

FAST FOOD BUSINESS OPPORTUNITIES

Potential opportunities in fast food industry in Sydney, Australia

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BACKGROUND DISCUSSION

Sydney is the state capital of New South Wales and the most populous city in Australia and Oceania.

The city is made up of 658 suburbs, 40 local government areas and 15 contiguous regions. As of June 2017, Sydney's estimated metropolitan population was 5,230,330 and is home to approximately 65% of the state's population.

There are 17 universities providing undergraduate and postgraduate studies in 32 campuses across Sydney. Some of these are among the most distinguished universities in Australia and the World. Overall Sydney universities teach 254,000 students combined, including 51,000 from overseas.

PROBLEM DESCRIPTION

X&Y Capital is a global investment fund which owns fast food restaurants in Asia (mainly China and India). They particularly focus on university areas and quick-service dining. Since the fast-food portion of the broader restaurant industry has grown while full-service restaurants have lost ground in recent years, this has been proven to be a profitable investment for them.

Considering Sydney is one of the education hubs in Asia-Pacific, X&Y Capital wants to explore business opportunities in Sydney area. They are particularly interested with:

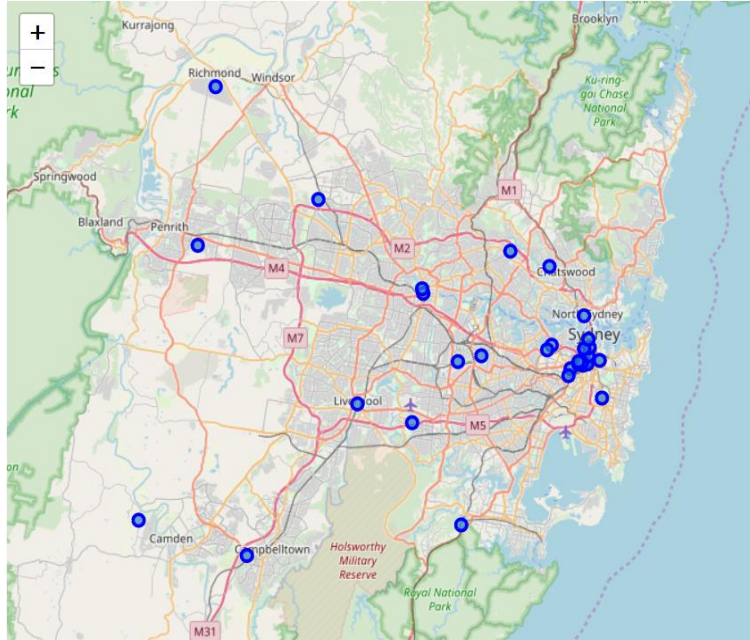
- What types of restaurants are around universities in Sydney?
- What type of food they serve?
- Are there any differences between various university locations?
- What would be the ideal location for the first restaurant?

DATA DESCRIPTION

- Sydney University Locations extracted from Google
- Venues data extracted from Foursquare

have been used for analysis.

METHODOLOGY

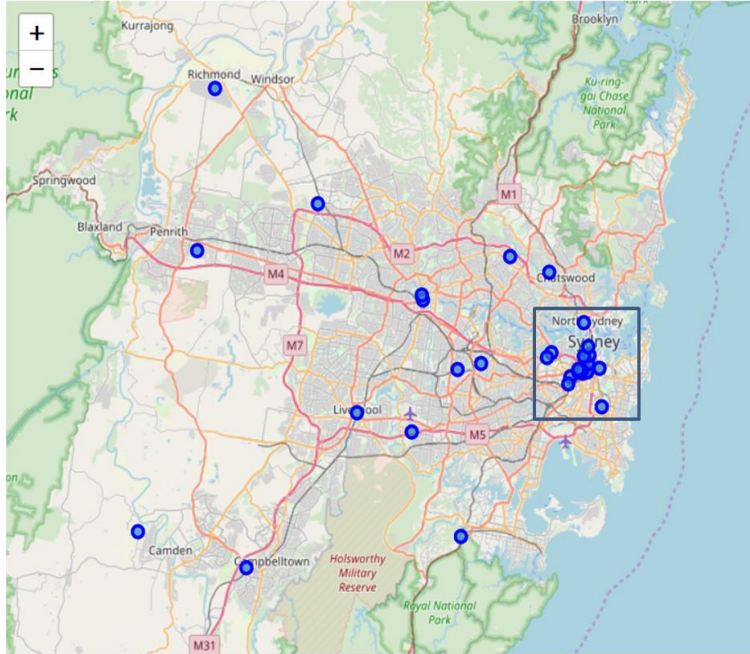


- The geographical coordinates of Sydney, Australia extracted from geopy library as - 33.9247891, 151.2277413 and map of Sydney created with folium
- Sydney university campuses added to the map

METHODOLOGY (CONT.)

- GET request URL for foursquare API created to extract the top 100 venues that are around each university campus within a radius of 500 meters.
- University campus, venue name, venue latitude, venue longitude and venue category information of 1,309 venues extracted from foursquare.
- 1,309 venues belong to 169 unique venue categories.
- A "University Campus x Venue Category" matrix of (1309, 169) created
- Data in the matrix grouped by University Campus by taking the mean of the frequency of occurrence of each category. A matrix of (32, 169) created.
- TOP 10 most common venue categories for each university campus extracted from that matrix. A "University Campus x TOP 10 most common venues" matrix of (32,10) created.
- k-means clustering applied on that data set and university campuses grouped into four clusters ($k = 4$).

RESULTS



- More than half of the campuses are located in or around city centre (56% or 18 out of 32).
- Sydney university campuses are located in 25 suburbs*

(*) there are 658 suburbs in Sydney

RESULTS (CONT.)

- Only 6 campuses (all in CBD), have 100 or more venues and 12 campuses have less than 10 venues within a radius of 500 meters from the campus location*.

University Campus	Venue Count
CQ University (Sydney City)	100
La Trobe University (Sydney City)	100
Torrens University Australia (The Rocks)	100
University of Newcastle (Sydney City)	100
University of Notre Dame Australia (Chippendale)	100
Victoria University (Sydney City)	100

University Campus	Venue Count
University of Tasmania (Rozelle)	9
Macquarie University (Macquarie Park)	8
Western Sydney University (Milperra)	5
University of Wollongong (Loftus)	4
Western Sydney University (Campbelltown)	4
Western Sydney University (Penrith)	4
Australian Catholic University (Strathfield)	3
University of Sydney (Lidcombe)	3
University of Technology Sydney (Lindfield)	3
Western Sydney University (Hawkesbury)	2
Western Sydney University (Quakers Hill)	2
University of Sydney (Camden)	1

(*) This is based on foursquare data only, there might be venues not on foursquare.

RESULTS (CONT.)

TOP 10 most common venue categories within a radius of 500 meters from each campus location merged (example: café and coffee shops as café) and some upper categories created (example: Thai restaurant and Italian restaurant assigned under “Restaurant” upper category) and further analyses performed. Following are the results:

Main Venue Category	Count	%
Restaurant	130	41%
Food & Drink Shop	50	16%
Other Shop/Store	47	15%
Café	43	13%
Fitness-Event-Activity Centres	32	10%
Shopping Mall	5	2%
Transportation	4	1%
Accommodation	4	1%
Other	3	1%
Construction & Landscaping	2	1%
Grand Total	320*	100%

- Restaurant, Food & Drink Shop, Other Shop/Store, Café and Fitness-Event-Activity Centres represent 94% of the main venue categories.
- Two categories (Restaurant and Food & Drink Shop) account for 57%.

* 32 campuses x TOP 10 most common venue categories = 320 records

RESULTS (CONT.)

- The “Restaurant” main category is split into three sub categories as Asian 31%, Bar & Bistro 30% and Fast Food 25%.

Main Venue Category = Restaurant

Sub Venue Category	Count	%
Asian	40	31%
Bar & Bistro	39	30%
Fast Food	33	25%
European	7	5%
Australian	6	5%
Middle Eastern	3	2%
not specified	1	1%
Mexican	1	1%
Grand Total	130	100%

RESULTS (CONT.)

- Thai restaurants are the most popular ones among Asian restaurants. Fish and Chips Shops represent almost 1/3th of the Fast Food restaurants:

Main Venue

Category = Restaurant

Sub Category 1	Sub Category 2	Count	%
Asian	Thai	14	35%
	Japanese	6	15%
	Dumpling	4	10%
	Malay	3	8%
	Chinese	3	8%
	Vietnamese	2	5%
	Asian	2	5%
	Indonesian	2	5%
	Korean	1	3%
	Indian	1	3%
	Hotpot	1	3%
	Ramen	1	3%
Grand Total		40	100%

Main Venue

Category = Restaurant

Sub Category 1	Sub Category 2	Count	%
Fast Food	Fast Food	14	42%
	Fish & Chips Shop	10	30%
	Food Court	5	15%
	Burger Joint	3	9%
	Breakfast	1	3%
Grand Total		33	100%

RESULTS (CONT.)

- k-means clustering applied on “TOP 10 most common venue categories” data set and university campuses grouped into four clusters as shown:

Cluster 1
Western Sydney University (Campbelltown)
Western Sydney University (Hawkesbury)
Western Sydney University (Quakers Hill)

Cluster 2
University of Sydney (Lidcombe)
Australian Catholic University (Strathfield)

Cluster 3
University of Sydney (Camden)

Cluster 4
University of Sydney (Camperdown)
Curtin University (Chippendale)
University of Notre Dame Australia (Chippendale)
University of Tasmania (Darlinghurst)
University of Sydney (Erskineville)
Charles Darwin University (Haymarket)
University of New South Wales (Kensington)
University of Technology Sydney (Lindfield)
University of Wollongong (Liverpool)
University of Wollongong (Loftus)
Western Sydney University (Milperra)
Macquarie University (Macquarie Park)
Australian Catholic University (North Sydney)
Western Sydney University (Parramatta)
University of New England (Parramatta)
Western Sydney University (Penrith)
University of Sydney (Rozelle)
University of Tasmania (Rozelle)
University of Sydney (Surry Hills)
CQUniversity (Sydney City)
La Trobe University (Sydney City)
University of Newcastle (Sydney City)
Victoria University (Sydney City)
Torrens University Australia (The Rocks)
University of Technology Sydney (Ultimo)
Torrens University Australia (Ultimo)

CONCLUSION

Considering Sydney is one of the education hubs in Asia-Pacific, X&Y Capital, which is a global investment fund that owns fast food restaurants in Asia, wants to explore business opportunities in Sydney area and hence requested this report. Based on the analysis of available data, following are the report findings:

CONCLUSION

- What types of restaurants are around universities in Sydney?

According to the TOP 10 most common venue categories around each campus, 57% of the venues are Restaurants and Food & Drink Shops. Among restaurants three categories: Asian (31%), Bar & Bistro (30%), Fast Food (25%) represent 86% of the overall total.

Main Venue Category	Count	%
Restaurant	130	41%
Food & Drink Shop	50	16%
Other Shop/Store	47	15%
Café	43	13%
Fitness-Event-Activity Centres	32	10%
Shopping Mall	5	2%
Transportation	4	1%
Accommodation	4	1%
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Main Venue Category = Restaurant		
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CONCLUSION (CONT.)

- What type of food they serve?

The “Restaurant” main category is split into three sub categories as Asian 31%, Bar & Bistro 30% and Fast Food 25%.

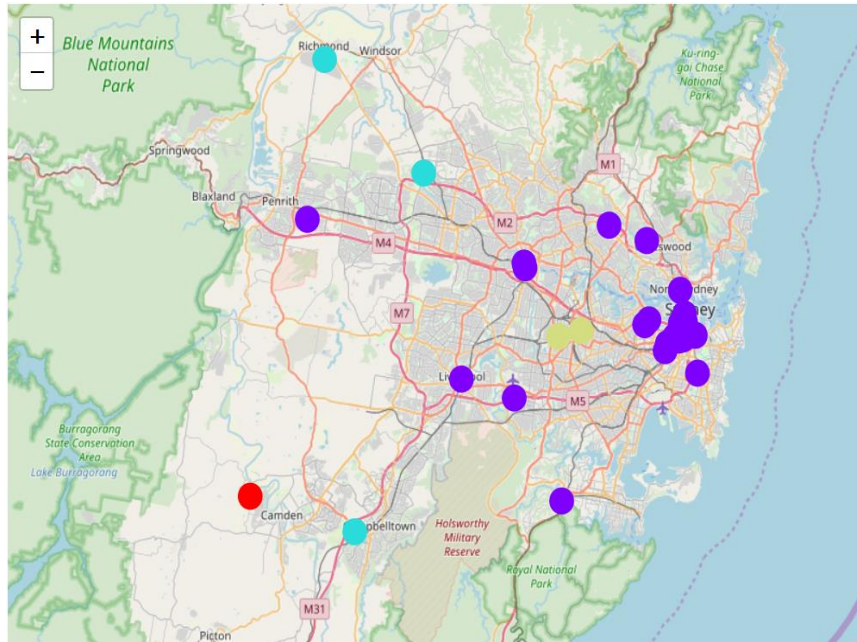
Common food types served in Asian restaurants are Thai (35%), Chinese (21%) and Japanese (18%) followed by Malay (8%), Vietnamese (5%) and Indonesian (5%).

Bar & Bistro restaurants in Sydney mainly serve steak, pasta and pizza; although the detailed breakdown is not available in foursquare data.

Fast Food restaurants category is also very popular, here it is important to note that Fish & Chips restaurants represent 30% of the total in the Fast Food category, other restaurant categories are burger joints (McDonalds, KFC, Hungy Jaks – Burger King brand – and local joints), sandwich places (such as Subway) and fast food restaurants in food courts.

CONCLUSION (CONT.)

- Are there any differences between various university locations?



Analyses indicate that, based on the common venue categories around campuses, university locations in Sydney can be grouped into four categories.

- The main category represents 81% of campuses (26 out of 32) with similar characteristics. These campuses are located both in and around Sydney CBD or some congested suburb centres out of the CBD area, such as North Ryde and Chatswood in the north, Sutherland in the south, Liverpool in the south west, and Penrith in the west (locations represented with blue on the map).
- Apart from 2 inner city campuses, University of Sydney in Lidcombe and Australian Catholic University in Strathfield (represented with light green on the map), remaining campuses are far away from the city or suburb centres.

CONCLUSION (CONT.)

- **What would be the ideal location for the first restaurant?**

As stated above, since vast majority of campuses fall into the same category and are in and around Sydney city centre, this area would be the ideal location to open the first restaurant.

Suburb of Ultimo within the city centre is home of two university campuses; University of Technology Sydney and Torrens University Australia, and also is close (in walking distance) to University of Sydney's main campus in Camperdown. Therefore Ultimo can be considered as the ideal location for the first restaurant.