

Cloud Kitchens :

Location Optimized for Delivery

Introduction
to Business
Analytics and
Data Science



Today's Agenda

Introduction
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Analytics and
Data Science



- Background
- Data Collection
- Data analysis
- Results
- Estimation
- Utilization



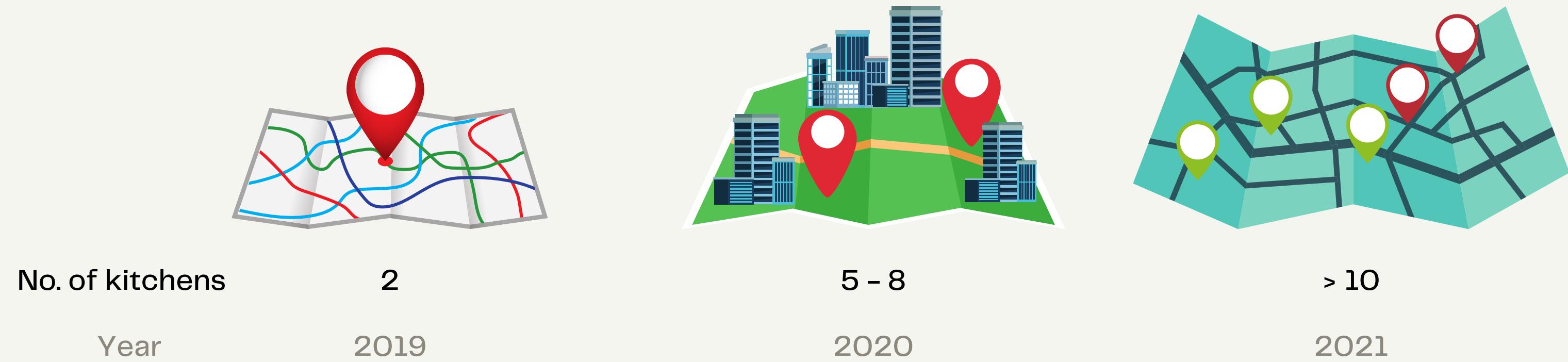
FOOD DELIVERY INCREASE IN DEMAND

150%

AS OF 1ST QUARTER 2020



Cloud Kitchens



Benefits

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“
Delivery Charges
Discount
Waiting Time

Customer



“
Rental fee
Labor cost
Branch trial

Kitchens



“
Incentives
Time Spent
Distance Traveled

Rider

Location is critical.

**Where are the locations
where there's a lot of
demand ?**



Phase 1: Data Collection: web scraping

**Using Python with beautifulsoup &
selenium library scrape from CBRE website**

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POI of office building

- URL
- Name
- Location
- Price/ sq.m./ month
- No. of Storeys
- Total Lettable Area

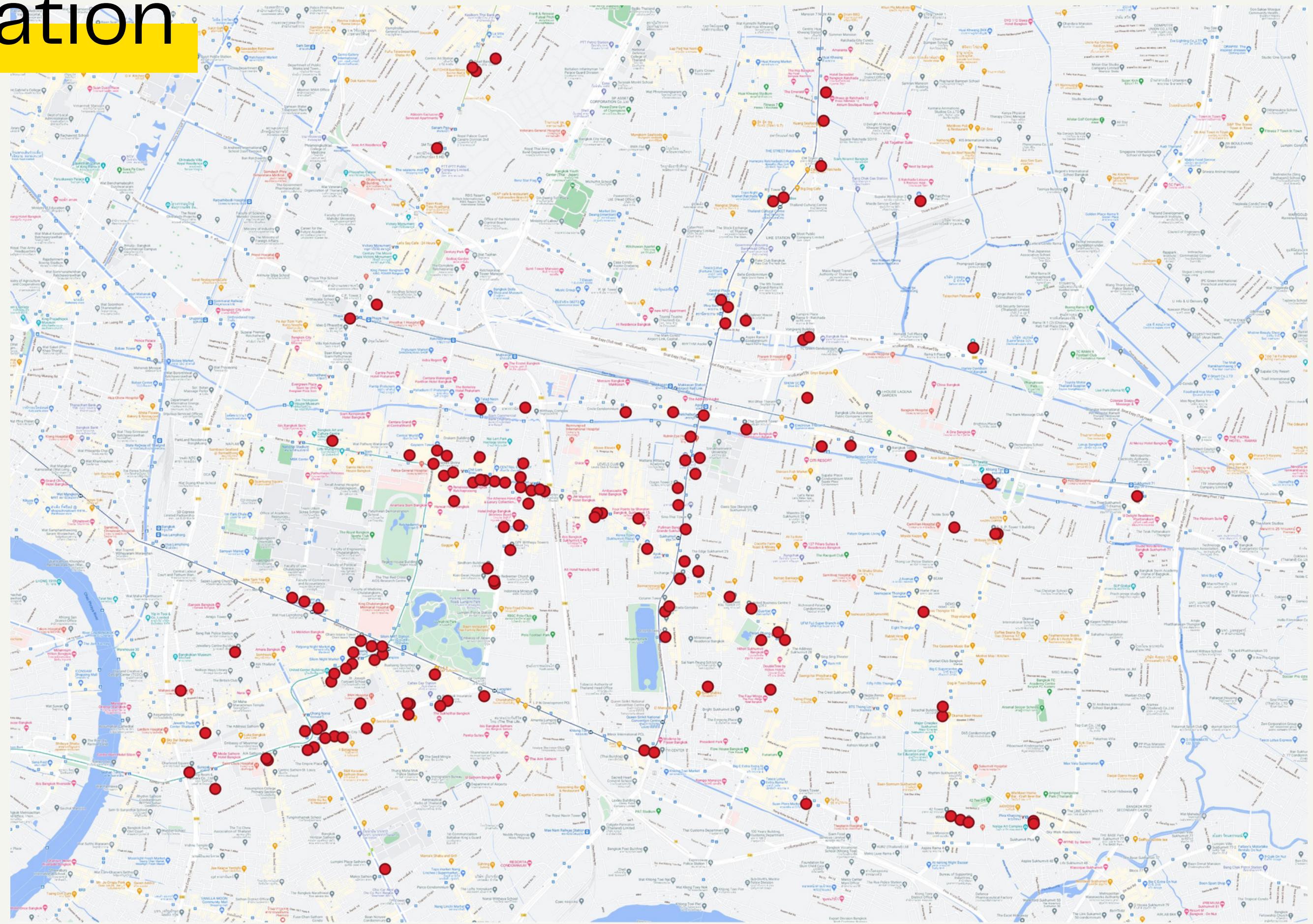
Phase 2: Data preparation: Excel & QGIS

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- Using Excel for cleaning outlier location
- Using QGIS for plot location on basemap
- Analysis location data with QGIS



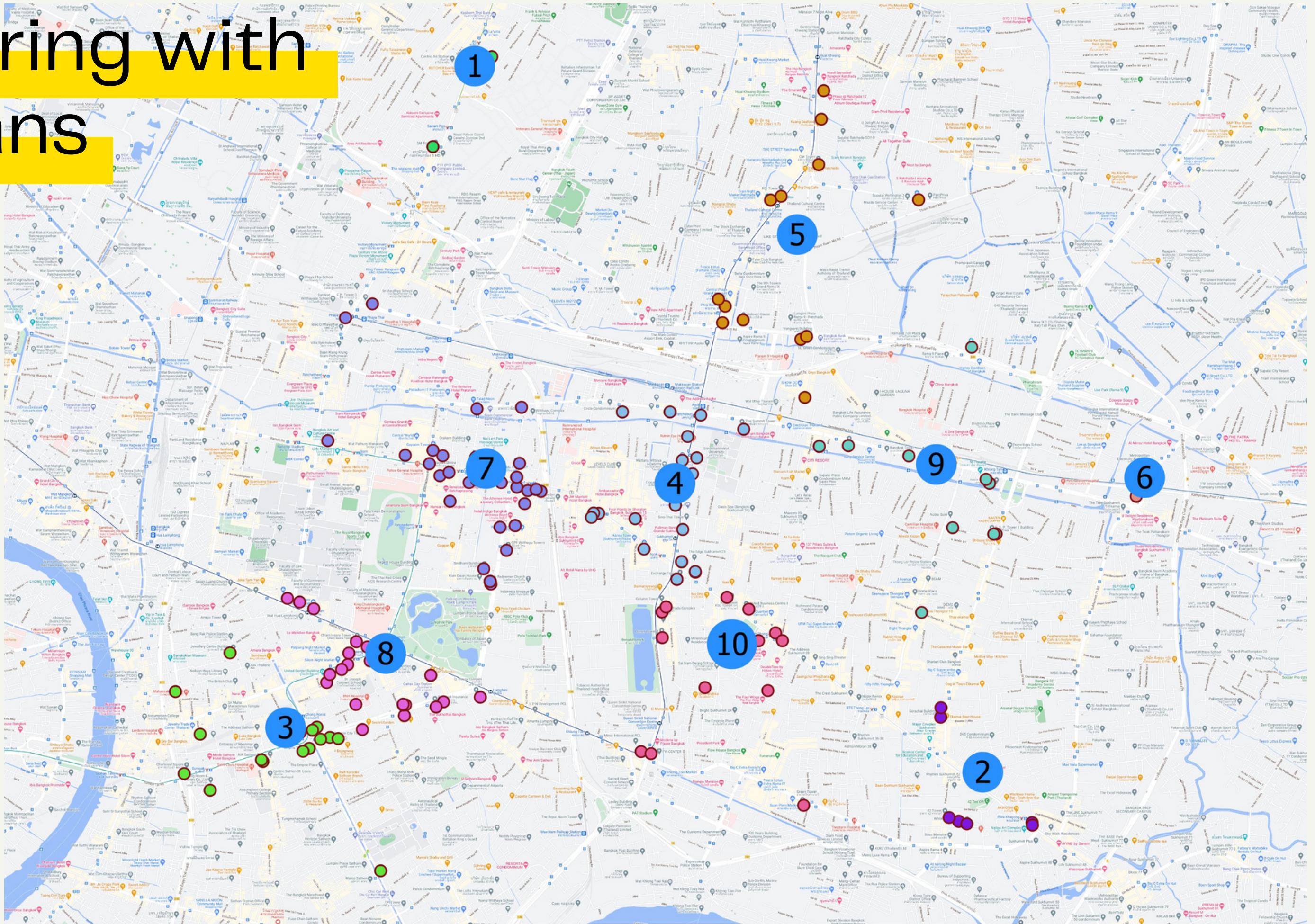
Plot location Data





Phase 3: Clustering

Clustering with K-means

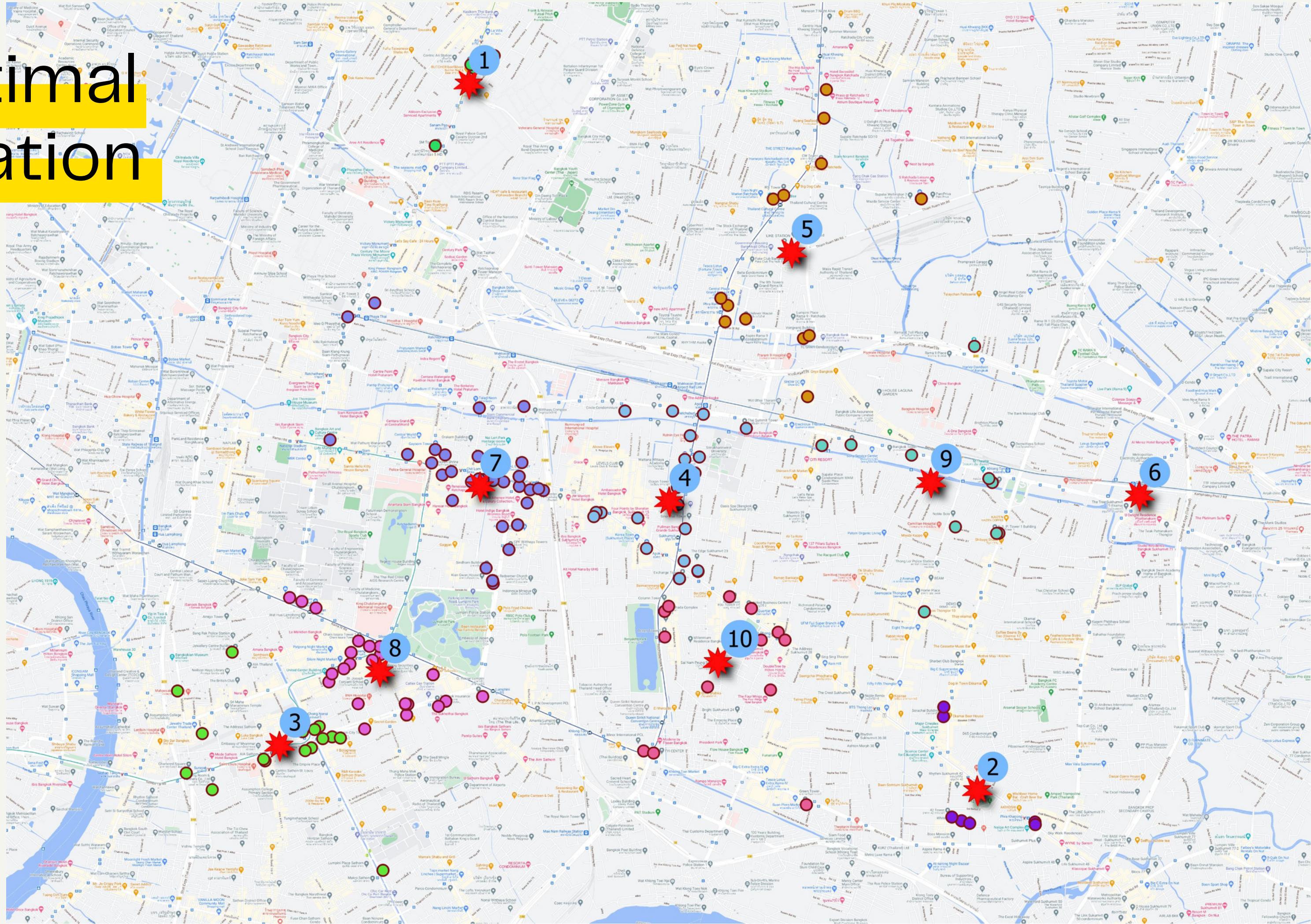


Phase 4: Optimal Location



Optimal location

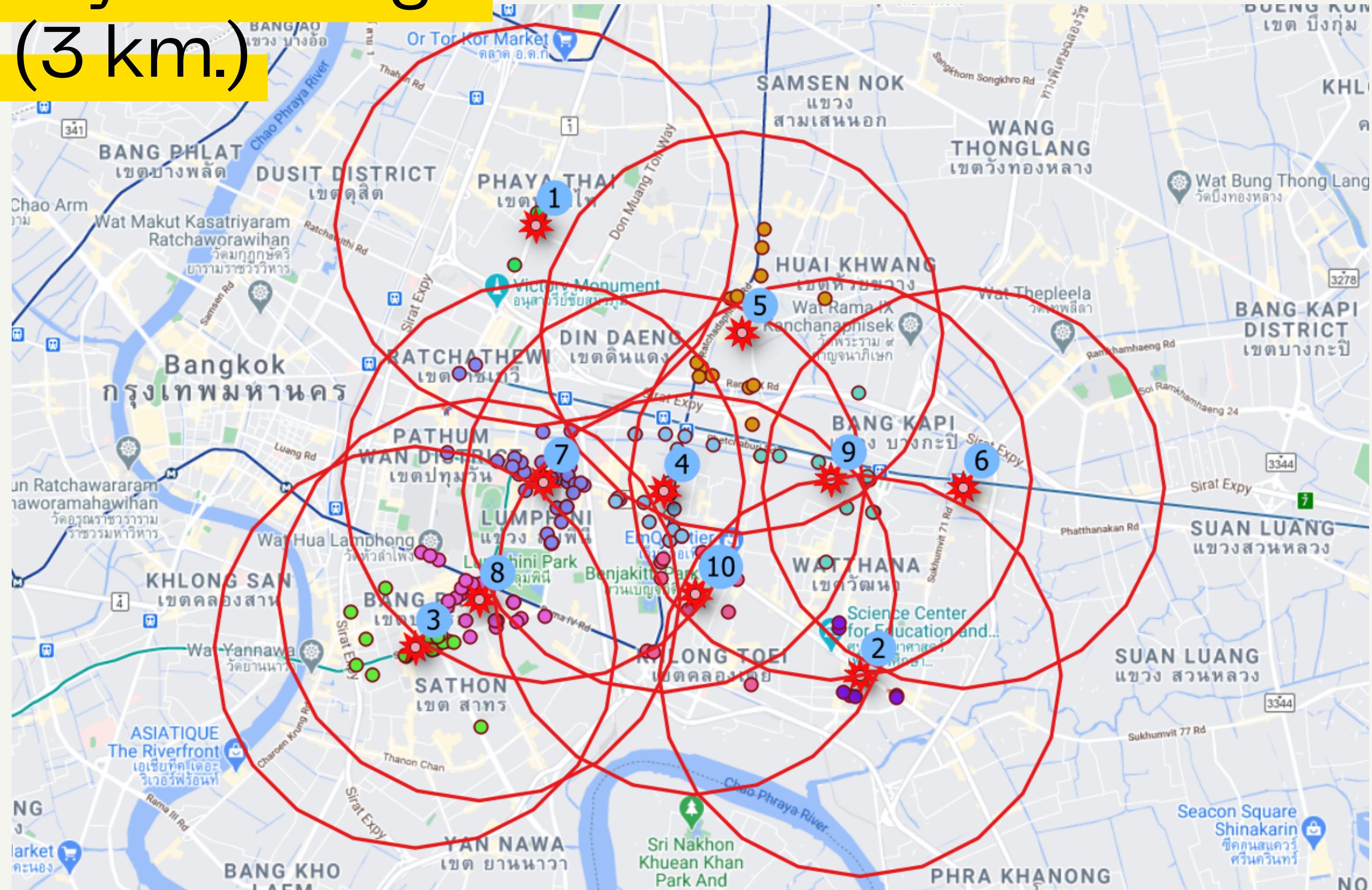
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Phase 5: Area Coverage Analysis



Delivery coverage area (3 km.)

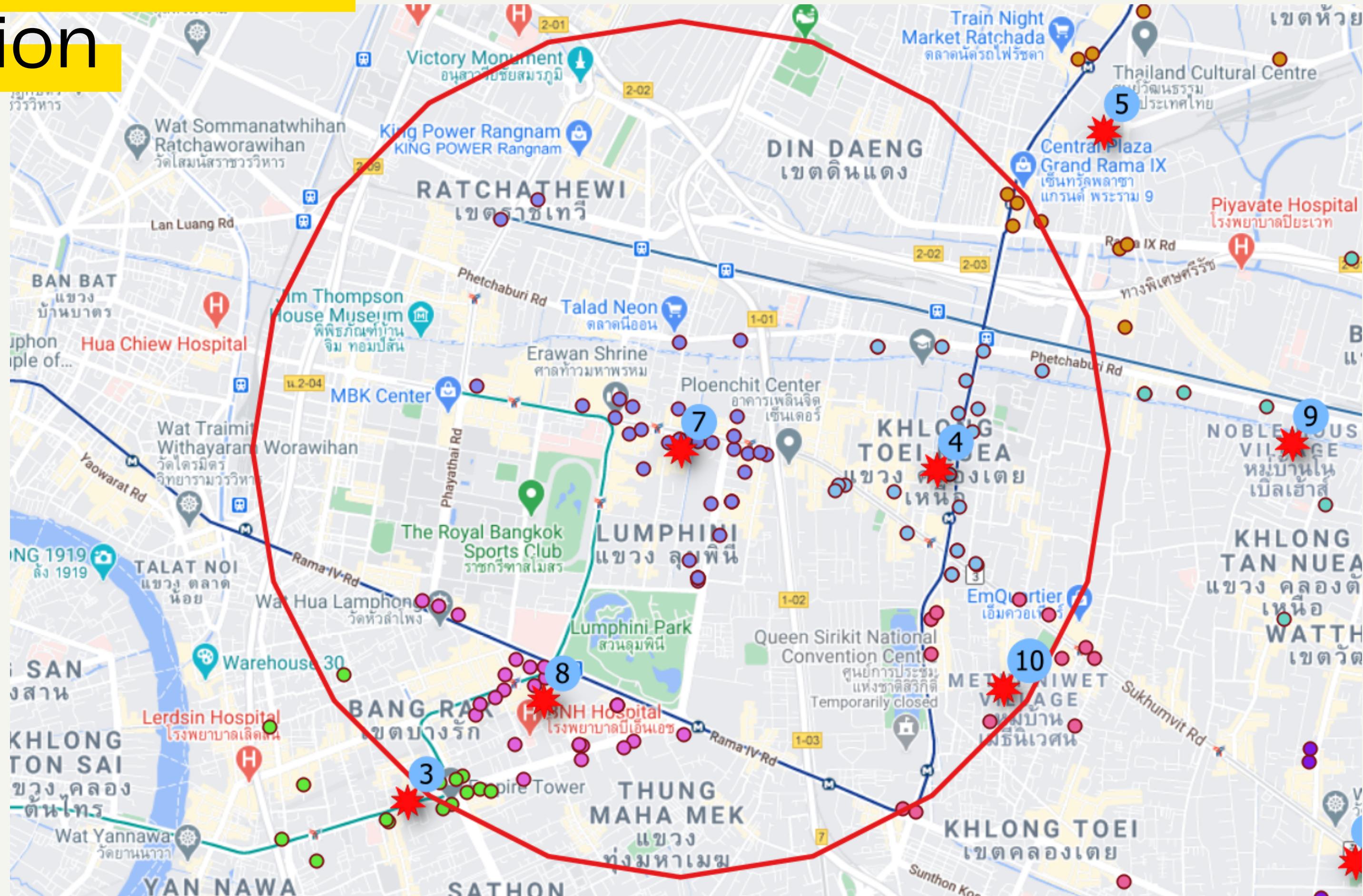


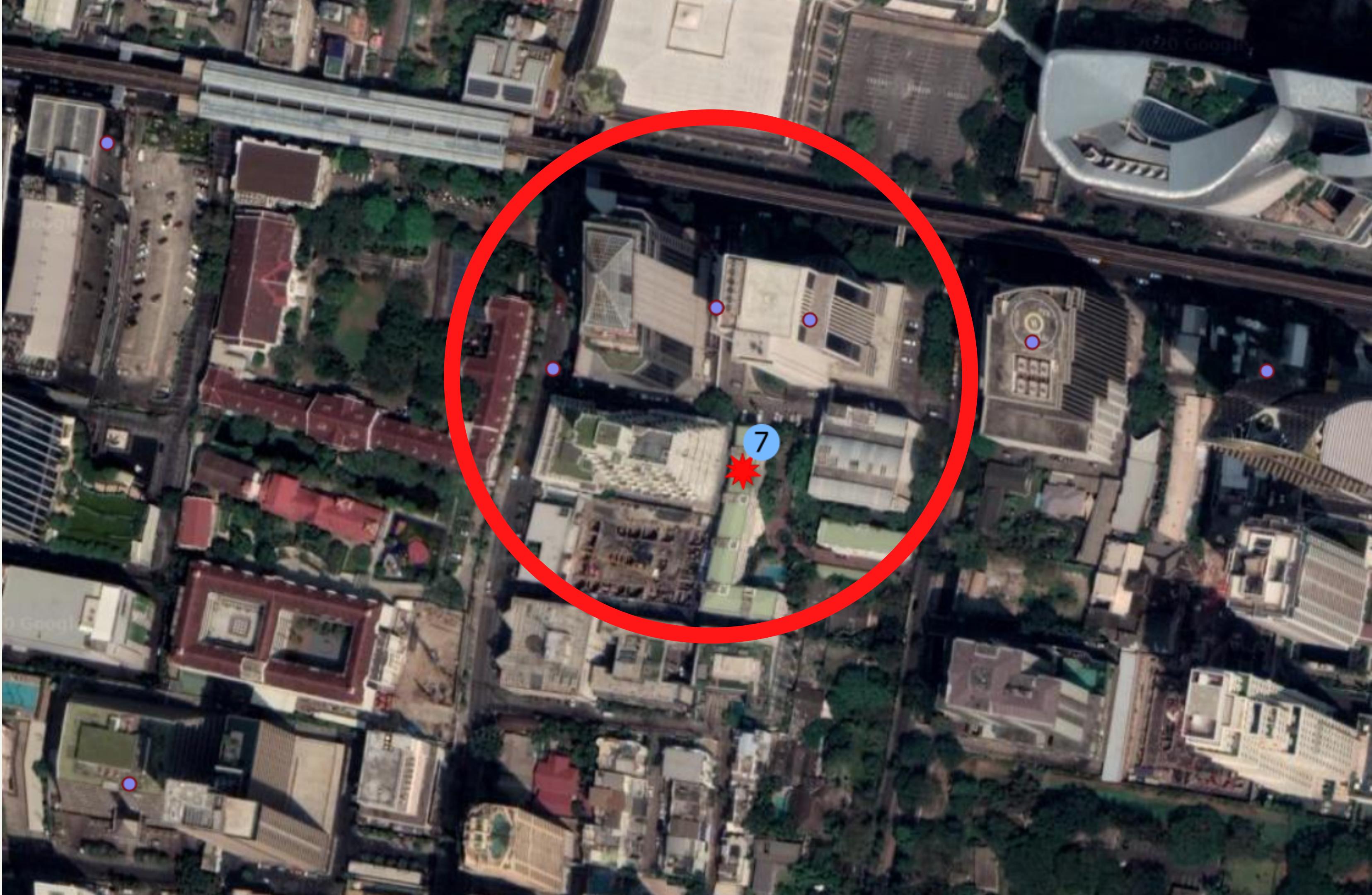
Best coverage location

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MERCURY TOWER



PRICE

1000 baht/sq.m



KITCHEN SIZE

70 sq.m

Mercury Tower



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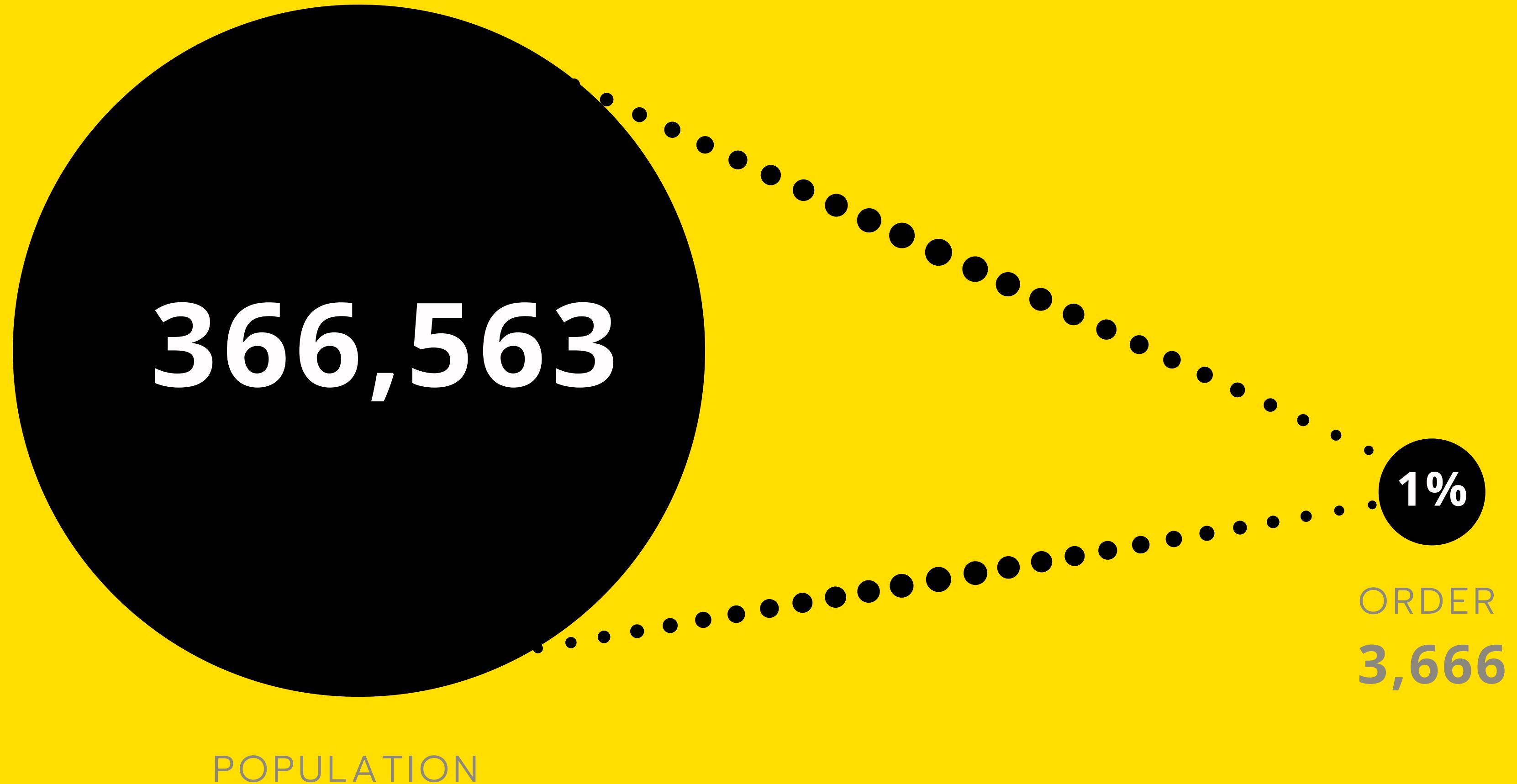
87

Number of office Rentals



366,563

Population



439,876

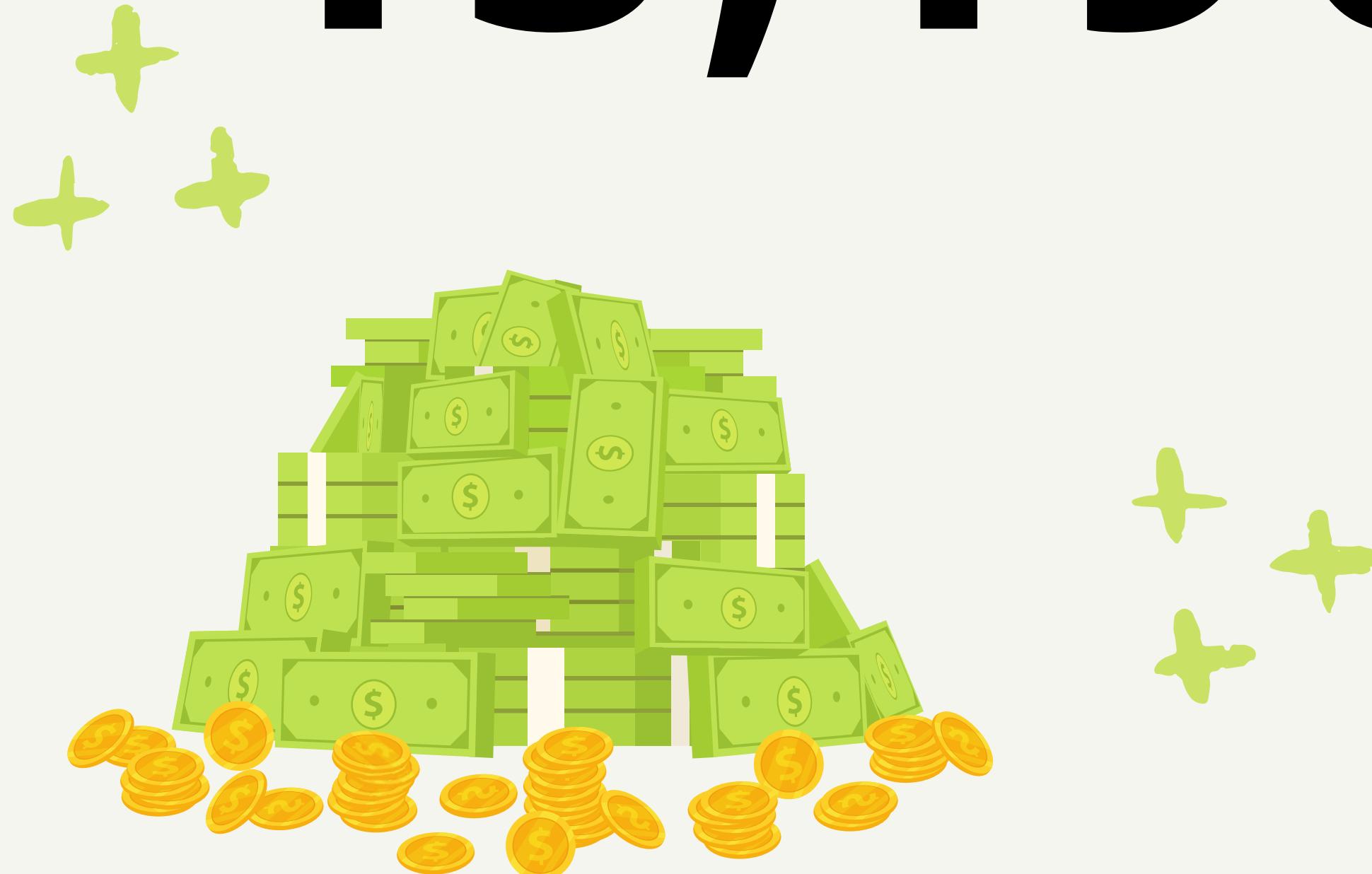
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BAHT PER DAY

*average 120 baht/order



13,196,280



BAHT PER MONTH



Revenues



Expenses



Risk

Advantage

Utilization

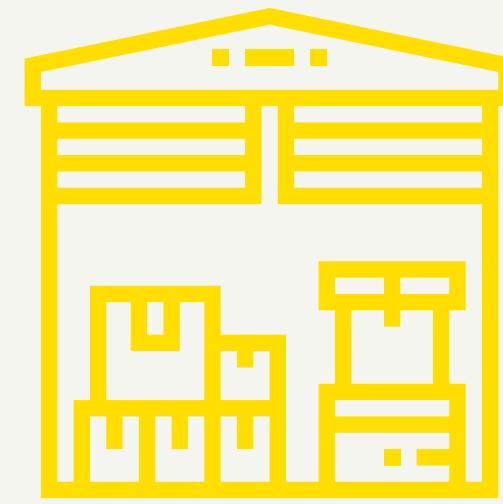
SOCIAL
MEDIA
MARKETING
SCHOOL



New Branch



Logistics service



Depot

Our Members

Meet The Team



วรเนตร ปล่องโปรดঁ

6310422028



รักชนก ทองคำปั้น

6310422039



วุฒิกุล คุณาริมาส

6310422061



THANK YOU!

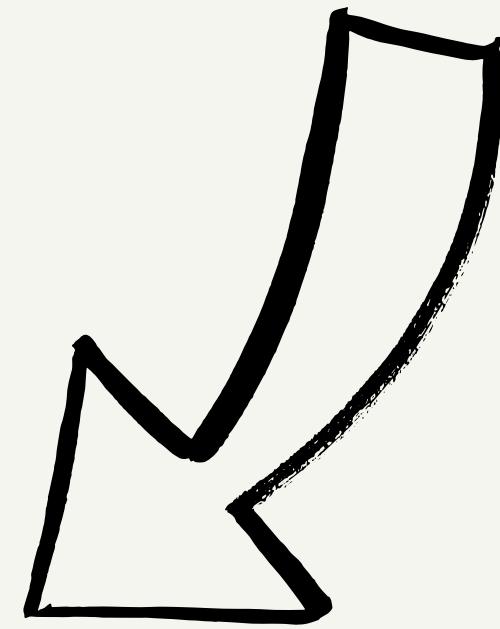
SEE YOU NEXT TIME!



Data Backup

Distance Matrix

Web scraping code



Web Scraping Coding

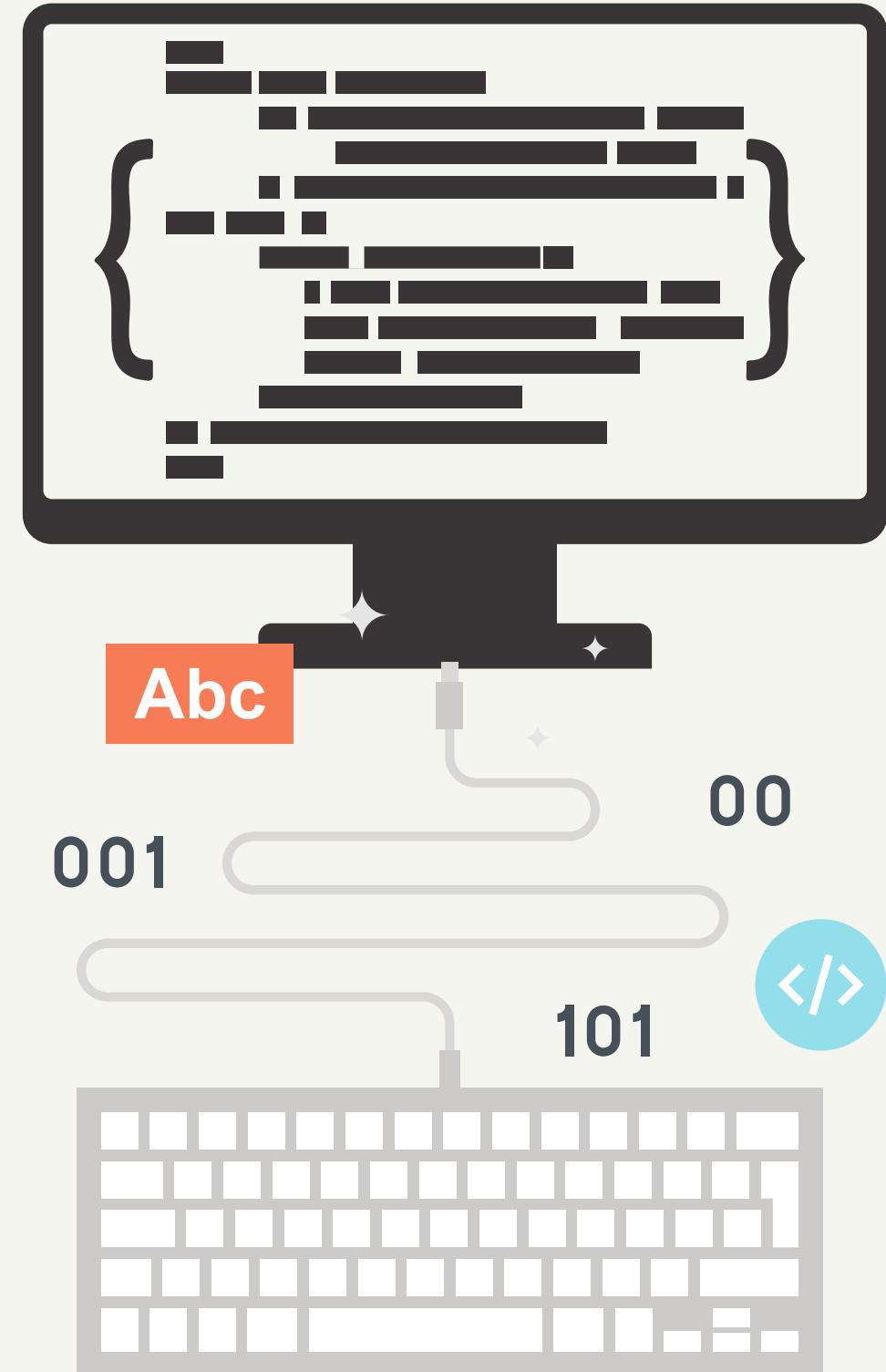
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```
import bs4
import requests
for url in build:
    print(url)
    r = requests.get(url)
    html_page = bs4.BeautifulSoup(r.text, 'lxml')
    heads_selector = html_page.find_all("div", {"class": "whc dflex"})
    for head_selector in heads_selector:
        text_tittle = head_selector.find('h1', class_='tt').get_text()
        if head_selector.find('div', class_='txp dflex') is None:
            cost = head_selector.find('span', class_='ap').get_text()
        else:
            cost = head_selector.find('div', class_='txp dflex').get_text()
        print(f'ชื่ออาคาร : {text_tittle}')
        print(f'ราคาค่าเช่า : {cost}')
    datas_selector = html_page.find_all("div", {"class": "w-dt dflex flexcol align-s"})
    for data_selector in datas_selector:
        detail = data_selector.find_all('div', class_='wcf nw dflex')
        count = 0
        for i in detail:
            if count <= 3:
                print(i.get_text(" : "))
                count += 1
            if count >= 3:
                break
        for link in html_page.find_all('a', {"class": "bs f15 align-c dflex m nf nw"}):
            if link.has_attr('href'):
                location = link.attrs['href']
                print(f'Map: {location}')
```

<https://www.cbre.co.th/th/rent/66-tower>
ชื่ออาคาร : 66 ทาวเวอร์
ราคาค่าเช่า : 800 - 850 บาท / ตรม. / เดือน
ที่อยู่ : สุขุมวิท 66 แขวงบางนา เขตบางนา กรุงเทพฯ 10260
จำนวนชั้น : 28
รวมพื้นที่เช่าทั้งหมด : 29,000 ตร.ม.
Map: <https://www.google.com/maps?saddr=Current+Location&daddr=13.681832,100.60994>

Output



Bibliology

Website

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