

A decorative graphic on the left side of the slide. It consists of a blue parallelogram and a light green parallelogram, both tilted at an angle. The blue shape is in the foreground, and the green shape is partially behind it. They are set against a dark blue background with faint, lighter blue diagonal stripes.

Determining Housing Location



What for?

- Harambe is a Singapore Citizen and a newly wed who wants to buy a residential property
- He is unsure of the location of his new home to be, with his *main restraint being cost*
- A home which is *near to a gym* and other amenities



Data Acquisition

1. Data of 'Rentals of Non-Landed Residential Buildings, Quarterly' is obtained from the Singapore Land Authority
2. Postal codes and districts in Singapore are obtained from Wikipedia
3. Data of Gyms in Singapore is obtained from Singapore Health Promotion Board
4. Foursquare API



Data Cleaning

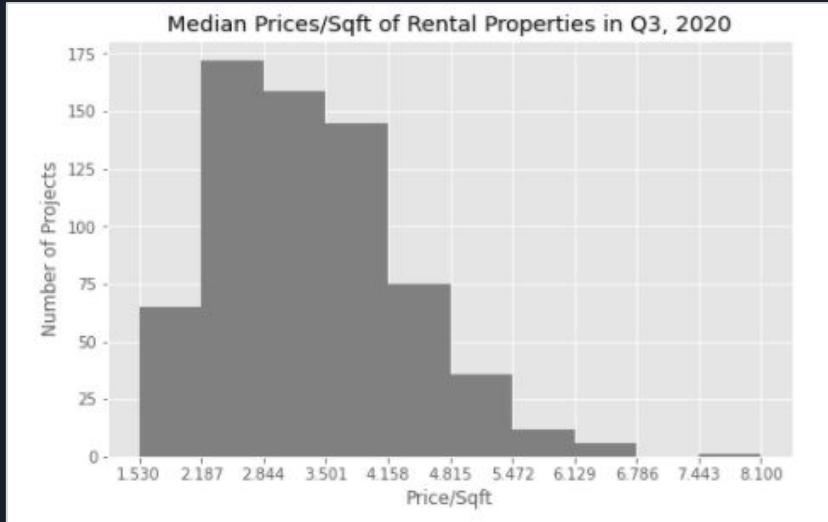
The datasets were imported and cleaned by

- Removing unwanted columns
- Renaming columns
- Joining dataframes

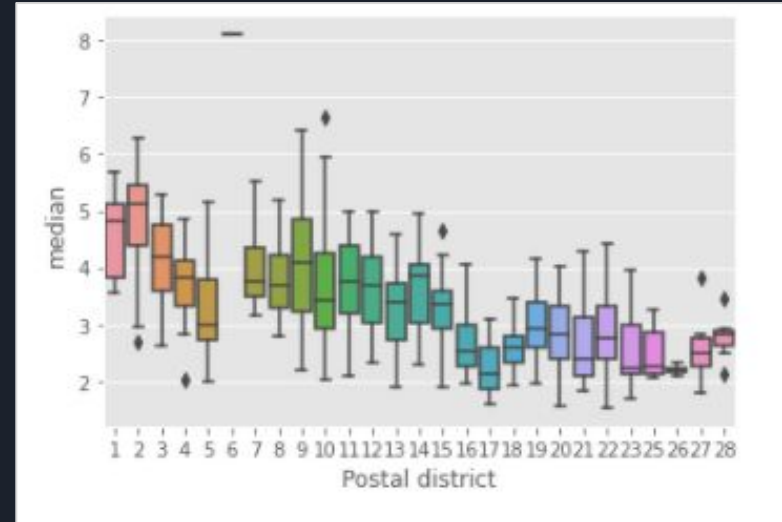
	project_name	Postal district	median	rental_contracts	General location
0	# 1 SUITES	14	3.57	13	Geylang, Eunos, Aljunied
1	18 WOODSVILLE	13	3.69	17	Macpherson, Braddell, Potong Pasir, Bidadari
2	1919	9	4.91	13	Orchard, Cairnhill, River Valley
3	26 NEWTON	11	4.80	20	Watten Estate, Novena, Thomson
4	368 THOMSON	11	3.33	20	Watten Estate, Novena, Thomson

Top five rows of combined DataFrame

Data Visualisation

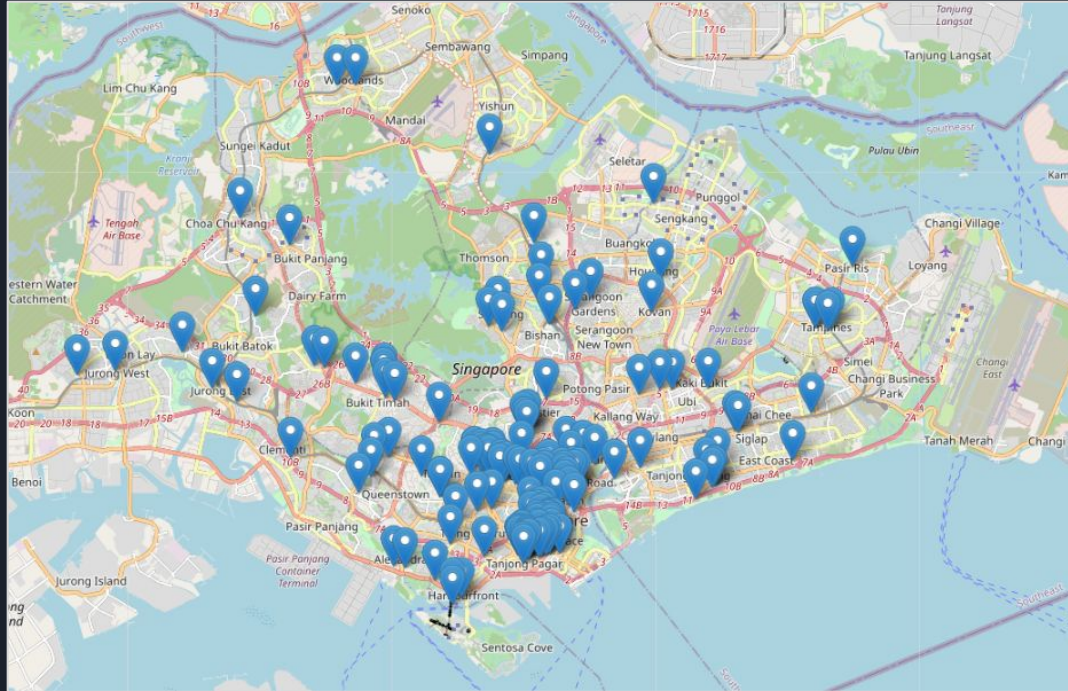


Histogram showing the Median Prices/Sqft of Rental Properties in Q3, 2020



Box Plot showing the mean median price statistics per district

Data Visualisation



Gym locations as markers on the Singapore map

Data analysis

	Postal district	median	rental_contracts	General location
0	17	2.199231	26.923077	Loyang, Changi
1	26	2.205000	18.750000	Upper Thomson, Springleaf
2	25	2.512000	34.800000	Kranji, Woodgrove, Woodlands
3	23	2.538919	26.216216	Hillview, Dairy Farm, Bukit Panjang, Choa Chu ...
4	27	2.560000	27.545455	Yishun, Sembawang, Senoko
5	21	2.605000	22.968750	Upper Bukit Timah, Clementi Park, Ulu Pandan
6	18	2.622917	39.500000	Simei, Tampines, Pasir Ris
7	16	2.692222	39.074074	Bedok, Upper East Coast, Eastwood, Kew Drive

- The mean median is obtained by grouping projects by their districts and then sorted in ascending order
- The top 8 districts are obtained from the dataframe



Data Analysis

Through analysis from the map and the locations of the cheapest districts, we can infer that:

- District 17 has no gyms nearby
- District 26 has 3 gyms around 'Upper Thomson'
- District 25 has 2 gyms at the centre of 'woodlands' and district 23 has 3 gyms spread out across a large area
- District 27 only has 1 gym

With this new insight, we shall focus on the area around 'Upper Thomson'

Results

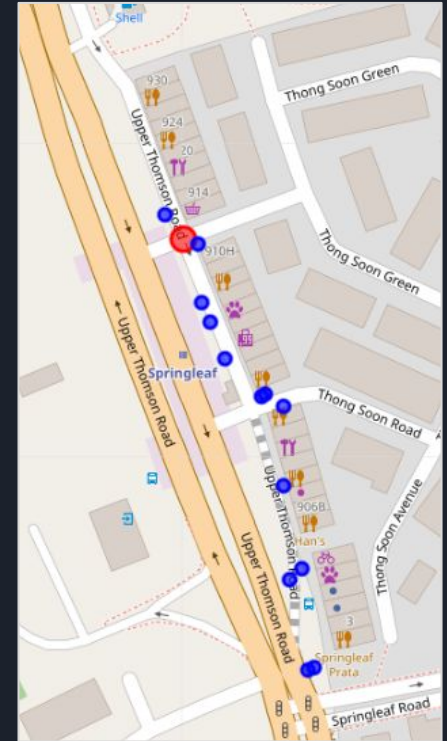
Foursquare API is used to explore the area:

There are 20 venues around Thomson, Springleaf Singapore in a 500m radius.

Most of which are eateries. There are no trending venues nearby.

	name	categories	address	lat	lng	labeledLatLngs	distance	postalCode	cc	neighborhood	city	country
0	Thai Hao Chi Traditional Thai Charcoal Steamboat	Thai Restaurant	908H Upper Thomson Road	1.398302	103.818243	[[{"label": "display", "lat": 1.39830198866359, "lng": ...}]]	61	787111	SG	Upper Thomson	Singapore	Singapore
1	Mookata	Thai Restaurant	908 Upper Thomson Road	1.398459	103.818178	[[{"label": "display", "lat": 1.398459, "lng": ...}]]	43	NaN	SG	NaN	Singapore	Singapore
2	Springleaf Prata Place	Indian Restaurant	1 Thong Soon Ave	1.396933	103.818609	[[{"label": "display", "lat": 1.396932726962341, "lng": ...}]]	219	787431	SG	Yishun	Singapore	Singapore
3	Soon Kee Duck Rice Eating House 順記餐室	Chinese Restaurant	908H Upper Thomson Rd	1.398134	103.818400	[[{"label": "display", "lat": 1.398134334236453, "lng": ...}]]	85	787111	SG	NaN	Singapore	Singapore
4	Verdure	Café	#01-02, Springleaf Nature Park	1.400928	103.817582	[[{"label": "display", "lat": 1.400928362293327, "lng": ...}]]	239	787129	SG	Yishun	Singapore	Singapore
5	Meera's Curry Banana Leaf Restaurant	Indian Restaurant	910B Upper Thomson Road	1.398545	103.818142	[[{"label": "display", "lat": 1.398544686330152, "lng": ...}]]	32	NaN	SG	NaN	Singapore	Singapore
6	7-Eleven	Convenience Store	Thong Soon Street	1.398803	103.818125	[[{"label": "display", "lat": 1.398803270082417, "lng": ...}]]	7	NaN	SG	NaN	Singapore	Singapore
7	Hans Café & Cake House	Café	906A Upper Thomson Rd.	1.397376	103.818582	[[{"label": "display", "lat": 1.397375749135722, "lng": ...}]]	171	787110	SG	Yishun	Singapore	Singapore
8	The Famous Kitchen	Chinese Restaurant	54 Sembawang Rd	1.402714	103.817821	[[{"label": "display", "lat": 1.402713975732315, "lng": ...}]]	433	NaN	SG	NaN	Singapore	Singapore
9	Leeson's Supermarket	Supermarket	NaN	1.397329	103.818527	[[{"label": "display", "lat": 1.397328923964714, "lng": ...}]]	174	NaN	SG	NaN	NaN	Singapore

First 10 rows of venues around Thomson, Springleaf Singapore



Venues as markers on the folium map



Conclusion

- By performing data analysis and visualisation, the desired housing location was determined for Harambe
- By filtering the areas based on cost per square foot and vicinity of gyms, Harambe successfully narrowed down his search scope to a single location.
- The foursquare API was used to explore areas around the location and visualised through plotting markers on a map
- An informed choice was made based on data



Future work

- Future work can be done to build a regression model to predict the housing prices based on features (bedrooms, toilets, dwelling type, location) of the house