

# Find Location for Setting Up Pet Store in Bangkok, Thailand.

## 1, BACKGROUND

Nowadays in Thailand, pets are a part of life. The society has joined the elderly. Older people have fewer children, making pets as friends or replacing them. The number of pets in Thailand grew and the benefits to the pet-related business is growing.

Overall, the pet business in the year 2017 was valued at US\$862 millions, growth up 10% from year 2016. The animal feed business has the largest share of 45%, followed by animal health care 32% and other related products such as clothing, accessories, toys 23%.

Pet store where to sale animal food and related products has 68% of market share and trend to growth up. This business is very interesting and a lot of opportunities.

If someone looking for somewhere to open pet store in Bangkok. Can we recommend the potential place to open it?.

So, this project will find a the potential place for setting up the Pet Store. It helps to reduce time to find location and increase the chance of success.

## 2. DATA

Location is an important factor in doing business. Besides the convenient, then there are two things to consider.

- Customer demanding From the American Veterinary Medical Association(AVMA), show the number of pet-owning households around 50% of number of household, more detail here <https://www.avma.org/KB/Resources/Statistics/Pages/Market-research-statistics-US-pet-ownership.aspx> Although, no statistic report in Thailand, but it can concluded that number of household is associated with the number of pet-owning household. The area that high number of household is more demand in pet store than the area that low number of household.
- Competition A lot of competitor in the area is effect to sales. So, if we find somewhere that less competitive it is good to do the business and increase chance of success.

From above reason, we require

### 2.1 Borough, Neighborhood and Coordinates(latitude/longitude)

Borough, Neighborhood and Coordinates(latitude/longitude) of Bangkok, got from here <https://data.go.th/Default.aspx>. It provided latitude/longitude data of city in Thailand

Borough, Neighborhood and Coordinates(latitude/longitude) : Bangkok

NBH_ID	Borough	Neighborhood	Latitude	Longitude
100101	Phra Nakhon	Phra Borom Maha Ratchawang	13.751	100.492
100102	Phra Nakhon	Wang Burapha	13.744	100.499
100103	Phra Nakhon	Wat Ratchabophit	13.75	100.499
100104	Phra Nakhon	Samran Rat	13.751	100.503
100106	Phra Nakhon	Sao Chingcha	13.753	100.5
100107	Phra Nakhon	Bowon Niwet	13.757	100.501
100108	Phra Nakhon	Talat Yot	13.76	100.498
100109	Phra Nakhon	Chana Songkhram	13.762	100.495

50 Boroughs and 154 Neighborhoods

## 2.2 Number of Household

Number of Household divide by neighbor got from here

[http://stat.bora.dopa.go.th/new\\_stat/webPage/statByYear.php](http://stat.bora.dopa.go.th/new_stat/webPage/statByYear.php)

2,354,152 Households

## 2.3 Venues from Foursquare

From Borough, Neighborhood and Coordinates (latitude/longitude) in 2.1, we request and get venues from Foursquare in each Neighbor and consider venues category name : 'Pet Store'

627 Store  
127 Neighborhoods

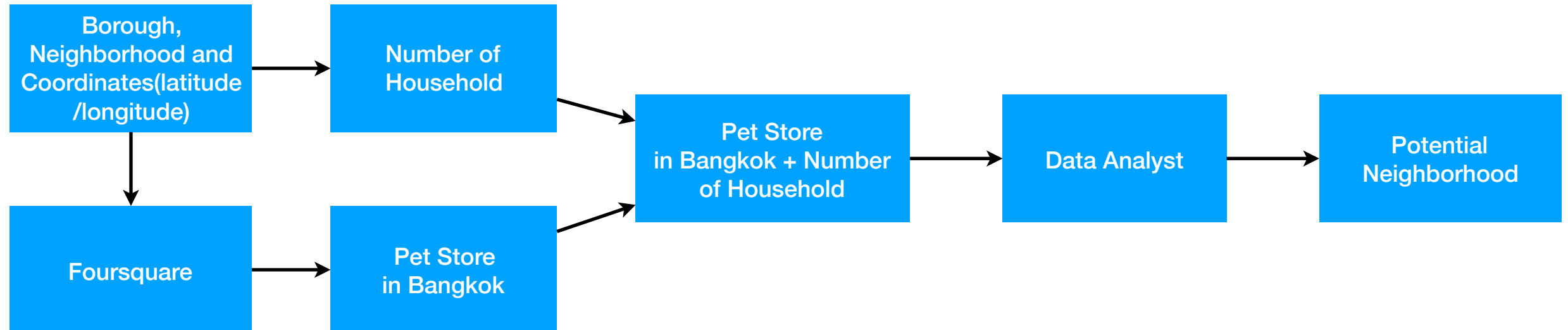
### Number of Household : Bangkok

NBH_ID	Population	Household
100101	3953	1245
100102	11427	5361
100103	3314	984
100104	3321	1139
100105	3278	998
100106	2292	704
100107	4837	1615
100108	2487	1193
100109	1968	829
100110	6813	2034
100111	4613	2108

### Pet Store from Foursquare : Bangkok

Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue Latitude	Venue Longitude	Venue Category
Phra Borom Maha	13.751	100.492	13.7495145	100.499724	Pet Store
Phra Borom Maha	13.751	100.492	13.741021	100.48365	Pet Store
Phra Borom Maha	13.751	100.492	13.75631663	100.4780701	Pet Store
Phra Borom Maha	13.751	100.492	13.755455	100.477379	Pet Store
Phra Borom Maha	13.751	100.492	13.73362706	100.4955356	Pet Store
Phra Borom Maha	13.751	100.492	13.76653241	100.5012882	Pet Store
Wang Burapha Phirom	13.744	100.499	13.7495145	100.499724	Pet Store
Wang Burapha Phirom	13.744	100.499	13.73362706	100.4955356	Pet Store
Wang Burapha Phirom	13.744	100.499	13.741021	100.48365	Pet Store
Wang Burapha Phirom	13.744	100.499	13.74788419	100.5164646	Pet Store
Wat Ratchabophit	13.75	100.499	13.7495145	100.499724	Pet Store
Wat Ratchabophit	13.75	100.499	13.76653241	100.5012882	Pet Store

### 3 . METHODOLOGY



After request, get and merge all dataset together, we will get table of number of Pet Store and number of Household by each Neighborhood. To find the potential in each Neighborhood as follows.

$$\text{Household Proportion} = (\text{number of Household})/(\text{Total Household})$$

$$\text{Competitive Proportion} = (\text{number of Pet Store})/(\text{Total Pet Store})$$

$$\text{Potential Index} = \text{normalized}(\text{House Proportion}) * (1 - \text{normalized}(\text{Competitive Proportion}))$$

We will compare Potential index and select Neighborhood which the highest index to recommend for setting up Pet Store.

## 4 . RESULTS

Neighborhood	Household	Pet Store	Household Proportion	Competitive Proportion	Normalized(Household Proportion)	Normalized(Competitive Proportion)	(1-Normalized(Competitive Proportion))	Potential Index
Sam Dum	58757	0	0.024958881	0.000000	1.000000	0.000000	1.000000	1.000000
Tha Rang	50373	3	0.021397514	0.004785	0.856478	0.187500	0.812500	0.695888
Anusoavaree	56825	5	0.024138203	0.007974	0.966927	0.312500	0.687500	0.664762
Hua Mark	54449	5	0.023128923	0.007974	0.926253	0.312500	0.687500	0.636799
Bang Su	44254	3	0.018798276	0.004785	0.751729	0.187500	0.812500	0.610780
Khlong Thanon	41891	3	0.017794518	0.004785	0.711278	0.187500	0.812500	0.577913
Bang Chan	39395	3	0.016734264	0.004785	0.668550	0.187500	0.812500	0.543197
Min buri	44527	5	0.018914242	0.007974	0.756402	0.312500	0.687500	0.520027
Khlong Jan	47670	6	0.02024933	0.009569	0.810206	0.375000	0.625000	0.506379
Tha Kham	28383	0	0.012056571	0.000000	0.480040	0.000000	1.000000	0.480040

### TOP 5 Potential Neighborhood for Setting up Pet Store in Bangkok

The 1st Potential Neighborhood is " Sam Dum "

The 2nd Potential Neighborhood is " Tha Rang "

The 3rd Potential Neighborhood is " Anusoavaree "

The 4th Potential Neighborhood is " Hua Mark "

The 5th Potential Neighborhood is " Bang Su "

## 5. DiSCUSSION

- Coordinate(latitude/longitude) are very important. Some borough/neighborhood are close, some are far. Map will make more under stand and clear.
- When get request venues from foursquare, alway need to send latitude and longitude to explore venues of destination.
- In case of lack of coordinates, geocoder library can find lat./long. by use only name of destination.
- This project use 2 factor to find potential neighborhood called Potential index, number of household and number of pet store.
- Number of household is represents to demand. The high number of household show more demand than the low number of household. It is positive correlation with potential index.
- Number of pet store is represent to a competition. It is negative correlation with potential index.
- Completely and correctly of data from Foursquare is effect to quality of project directly.
- This project can help reduce time to find suitable location and make decision base on real data.
- No only pet store, we can change business, city, borough and neighborhood by this concept.

## 6 . Conclusion

Although, there are a lot of pet store in Bangkok, this project can help to find space and recommend the potential by ranking. It help to reduce process time and cost of business. It make advantage for business competition and can applied to other business.