IBM DATA SCIENCE CAPSTONE PROJECT

BALI RESTAURANT

A Bried Geographical Strategy

OUTLINE

KEY DISCUSSION POINTS

Why Bali?
How to be profitable?
Tools required?

EXISTING VENUES

	uid	name	shortname	address	postalcode	lat	lng
0	59e94c46018cbb269fd68c77	Cara Cara Inn	Hotel	Kuta, Bali	80361	-8.722761	115.173320
1	4e530e3f62e14e02e8aeb708	Odysseys Surf School	Surf Spot	Kuta, Bali	80361	-8.720849	115.169901
2	5d008c31c876c8002c32e4ac	The Bare Bottle	Café	Kuta, Bali	80361	-8.723724	115.171250
3	4ba6240af964a520763639e3	Flapjaks	Desserts	Kuta, Bali	80361	-8.725143	115.171235
4	52025fceccdaf65c349392c2	Starbucks	Coffee Shop	Kuta, Bali	80361	-8.720826	115.169688

WHY BALI?

High tourist trafic with >6.3 milion of foreign tourist annual trafic

TOOLS

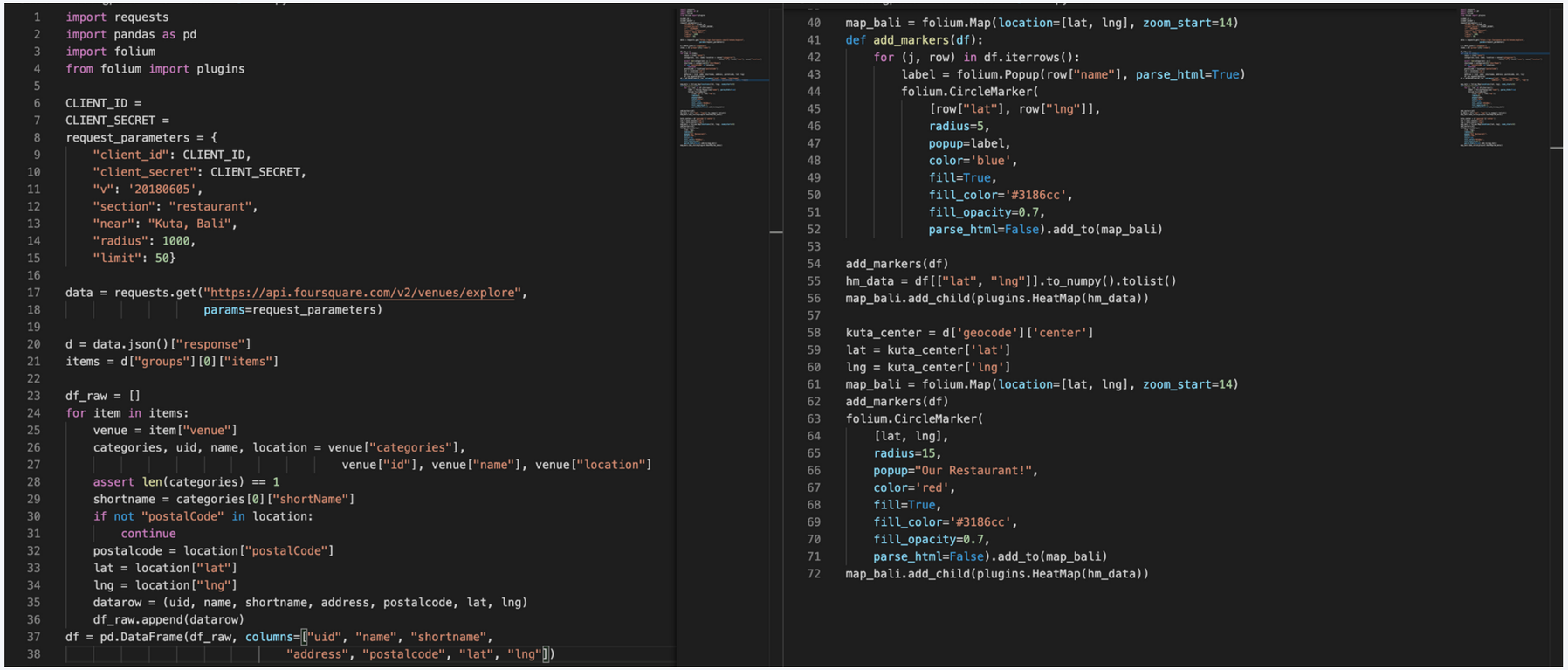
FOLIUM LIBRARY

Region Maping

FOURSQUARE API

Venue Locator

HOW WE RETRIEVE THE DATA?



```python
import requests
import pandas as pd
import folium
from folium import plugins

CLIENT_ID =
CLIENT_SECRET =
request_parameters = {
    "client_id": CLIENT_ID,
    "client_secret": CLIENT_SECRET,
    "v": '20180605',
    "section": "restaurant",
    "near": "Kuta, Bali",
    "radius": 1000,
    "limit": 50}

data = requests.get("https://api.foursquare.com/v2/venues/explore",
                    params=request_parameters)

d = data.json()["response"]
items = d["groups"][0]["items"]

df_raw = []
for item in items:
    venue = item["venue"]
    categories, uid, name, location = venue["categories"],
                                      venue["id"], venue["name"], venue["location"]
    assert len(categories) == 1
    shortname = categories[0]["shortName"]
    if not "postalCode" in location:
        continue
    postalcode = location["postalCode"]
    lat = location["lat"]
    lng = location["lng"]
    datarow = (uid, name, shortname, address, postalcode, lat, lng)
    df_raw.append(datarow)
df = pd.DataFrame(df_raw, columns=["uid", "name", "shortname",
                                   "address", "postalcode", "lat", "lng"])
```

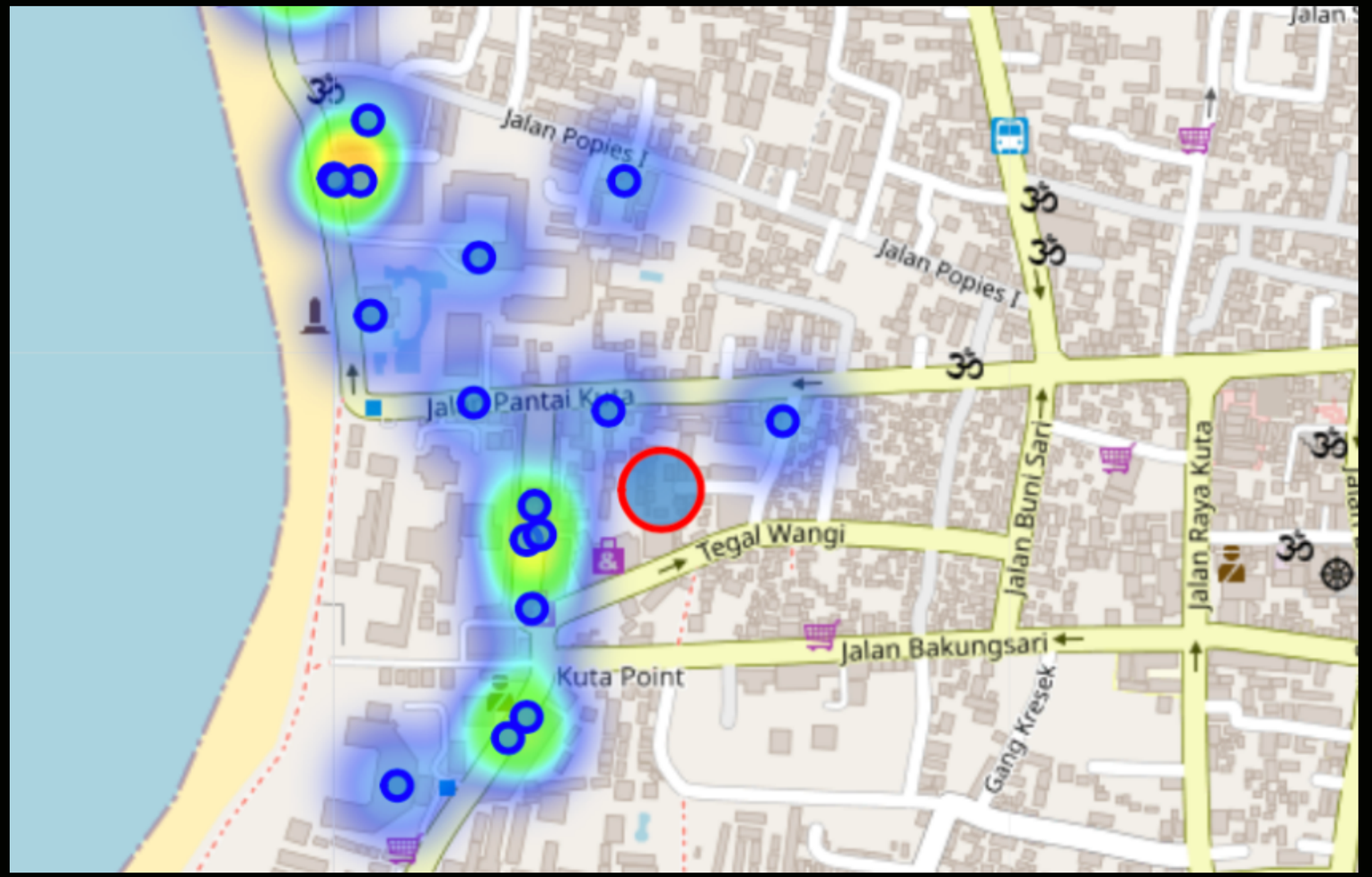
```python
map_bali = folium.Map(location=[lat, lng], zoom_start=14)
def add_markers(df):
    for (j, row) in df.iterrows():
        label = folium.Popup(row["name"], parse_html=True)
        folium.CircleMarker(
            [row["lat"], row["lng"]],
            radius=5,
            popup=label,
            color='blue',
            fill=True,
            fill_color='#3186cc',
            fill_opacity=0.7,
            parse_html=False).add_to(map_bali)

add_markers(df)
hm_data = df[["lat", "lng"]].to_numpy().tolist()
map_bali.add_child(plugins.HeatMap(hm_data))

kuta_center = d['geocode']['center']
lat = kuta_center['lat']
lng = kuta_center['lng']
map_bali = folium.Map(location=[lat, lng], zoom_start=14)
add_markers(df)
folium.CircleMarker(
    [lat, lng],
    radius=15,
    popup="Our Restaurant!",
    color='red',
    fill=True,
    fill_color='#3186cc',
    fill_opacity=0.7,
    parse_html=False).add_to(map_bali)
map_bali.add_child(plugins.HeatMap(hm_data))
```

RESULT

KEY INSIGHTS

New Retaurant should be located:

- Far enough from highly populated venues
- Close to the beach



CONCLUSION

The optimal location for a new coffee shop in the center of Kuta region was estimated based on the data gathered from Foursquare API. The recommendation is made based on the geocode data provided in the json data. The result shows that the city center which described by the geocode is the most appropriate place for the new restaurant. the condition which stated on the data section is satisfied where the new restaurant will be located relatively near to the beach and not too close from the existing restaurant. Since the conditions is satisfied, it is recommended to open the new restaurant at the pointed location.