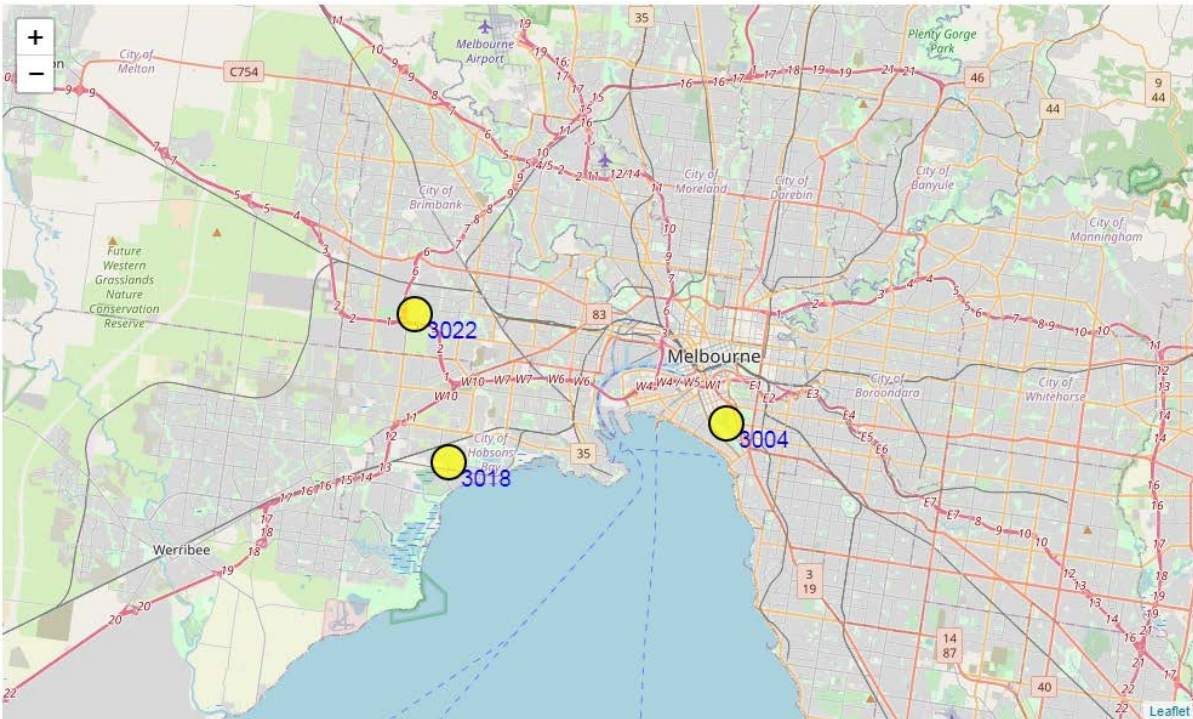b) Suburbs clusters, radius of circles is proportional to number of crimes

Note that yellow cluster (cluster 4) has low number of competitors and crimes.

RECOMMENDED SUBURBS

- Top 3 suburbs among all suburbs in cluster 4 were identified and are recommended.

Priority	Postcode	Number of restaurants	Number of crimes
1	3022	1	3682
2	3004	4	7453
3	3018	5	7096

CONCLUSION

- We analysed the crime and venues data of 20 suburbs of Melbourne to find the best location for opening a new restaurant.

- We used K-Means clustering method for grouping the suburbs.

- It was found that k=5 is the optimal value.

- Among five clusters, cluster 4 (yellow) was found to be the best location as it has low number of competitors and crimes simultaneously.

- Among various suburbs in cluster 4, the best 3 suburbs were identified and recommended which have postcode 3022, 3004 and 3018.

- The location of these 3 suburbs was shown on the map to provide a better insight into the best suburb for opening the restaurant.

THANK YOU!