

# **Cluster Analysis of Food Service Business in Bangkok, Thailand**

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3 November 2020

# Agenda

- Introduction
- Data Acquisition and Cleaning
- Methodology
- Results
- Discussion

# Introduction - Background

- Bangkok is Thailand's capital.
- Population reaching 70 million.
- Tourism plays very important role in economic development in Thailand. 18% of GDP
- Food service industry is a major player in Thailand's tourism industry.
- 50 districts in Bangkok.
- Tourism of Thailand (ToT) is responsible for developing programs and campaigns to support and promote tourism in Thailand.

# Introduction – Business Problems

- How food service clusters in districts of Bangkok?
- What are the characteristics of food service in districts in Bangkok?
- If an entrepreneur plans to invest in a food service business, for example, a Thai restaurant, which district is the best location?
- If a tourist wants to find a good district to visit for a kind of cuisine, which district should they visit?

# Data acquisition and cleaning

- **Data Sources**

- Foursquare Place API to extract food service places in Bangkok.
- 2. Geo-location data of districts in Thailand from <https://github.com/rathpanyowat/Thai-zip-code-latitude-and-longitude/blob/master/data.json>

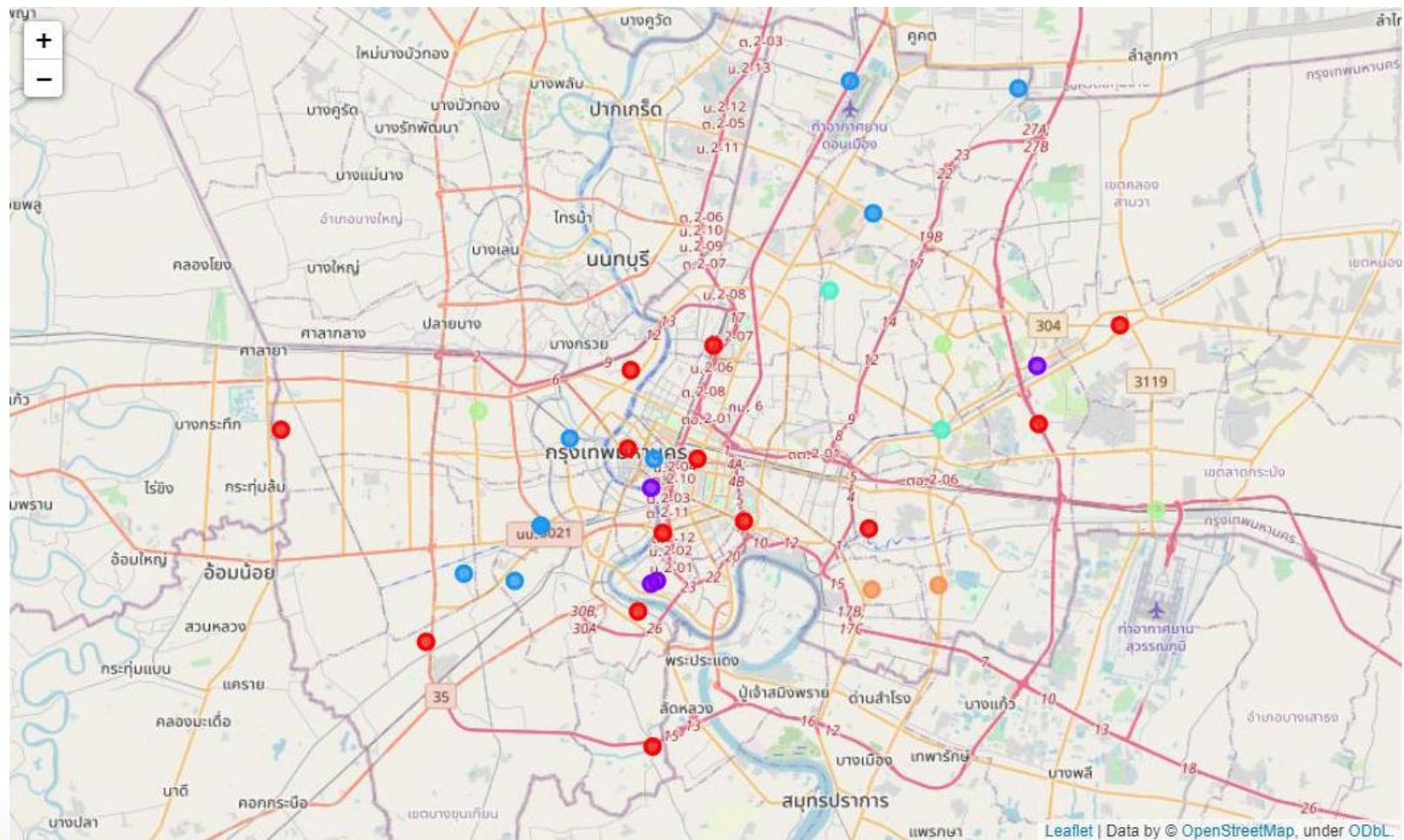
- **Data Cleaning**

- JSON to Pandas dataframe
- Translate Thai district name into English
- Exclude data of other provinces

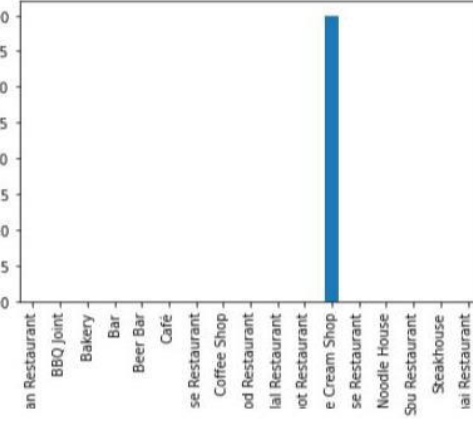
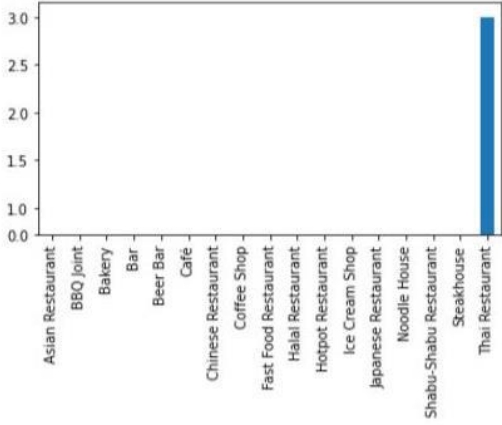
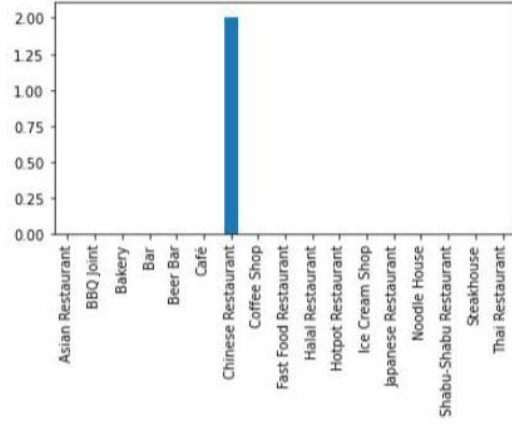
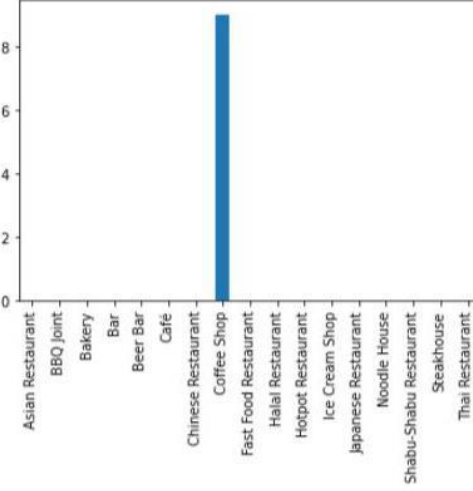
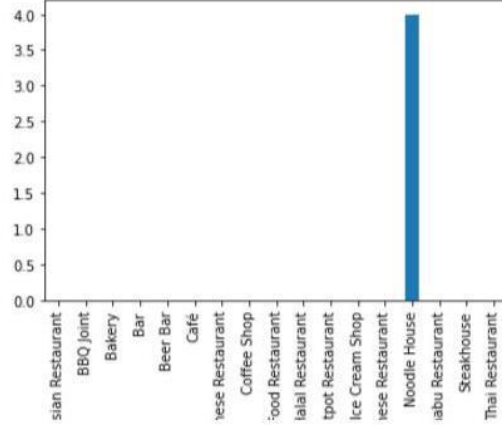
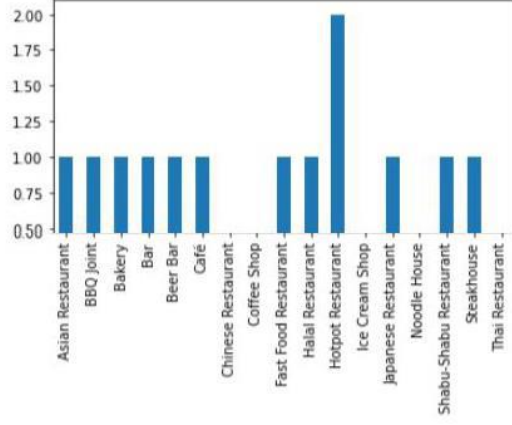
# Methodology

- Process geo-location data
- Collect Restaurant data using Foursquare Place API
  - Retrieve venue in the proximity of 5 km
  - Filter the venues that are not food service business out
  - Create a crosstab
- Cluster Analysis
  - Perform K-mean Cluster Analysis
  - Create bar charts for each cluster to examine the characteristic

# Results



# Results





# Results

- Cluster Characteristics
  - Cluster 0 seems to consist of most kinds of food services.
  - Cluster 1 is where noodle houses are clustered
  - Cluster 2 is dominated by coffee shop
  - Cluster 3 is good for Chinese restaurant
  - Cluster 4 is clustered with Thai restaurant
  - Cluster 5 is a good place to find icecream shop

# Results

- List of Districts in Clusters

All Kind of Food	พระนคร	Coffee Shop	บางเขน	Thai Restaurant	สัมพันธวงศ์	Noodle House	ป้อมปราบศัตรูพ่าย	Icecream Shop	ลาดกระบัง	Chinese Restaurant	มีนบุรี
	ยานนาวา		บางกอกน้อย		สาทร		พระโขนง		ตลิ่งชัน		ราชบุรีบูรณะ
	บางพลัด		ภาษีเจริญ		บางคอแหลม		ประเวศ				
	บางซื่อ		หนองแขม		คันนายาว						
	คลองเตย		ปิ่นเกล้า								
	สวนหลวง		จอมทอง								
	ราชเทวี		ดอนเมือง								
	ลาดพร้าว		บางแค								
	คลองสามวา		สายไหม								
	ทวีวัฒนา		สะพานสูง								
	ทุ่งครุ										
	บางบอน										

# Discussion

- Suggestions
  - Bangkok - The City of World Cuisine. This campaign is to promote variety of food cultures in Bangkok. The campaign can be implemented in the district in cluster 0.
  - Good Morning Coffee. This campaign is to promote coffee shop, café, roaster house in Bangkok in the district in cluster 2.
  - Experience Authentic Thai Cuisine. This campaign will be implemented in cluster 4 to promote authentic Thai cuisine.
- Next Steps
  - Include Qualitative Data
  - Remove number of venues limitation