

# Capstone Project

## Introduction

As a new Residential Developer that just entered the industry, we are ready to take up the challenge to find the optimal place to build a residential building.

An optimal residential apartment/building will be a place that has high demands in dwelling. It is highly likely that it is close to large shopping malls, in a large city and have high population.

In this scenario we want to find out where exactly in Australian cities to start developing a residential area.

This will be achieved by using publicly available data about Australia cities and their neighbourhoods so we can employ various forms of data analytics and visualizations to help us in our search.

## Data

Data that will be used to find out the optimal locations are Wikipedia to find the largest cities and extract the populations and other (if needed) population and demographics data.

Name and location of neighbourhoods in each suburban area will be obtained by a combination of Google Maps API geocoding and the Postal code information per city. Also, the number of shopping malls and their location in every neighbourhood will be obtained using the Foursquare API.

## Methodology

Web scrapping population information from Wikipedia to determine which city in Australia has the largest population.

Larger population would indicate we have better potential in the demands of residential dwelling.

sorted the rows of cities obtained from the site by their population size.

We can clearly observe from the sorted data that Sydney has the largest population base, hence we will select Sydney as our city to investigate which exact area/location to develop our new residential area. Hence, the following analysis will be based on Sydney.

Find the geographical coordinate of Sydney Australia.

With access of Foursquare API we will grab the information for all the locations for the stores in Sydney. This is based on our previous research proving that buyers tend to take into consideration of the accessibility to shopping malls.

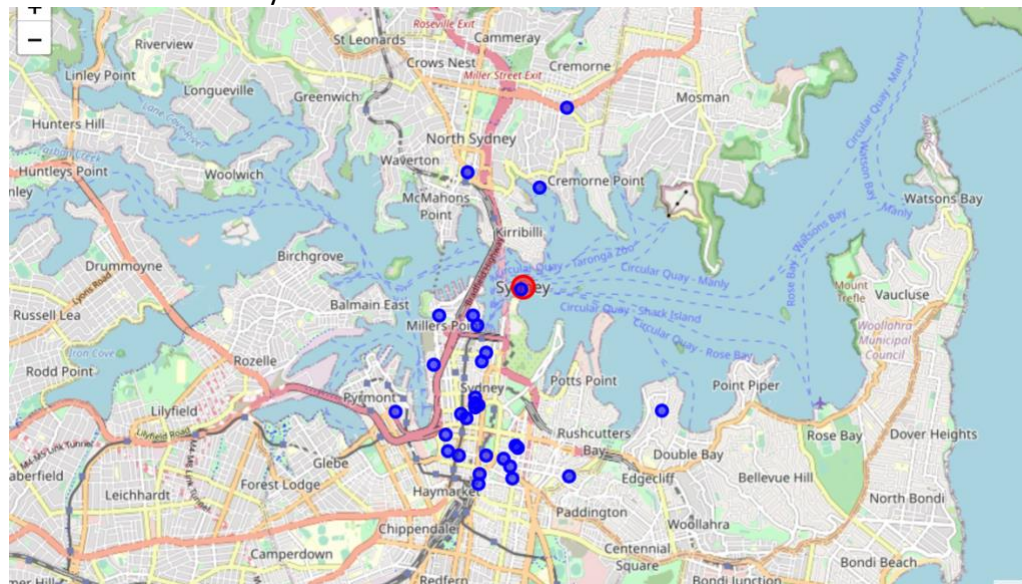
Then we plotted the clusters of stores in the city of Sydney on the map to visualise our result.

## Results

From the methodologies described as above, we have obtained 29 stores in total, result is printed below.

0	The Fine Food Store
1	Bridgepoint Convenience Store
2	Glue Store Darling Harbour
3	City Convenience Store
4	The Rock Store
5	Hayes General Store
6	Collector Store
7	That Store
8	Design Tshirts Store Graniph
9	Oxford Store
10	The Bose Store
11	Superdry Store
12	Metropolitan Museum of Art Store
13	Optus Store
14	G-Star RAW Store
15	General Store Of Contemporary Art
16	Millennium Towers Convenience Store
17	The Record Store
18	Corner Convenience Store
19	City Convenience Store
20	Sussex Convenience Store
21	Telstra Store
22	Supply Basement Store
23	Pymont Convenience Store
24	City Convenience Store
25	Convenience Store at the Boundary
26	MCA Store
27	Nike Store
28	The Village Store
29	The Digital Store Australia Limited

This is the result of the visualisation of the marked store positions on the map of Sydney. Where the blue markers represents each individual stores and the red marker represents the centre of the city.



## Discussion

From the map it is not hard to identify where the clusters of stores are in the city of Sydney.

The plotted blue dots on the map are the positions of all the stores, we can see they form a cluster in the South of Sydney, which is surrounded by the suburbs such as Haymarket and Millers Point.

Therefore, as a new developer we would choose to find an area of empty space in the lower (South) Shore that has close proximity to the stores as an investment for residential area.

## **Conclusion**

Through the conducted analysis, as the developer it would be sensible to search for land to build a residential area in Sydney Australia, due to the higher density of population. And it is specifically in the south of the city as comparison to the North of the City. This study is purely based on the density of the population and proximity to stores such as convenience stores, shopping malls. It is important to note that, other factors such as transport, socioeconomic status of the population can also impact the demand and of the residential dwellings. Hence, we recommend further researches to be conducted for more well-considered decisions.