Restaurants Around Bangladesh

Assignment No – 01

Course Name & Code
Data Visualization (SWE – 688)

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Research Problem: In this connection, a good number of registered and unregistered restaurants have already taken the place of their operation in Dhaka city. Though the all City Corporation registration list indicates there are around 13,000 restaurants in Bangladesh or outside of Bangladesh, the Foodiez Bangladesh website demands it more than 1800 restaurants. However, considering all registered and unregistered restaurants in this list, the total number would be around 65000. Moreover, there are several types of restaurants operating in Bangladesh based on authenticity, which can be classified as an authentic restaurant and inauthentic' restaurant. In authentic restaurants, food is prepared in the same fashion, with the same ingredients, as the original versions of the dish as they are prepared in their nation or region of origin like an Italian-owned Italian restaurant.

About the Dataset: This is a public Dataset and this dataset is available at Kaggle data science link, https://www.kaggle.com/datasets/tanjimanasreenjenia/restaurants-around-bangladesh. This dataset contains 12.7k entries of restaurants and cafes from all over Bangladesh

Domain Knowledge & Attributes:

This dataset was collected from Google Maps using google places API. The dataset has 8 columns containing information about restaurants.

place id - A unique identifier of a place on Google Maps

name - Name of the Restaurant

latitude - Latitudes are horizontal lines that measure distance north or south of the equator.

longitude - Longitudes are vertical lines that measure east or west of the meridian.

rating - Rating of the Restaurant (0 - 5.0)

number of reviews - Total number of reviews given

affluence - Prices level of the Restaurant (1.0 -> Cheap, 2.0 -> Moderate, 3.0 -> Expensive, 4.0 -> Very Expensive)

address - Address of the Restaurant

Visualization, Report Summary

- Libraries import
- Descriptive Analysis
- Data Preparation
- Visualizations
- Remarks

1. **Libraries import**

We need to import following libraries for exploring this dataset,

```
%%capture

!pip install langdetect # Language Detection

!pip install bnlp_toolkit # For Bangla Word Cloud

!wget https://www.omicronlab.com/download/fonts/kalpurush.ttf # Bangla Font For the Word Cloud

!pip install folium

!pip install geopandas

from IPython.display import Markdown, display

import seaborn as sns

import matplotlib.pyplot as plt

from plotly.subplots import make_subplots

from wordcloud import WordCloud

import re

from langdetect import detect

mport unicodedata

import html

import folium

# Import folium MarkerCluster plugin

from folium.plugins import MarkerCluster

# Import folium MousePosition plugin

from folium.plugins import MousePosition

# Import folium DivIcon plugin

from folium.features import DivIcon
```

```
import warnings

warnings. filterwarnings('ignore')

import pandas as pd
```

2. Descriptive Analysis

2.1. Read Dataset: We will load the Dataset directly from repository using URL and load this Dataset to a data frame variable *restaurants*.

```
restaurants=pd.read_csv('https://raw.githubusercontent.com/Sagor96/ds/main/dataset/restaurants.csv')
restaurants
```

2.2. Info of Dataset: we will see the all rows of our dataset using *restaurants*

	place_id	name	latitude	longitude	rating	number_of_reviews	affluence	address
0	ChIJx1i4PyCtqjARq5eQl4YeUFE	Jamal Store, Joykul Bazaar	22.604275	90.094718	0.0	NaN	NaN	Unnamed Road, Kawkhali, Bangladesh
1	ChIJjyA9oZytqjAR6apb48G7hSY	Salma Varaitis Store	22.619158	90.105594	5.0	1.0	NaN	Kawkhali bowlakanda, কাউখালি, Bangladesh
2	ChIJFYwq-zkLADoRf_tn0mu_rOQ	হাজী বিরিয়ানি হাউজ	22.289046	89.958509	5.0	1.0	NaN	Charkhali - Mathbaria – Patharghata Rd, Mathba...
3	ChIJPYyqnw8LADoRycl3-GrLje0	নিউ মুসলিম সুইটস এণ্ড বেকারি	22.288710	89.958482	5.0	4.0	NaN	সদর রোড, Mathbaria, Bangladesh
4	ChIJXU_rTB8LADoRYdOJ2LC_Vo4	মেসার্স সততা হোটেল এন্ড রেস্টুরেন্ট	22.286784	89.958116	0.0	NaN	NaN	7XP5+P69, Mathbaria, Bangladesh
...	...	...	...	...	...	...	...	...
12698	ChIJJWgjO1w-zkRZHwtUZQGu5I	Matir Manus	24.374515	88.604166	0.0	NaN	NaN	BSCIC,Industrial Area,Sopura Rajshahi, রাজশাহী...
12699	ChIJiRR5BQbv-zkR5DYjeHQF2I8	NR Home Kitchen	24.373602	88.600796	5.0	1.0	NaN	Ward-13, Rajshahi, Bangladesh
12700	ChIJB-JYPK3v-zkRzte9zqVK9vY	Bindu Hotel And Restaurant	24.374020	88.603169	3.8	689.0	1.0	Station Rd, Rajshahi 6000, Bangladesh
12701	ChIJTVZsObPv-zkRc6h1tV7FzXI	Mostak Hotel & Restaurant	24.374332	88.608138	0.0	NaN	NaN	Dhaka Bus Terminal, Seroil, Rajshahi, Bangladesh
12702	ChIJ4wTTKbjv-zkRuamuMmWSwJo	ভলাস হোটেল অ্যান্ড রেস্টুরেন্ট	24.374205	88.603853	0.0	NaN	NaN	New Widened Road, Rajshahi, Bangladesh

12703 rows × 8 columns

Showing Columns: For checking all attributes/ columns run *restaurants.columns* then we find:

```
Index(['place_id', 'name', 'latitude', 'longitude', 'rating',
       'number_of_reviews', 'affluence', 'address'],
      dtype='object')
```

How many Restaurants are there? we get all attributes data list count. For example- name column data number.

print("Number of Restaurants: {}".format(restaurants.name.nunique()))

```
Number of Restaurants: 10204
```

Data set info: To explore attributes data type and null value information we will use *restaurants.info().*

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 12703 entries, 0 to 12702
Data columns (total 8 columns):
 #   Column             Non-Null Count  Dtype
---  ------             --------------  -----
 0   place_id           12703 non-null  object
 1   name               12703 non-null  object
 2   latitude           12703 non-null  float64
 3   longitude          12703 non-null  float64
 4   rating             12702 non-null  float64
 5   number_of_reviews  10037 non-null  float64
 6   affluence          1770 non-null   float64
 7   address            12703 non-null  object
dtypes: float64(5), object(3)
memory usage: 794.1+ KB
```

Descriptive: we can call *restaurants.describe()* for view count, mean, std, min, max etc. values.

	latitude	longitude	rating	number_of_reviews	affluence
count	12703.000000	12703.000000	12702.000000	10037.000000	1770.000000
mean	23.781365	90.328629	3.226555	205.763176	1.879661
std	0.986665	0.984722	1.785468	801.054157	0.558286
min	20.856284	88.128098	0.000000	1.000000	1.000000
25%	23.106565	89.584881	3.000000	2.000000	2.000000
50%	23.751747	90.386950	4.000000	10.000000	2.000000
75%	24.387814	90.877606	4.300000	82.000000	2.000000
max	26.494126	92.438711	5.000000	17655.000000	4.000000

2.3. Number of Duplicate Values: we can find out duplicate data-

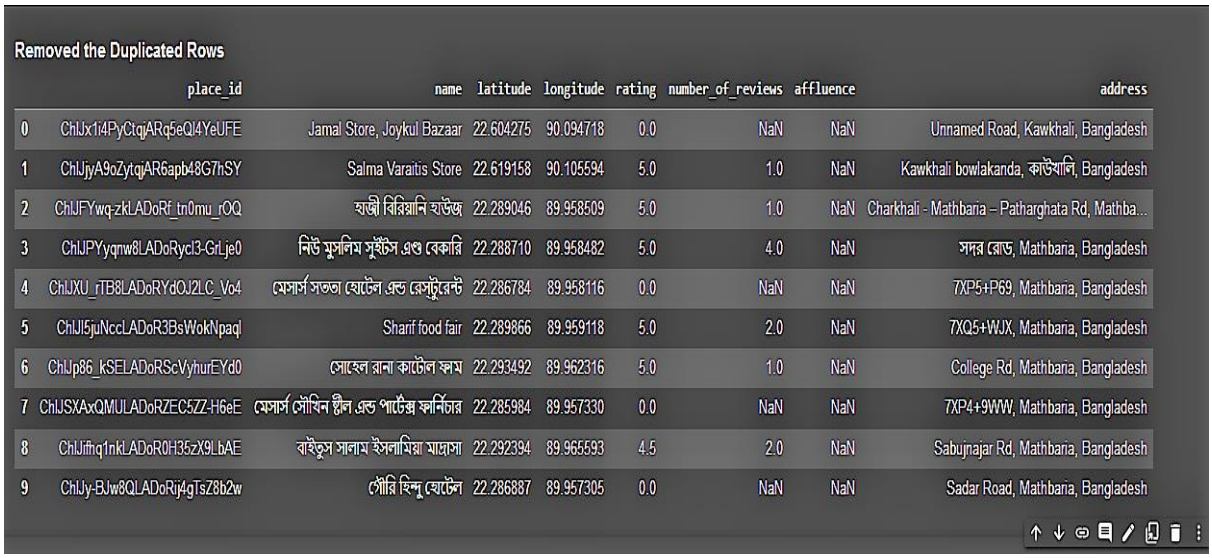
dup = restaurants.duplicated().sum()

printmd(f"### There are {dup} duplicated rows present")

There are 1945 duplicated rows present

We can also remove those data from our given dataset

```
printmd("### Removed the Duplicated Rows ")
restaurants.drop_duplicates(keep="first", inplace=True)
restaurants.head(10)
```



Removed the Duplicated Rows

	place_id	name	latitude	longitude	rating	number_of_reviews	affluence	address
0	ChIJx1i4PyCtqjARq5eQI4YeUFE	Jamal Store, Joykul Bazaar	22.604275	90.094718	0.0	NaN	NaN	Unnamed Road, Kawkhali, Bangladesh
1	ChIJjyA9oZytqjAR6apb48G7hSY	Salma Varaitis Store	22.619158	90.105594	5.0	1.0	NaN	Kawkhali bowlakanda, কাউখালি, Bangladesh
2	ChIJFYwq-zkLADoRf_tn0mu_rOQ	হাজী বিরিয়ানি হাউজ	22.289046	89.958509	5.0	1.0	NaN	Charkhali - Mathbaria – Patharghata Rd, Mathba...
3	ChIJPYyqnw8LADoRycl3-GrLje0	নিউ মুসলিম সুইটস এণ্ড বেকারি	22.288710	89.958482	5.0	4.0	NaN	সদর রোড, Mathbaria, Bangladesh
4	ChIJXU_rTB8LADoRYdOJ2LC_Vo4	মেসার্স সততা হোটেল এন্ড রেস্টুরেন্ট	22.286784	89.958116	0.0	NaN	NaN	7XP5+P69, Mathbaria, Bangladesh
5	ChIJI5juNccLADoR3BsWokNpaqI	Sharif food fair	22.289866	89.959118	5.0	2.0	NaN	7XQ5+WJX, Mathbaria, Bangladesh
6	ChIJp86_kSELADoRScVyhurEYd0	সোহেল রানা কাটেল ফার্ম	22.293492	89.962316	5.0	1.0	NaN	College Rd, Mathbaria, Bangladesh
7	ChIJSXAxQMULADoRZEC5ZZ-H6eE	মেসার্স সৌখিন ষ্টীল এন্ড পার্টেক্স ফার্নিচার	22.285984	89.957330	0.0	NaN	NaN	7XP4+9WW, Mathbaria, Bangladesh
8	ChIJfihq1nkLADoR0H35zX9LbAE	বাইতুস সালাম ইসলামিয়া মাদ্রাসা	22.292394	89.965593	4.5	2.0	NaN	Sabujnajar Rd, Mathbaria, Bangladesh
9	ChIJy-BJw8QLADoRij4gTsZ8b2w	গৌরি হিন্দু হোটেল	22.286887	89.957305	0.0	NaN	NaN	Sadar Road, Mathbaria, Bangladesh

2.4. Check for Missing Values: we can check out whose data are missing for previous actions-

```
def missing_value_describe(data):
    # check missing values in the data
    total = data.isna().sum().sort_values(ascending=False)
    missing_value_pct_stats = (data.isnull().sum() / len(data)*100)
    missing_value_col_count = sum(missing_value_pct_stats > 0)

    # missing_value_stats = missing_value_pct_stats.sort_values(ascending=False)[:missing_value_col_count]
    missing_data = pd.concat([total, missing_value_pct_stats], axis=1, keys=['Total', 'Percent'])

    rows = data.isna().any(axis = 1).sum()
    cols = missing_value_col_count
    printmd(f"#### Number of rows with at least 1 missing values: {rows}")
    printmd(f"#### Number of columns with missing values: {cols}")

    if missing_value_col_count != 0:
        # print out column names with missing value percentage
        printmd("##### Missing percentage (desceding):")
        display(missing_data[:missing_value_col_count])

        # plot missing values
        missing = data.isnull().sum()
```

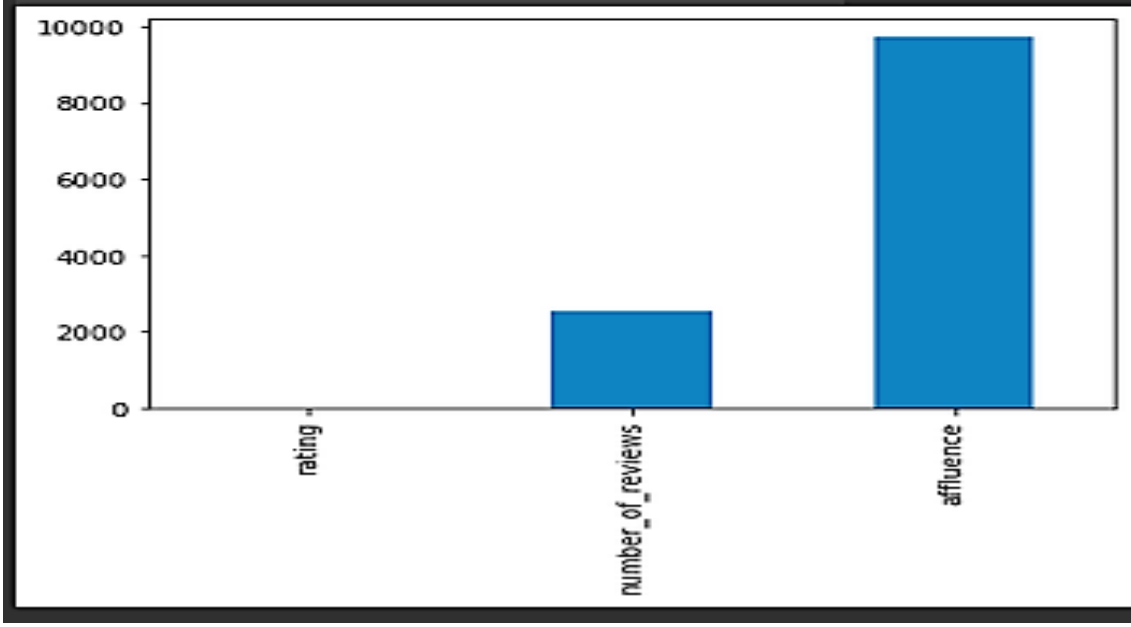
```
        missing = missing[missing > 0]
        missing.sort_values(inplace=True)
        missing.plot.bar()
    else:
        print("No missing data!!!")

# pass a dataframe to the function
missing_value_describe(restaurants)
```

Number of rows with at least 1 missing values: 9733

Number of columns with missing values: 3

Missing percentage (desceding):

	Total	Percent
affluence	9730	90.444321
number_of_reviews	2536	23.573155
rating	1	0.009295



3. Data Preparation

3.1. Check Location: Let's look into the addresses of the restaurants to check whether they are inside Bangladesh or not.

restaurants[restaurants['address'].str.contains('Bangladesh')==False]

Out[17]:

	place_id	name	latitude	longitude	rating	number_of_reviews	affluence	address
2249	ChIJM3pmh-oZUzcRxEj0i0X72NM	Juice & Spice	23.003974	91.729881	0.0	NaN	NaN	2P3H+HXJ, Sabroom, Tripura 799145, India
2252	ChIJ2dxRyT0ZUzcRVlumPmgbV3c	Pushpa fast food	23.000829	91.727325	4.7	9.0	NaN	Pushpa fast food chotokhil Rd, opposite of bag...
2258	ChIJi_nlqHcZUzcRKjNPd5Cctnk	Upalabdhi Food Plaza	23.002733	91.729778	3.5	4.0	NaN	2P3H+3WR, Sabroom, Tripura 799145, India
2264	ChIJAWkn0lsZUzcRI1rLiUVf23o	Sabroom New Bus Stand	23.009141	91.725767	4.5	2.0	NaN	2P5G+M82, Sabroom, Tripura 799145, India
6347	ChIJczRZgTMB-zkRgvpD1QO1Yt8	M/S. Prapty Caterer & NANDITA Biriyani House	24.959450	88.240887	2.0	3.0	NaN	Aiho, West Bengal 732121, India
...	...	...	...	...	...	...	...	...
8967	ChIJZxA1UjjTUTcRh4Rn0s1dzog	Corner Cafe	24.871413	92.359391	3.3	132.0	NaN	V9C5+HQ6, Karimganj, Assam 788710, India
8968	ChIJS34qNcrTUTcRnUTJMI3uwL0	Hotel City View	24.869049	92.364834	3.8	5.0	NaN	Main Road, opp. Congress Office, Karimganj, As...
8969	ChIJw27U4zvTUTcRx5sfB5fjcPU	Mamoni Hotel	24.869008	92.356553	3.2	34.0	NaN	Circuit House Rd, Karimganj, Assam 788710, India
8970	ChIJ7WS_-EPTUTcRmnPXC2fm4W4	Ahar Hotel And Aheli Restaurant	24.867414	92.366639	3.6	250.0	NaN	Shiv Bari Rd, Near Shib Mandir, Karimganj, Ass...
8971	ChIJ2VCwvvzTUTcRyJM86bkiGzU	Kasturi Passport Centres	24.867124	92.369013	5.0	1.0	NaN	Station Rd, Karimganj, Assam 788710, India

62 rows × 8 columns

We look there are some restaurants that are in India instead of Bangladesh. We shall remove such restaurants and prepare a new data frame for further investigations.

bd_rest_df= restaurants[restaurants['address'].str.contains('Bangladesh')==True]
bd_rest_df.reset_index(drop=True, inplace=True)
bd_rest_df

Out[18]:

	place_id	name	latitude	longitude	rating	number_of_reviews	affluence	address
0	ChIJx1i4PyCtqjARq5eQI4YeUFE	Jamal Store, Joykul Bazaar	22.604275	90.094718	0.0	NaN	NaN	Unnamed Road, Kawkhali, Bangladesh
1	ChIJjyA9oZytqjAR6apb48G7hSY	Salma Varaitis Store	22.619158	90.105594	5.0	1.0	NaN	Kawkhali bowlakanda, কাউখালি, Bangladesh
2	ChIJFYwq-zkLADoRf_tn0mu_rOQ	হাজী বিরিয়ানি হাউজ	22.289046	89.958509	5.0	1.0	NaN	Charkhali - Mathbaria – Patharghata Rd, Mathba...
3	ChIJPYyqnw8LADoRycl3-GrLje0	নিউ মুসলিম সুইটস এণ্ড বেকারি	22.288710	89.958482	5.0	4.0	NaN	সদর রোড, Mathbaria, Bangladesh
4	ChIJXU_rTB8LADoRYdOJ2LC_Vo4	মেসার্স সততা হোটেল এন্ড রেস্টুরেন্ট	22.286784	89.958116	0.0	NaN	NaN	7XP5+P69, Mathbaria, Bangladesh
...	...	...	...	...	...	...	...	...
10691	ChIJU1_H2oDv-zkRCOJbwWLY5mc	Green castle	24.374087	88.600196	4.0	5.0	NaN	Bir Sreshtho Shaheed Captain Mohiuddin Jahangi...
10692	ChIJJWgjO1vv-zkRZHwtUZQGu5I	Matir Manus	24.374515	88.604166	0.0	NaN	NaN	BSCIC,Industrial Area,Sopura Rajshahi, রাজশাহী...
10693	ChIJiRR5BQbv-zkR5DYjeHQF2I8	NR Home Kitchen	24.373602	88.600796	5.0	1.0	NaN	Ward-13, Rajshahi, Bangladesh
10694	ChIJB-JYPK3v-zkRzte9zqVK9vY	Bindu Hotel And Restaurant	24.374020	88.603169	3.8	689.0	1.0	Station Rd, Rajshahi 6000, Bangladesh
10695	ChIJ4wTTKbjv-zkRuamuMmWSwJo	ডালাস হোটেল অ্যান্ড রেস্টুরেন্ট	24.374205	88.603853	0.0	NaN	NaN	New Widened Road, Rajshahi, Bangladesh

10696 rows × 8 columns

3.2. **Convert Affluence Level:** For a better visualization, we will convert the affluence levels from 1.0, 2.0, 3.0... to $, $$, $$$

bd_rest_df['affluence'] = bd_rest_df['affluence'].replace([1.0, 2.0, 3.0, 4.0],['$', '$$', '$$$', '$$$$'])
bd_rest_df[bd_rest_df['affluence'].notna()==True]

	place_id	name	latitude	longitude	rating	number_of_reviews	affluence	address
12	ChIJJwuMBKoLADoRcGUOid7tMUg	ক্যাফে আড্ডা মঠবাড়িয়া	22.286668	89.958363	3.9	165.0	$$	7XP5+M89, Mathbaria, Bangladesh
30	ChIJR6ppFA5RVTcR7vhuJ_FPWME	Touhid Tea Store	22.746173	90.103694	4.1	37.0	$	Swarupkathi Bridge, Swarupkathi, Bangladesh
81	ChIJkdicn2gBADoRZgU_IUomDDw	Hotel Rose Garden	22.578679	89.968584	3.8	81.0	$	Post Office Rd, Pirojpur Pourashava, Bangladesh
87	ChIJEypIIFEAADoRw_6MExFtfr8	Hotel Apyayon	22.579484	89.969643	3.5	31.0	$	HXH9+QVR, Pirojpur Pourashava, Bangladesh
92	ChIJIRrrteQJVDcRi_9mQMEBerA	Nawab Chinese Restaurant and Party Center	23.865913	91.206187	4.4	50.0	$	Shahid Amir Hossen Road (1st floor, আখাউড়া, B...
...	...	...	...	...	...	...	...	...
10669	ChIJ-daAjkXu-zkRKA09tfrQTSI	Party Point Thai and Chinese Restaurant	24.386058	88.608380	3.9	196.0	$$	Ground floor,1st and 2nd Floor, B.G.B Gate Rif...
10681	ChIJKx-b407u-zkR7VQuYVQ6ysk	Razia Chinese and Thai Restaurant	24.383917	88.607963	3.7	49.0	$$	R685, Rajshahi 6203, Bangladesh
10685	ChIJbUqeQkXu-zkRPx152Vjuq3w	Muskan Hotel And Restaurant	24.388027	88.606072	3.8	99.0	$	Bisik Match Factory Moor, Sapura, Boalia, Rajs...
10686	ChIJJ0af2v_u-zkRhBVjVemblw0	Mona Hotel & Restaurant	24.375834	88.593381	3.7	14.0	$	9HGV+89J, Rajshahi, Bangladesh
10694	ChIJB-JYPK3v-zkRzte9zqVK9vY	Bindu Hotel And Restaurant	24.374020	88.603169	3.8	689.0	$	Station Rd, Rajshahi 6000, Bangladesh

1024 rows × 8 columns

4. Visualizations

4.1. Popular Restaurant Names: Looks like some of the names are in Bangla. Let's separate the restaurants' that have their names in Bangla.

reg = re.compile(r'[a-zA-Z]')

bd_rest_df["name_type"] = bd_rest_df["name"].apply(lambda x: "English" if reg.match(x) else "Bangla")

en_bd_restaurant = bd_rest_df[bd_rest_df['name_type'] == "English"]
non_en_bd_restaurant = bd_rest_df[bd_rest_df['name_type'] == "Bangla"]

printmd("### Restaurants With English Name")
display(en_bd_restaurant)
printmd("### Restaurants With Bangla Name")
display(non_en_bd_restaurant)

<IPython.core.display.Markdown object>

```
from bnlp.corpus import stopwords, punctuations
regex = r"[\u0980-\u09FF]+"
data = non_en_bd_restaurant.name.value_counts().to_dict()
wc = WordCloud(width=800, height=400,background_color="white", max_font_size=300, font_path="./kalpurush.ttf", regexp=regex).generate_from_frequencies(data)
plt.figure(figsize=(14,10))
plt.imshow(wc, interpolation="bilinear")
plt.axis('off')
plt.show()
result = wc.to_file("Bangla_word_cloud.png")
printmd("### These are the Most Frequently Used Restaurant Names in Bangla")
```

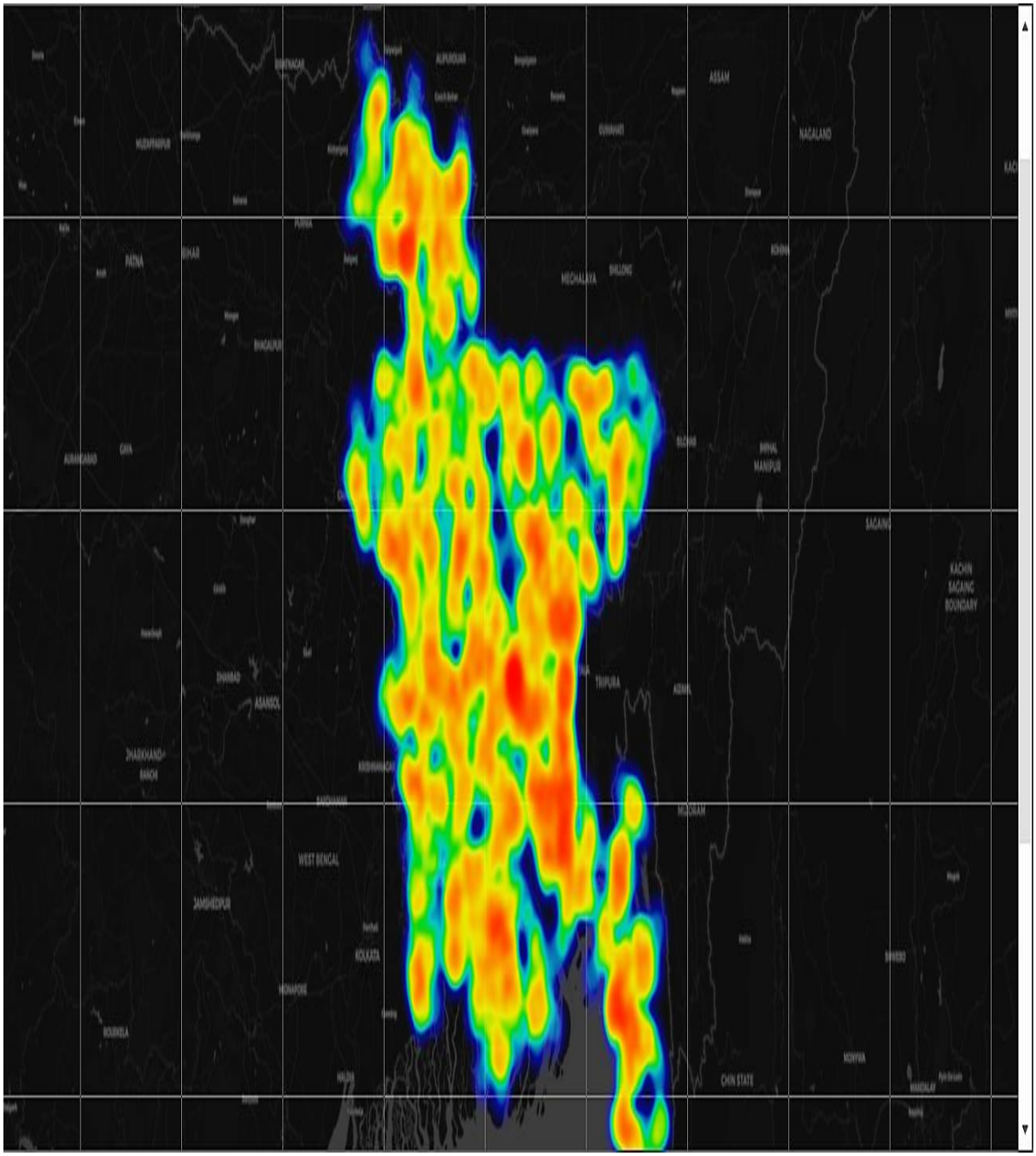
4.2. Heat Map: Here two types of coding process use.

4.2.1. Concept-01

```
import geopandas
import folium
from folium.plugins import MarkerCluster, HeatMap

geometry = geopandas.points_from_xy(bd_rest_df.longitude, bd_rest_df.latitude)
geo_df = geopandas.GeoDataFrame(bd_rest_df[['longitude', 'latitude']], geometry=geometry)
geo_df.head()

bd_coordinate = [23.6850, 90.3563]

site_map = folium.Map(location=bd_coordinate, tiles='Cartodb dark_matter', zoom_start=8)
heat_data = [[point.xy[1][0], point.xy[0][0]] for point in geo_df.geometry ]
# heat_data
HeatMap(heat_data).add_to(site_map)

site_map
```

4.2.2. Concept-02

```
hm = folium.Map(location=[23.6850, 90.3563],tiles='Cartodb dark_matter', zoom_start=7)
HeatMap(restaurants_list,
        min_opacity=0.4,
        blur = 10
            ).add_to(folium.FeatureGroup(name='Heat Map').add_to(hm))
folium.LayerControl().add_to(hm)
hm
```

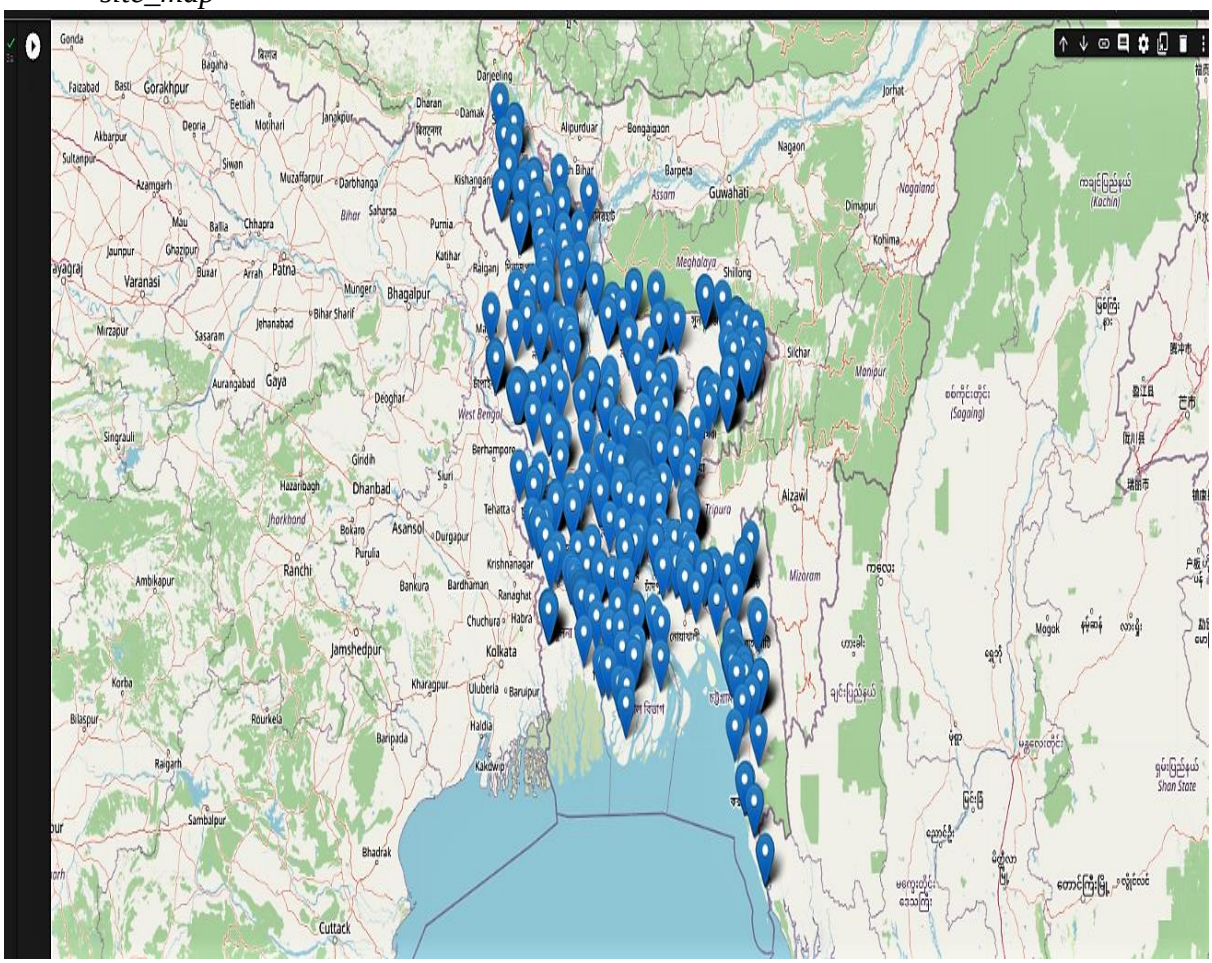


4.3. **Restaurants With Price Range**

Plotting only those restaurants that have price levels

$ means Cheap
$$ means Moderate
$$$ means Expensive
$$$ means Very Expensive

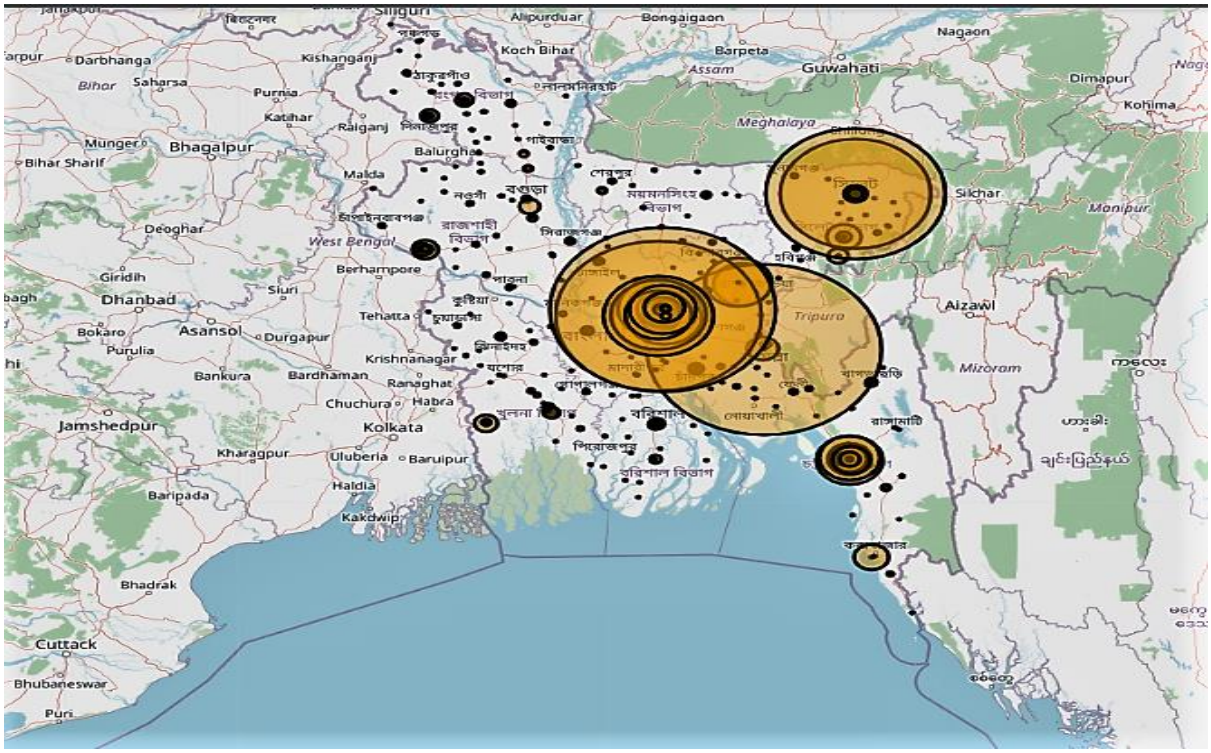
```
bd_coordinate = [23.6850, 90.3563]
site_map = folium.Map(location=bd_coordinate, zoom_start=7)

data = bd_rest_df[bd_rest_df['affluence'].notna()==True]

for i in range(0, len(data)):
    folium.Marker(
        location=[data.iloc[i]['latitude'], data.iloc[i]['longitude']],
        popup=data.iloc[i]['name'],
        tooltip=str(data.iloc[i]['name'])+','+str(data.iloc[i]['affluence'])
    ).add_to(site_map)
site_map
```



4.4. Restaurants According to Reviews

```
bd_coordinate = [23.6850, 90.3563]

circle_map = folium.Map(location=bd_coordinate, zoom_start=8, prefer_canvas=True,)

data = bd_rest_df[bd_rest_df['affluence'].notna()==True]


data['number_of_reviews'].fillna(0, inplace=True)

data['number_of_reviews'] = data['number_of_reviews'].astype(int, errors='ignore')


occurences = folium.map.FeatureGroup()


n_mean = data['number_of_reviews'].mean()


for lat, lng, number, name in zip(data['latitude'],
                                  data['longitude'],
                                  data['number_of_reviews'], data['name']):
  occurences.add_child(
     folium.vector_layers.CircleMarker(
        [lat, lng],
        radius=number/(n_mean/3), # radius for number of occurrences
        color='black',
        fill=True,
        fill_color='orange',
        fill_opacity=0.4,
        tooltip=str(number)+','+str(name),
        # get more from tooltip https://github.com/python-visualization/folium/issues/1010#issuecomment-435968337
     )
  )
```

circle_map.add_child(occurences)



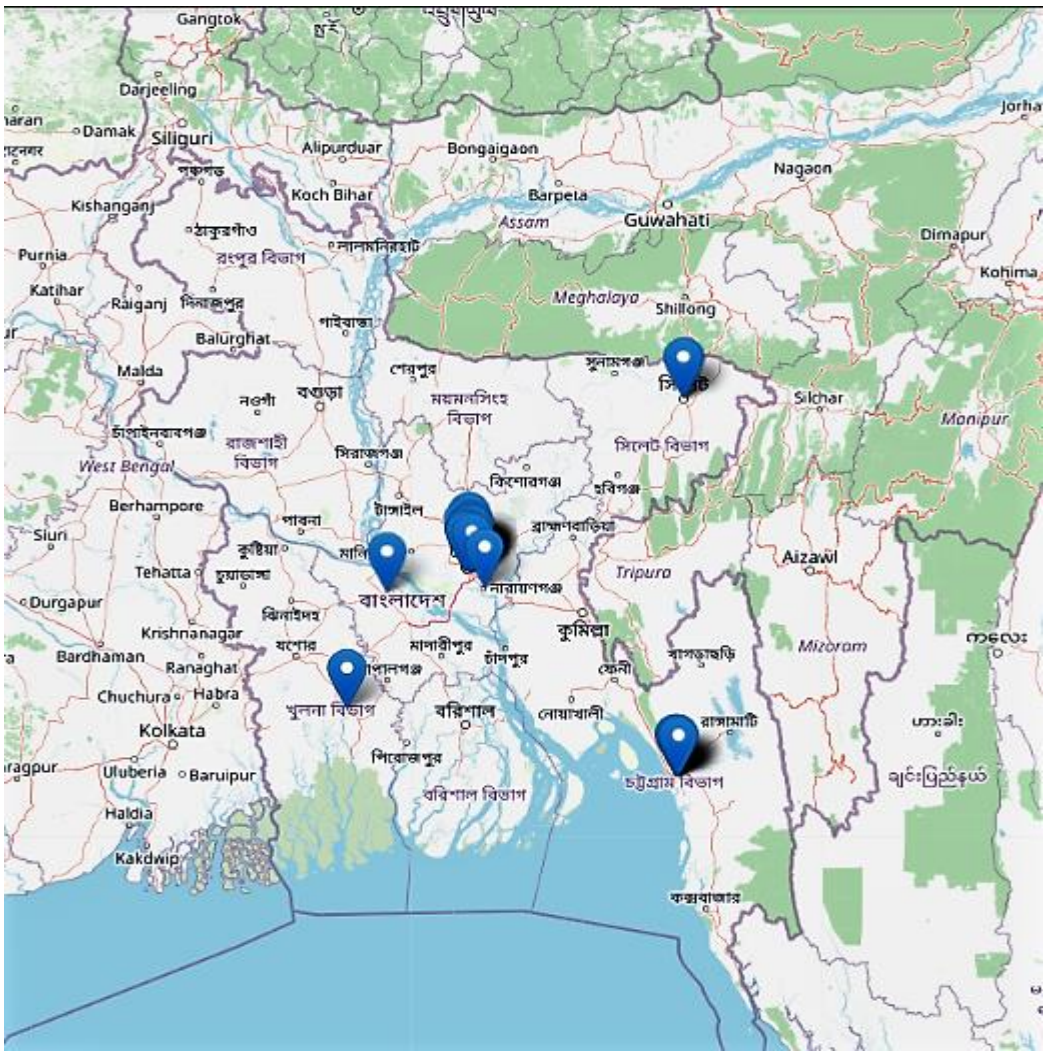
We see the most reviewed restaurants are around Dhaka and other major travel locations, such as Sylhet, Chittagong, Comilla etc.

4.5. Expensive Restaurants with Ratings

data = bd_rest_df[bd_rest_df['affluence'].notna()==True]
data_expensive = data[data['affluence'] == "$$$"]
data_expensive[['name','latitude', 'longitude', 'rating', 'number_of_reviews', 'affluence', 'address']]

2822	SERENE GARDEN Faridpur	23.595499	89.839921	4.2	545.0	$$$	Khan Bahadur Ismail Rd, Faridpur, Bangladesh
3799	The Grand Hall Restaurant & Convention	23.622235	90.500481	4.1	1601.0	$$$	231/7 বঙ্গবন্ধু সড়ক, Chashara Hasnat Square (...
8823	SEASONS Restaurant & Café	24.899916	91.874918	4.4	329.0	$$$	Point, Bihongo, 25/A Kazitula Rd, Sylhet 3100,...
8872	Spicy Restaurant & Party Center	24.895647	91.868174	4.0	987.0	$$$	10th Floor, City Center, Zinda Bazar Point, Sy...
8903	The Stubborn Goat	23.755775	90.374577	4.1	570.0	$$$	House No. 05, Road No. 27 (Old, MIDAS Center, ...
8972	Lake Terrace	23.869714	90.393387	4.0	2868.0	$$$	House # 25/E, Lake Dr Rd, Dhaka 1230, Bangladesh
9054	Izakaya	23.747540	90.369927	4.5	1116.0	$$$	Green Rawshanara Tower (Level – 9) 755, Satmas...
9093	The Green Lounge	23.745765	90.395321	4.3	3093.0	$$$	18th Floor, Rupayan Trade Center, 114 Kazi Naz...
9107	Lucknow Dhaka	23.793253	90.409183	4.2	1432.0	$$$	E, 60 Kemal Ataturk Avenue, Dhaka 1213, Bangla...
9117	Goong The Castle	23.797292	90.410445	4.4	537.0	$$$	House no: 88, 12/B Rd No. 50, Dhaka 1212, Bang...
9129	ICHI	23.790644	90.404181	4.0	273.0	$$$	House No 32, Level- 2, Blok- G, Rd No. 11, Dha...
9133	Jatra Biroti Restaurant	23.793239	90.409158	4.2	2267.0	$$$	60 Kemal Ataturk Ave, Dhaka 1212, Bangladesh
9141	Cheong Shing Restaurant, Dhaka.	23.792593	90.409560	4.2	401.0	$$$	Bangladesh, Dhaka, Rd No. 19/A, Block-E郵政編碼: 1213
9151	Taste of Lanka	23.792834	90.408348	4.2	249.0	$$$	Rangs Pearl, Level 7, House: 76, Road: 12, Blo...
9237	Xinxian Restaurant- Mirpur 10	23.812559	90.366854	4.0	2476.0	$$$	Plot-11 Rd No. 8, Dhaka 1216, Bangladesh
9258	Jhaalmukh Restaurant Ltd.	23.726626	90.417875	3.9	287.0	$$$	Office 47, Dilkusha C/A, 7th Floor, Motijheel,...
9359	A&W Restaurants Bangladesh	23.781906	90.416051	4.0	1355.0	$$$	House No: 01, 1st Floor, Progress Tower, Road ...
9362	Crème de la Crème Coffee	23.794113	90.414240	4.3	1055.0	$$$	House: 33, Road: 46, ঢাকা 1212, Bangladesh
9375	Bamboo shoot	23.788670	90.416153	4.2	927.0	$$$	1st Floor, RM Center, 101 Gulshan Ave, Dhaka 1...
9376	Thai Emerald	23.777402	90.415766	4.3	1882.0	$$$	House 24 গুলশান 1, 4/B রোড নং ২, Dhaka 1212, B...
9378	Sura Korean Restaurant	23.791991	90.412526	4.3	432.0	$$$	House 32 Rd No 43, Dhaka 1212, Bangladesh
9379	The Atrium Restaurant	23.802477	90.422963	4.0	NaN	$$$	50 & 52, Pragati Avenue, J Block, Baridhara, D...

```
data = bd_rest_df[bd_rest_df['affluence'].notna()==True]
data_expensive = data[data['affluence'] == "$$$"]


bd_coordinate = [23.6850, 90.3563]
expensive_map = folium.Map(location=bd_coordinate, zoom_start=10,
prefer_canvas=True,)

for i in range(0, len(data_expensive)):
   folium.Marker(
      location=[data_expensive.iloc[i]['latitude'],
data_expensive.iloc[i]['longitude']],
      # popup=data_expensive.iloc[i]['name'],

tooltip=str(data_expensive.iloc[i]['name'])+','+str(data_expensive.iloc[i]['rat
ing'])
   ).add_to(expensive_map)

expensive_map
```



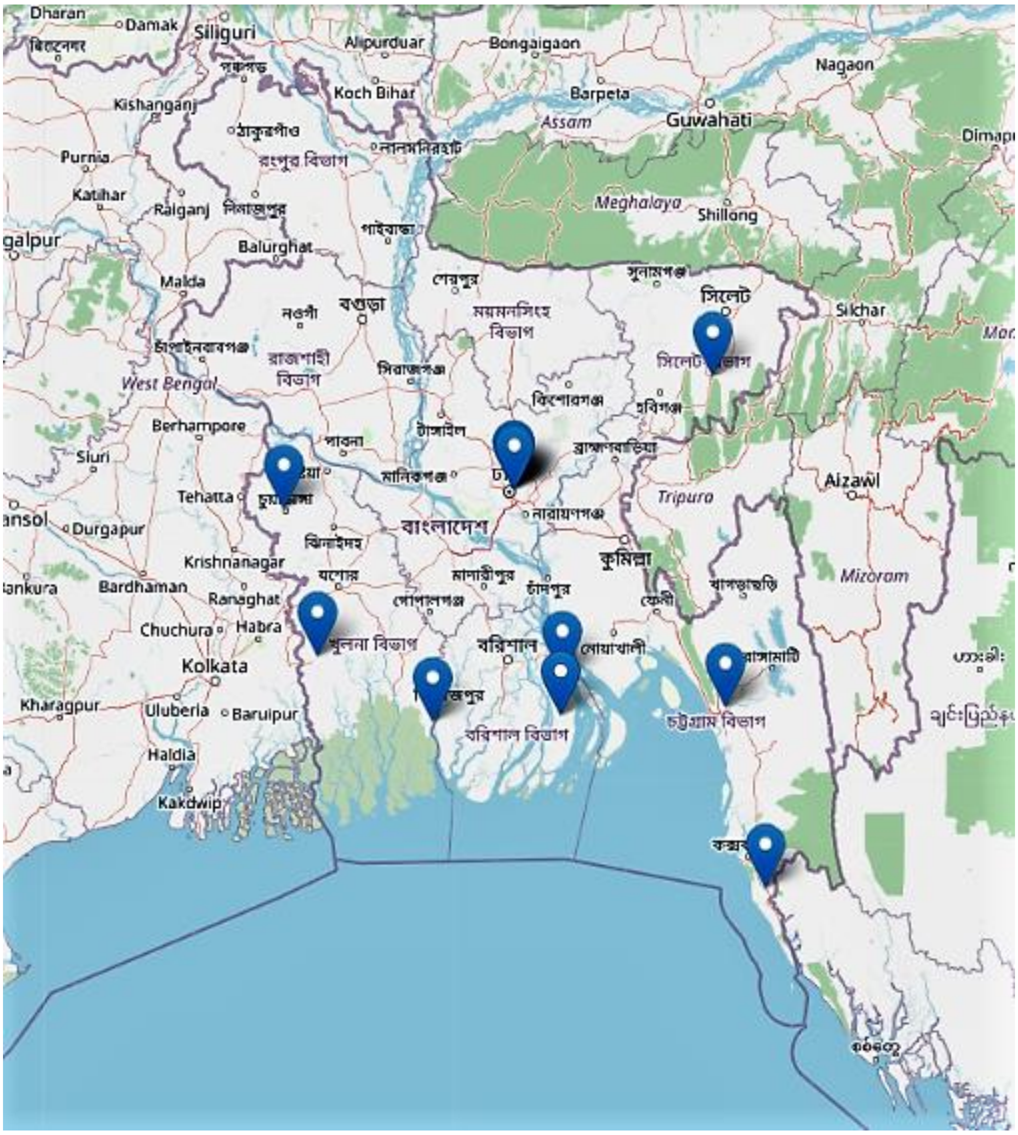
Expensive restaurants are mainly located around Dhaka.

4.6. Very Expensive Restaurants with Ratings

```
data = bd_rest_df[bd_rest_df['affluence'].notna()==True]
data_very_expensive = data[data['affluence'] == "$$$$"]
data_very_expensive[['name', 'rating', 'number_of_reviews']]
```

	name	rating	number_of_reviews
984	Fanush Restaurant & Biriyani House	4.1	50.0
1683	Noman Fastfood	4.5	13.0
1689	Bhola Food Garden Restaurant	4.1	45.0
4596	Rayenda Bazar Ma Baba Hotel	3.6	29.0
4640	সততা ইলেকট্রনিক্স শরিফুল01987497501	3.9	35.0
5463	জ্যোতি হোটেল এন্ড রেস্টুরেন্ট	4.6	22.0
8410	Food Villa	4.0	161.0
9120	Chows	4.2	821.0
9353	Seasonal Tastes	4.5	294.0
9696	Farmhouse Burger	4.4	1501.0
9931	Izumi Japanese Kitchen	4.5	1425.0
9964	Midori Japanese Restaurant	4.0	29.0
10095	Rupali Hotel & restaurant	5.0	8.0

```
data = bd_rest_df[bd_rest_df['affluence'].notna()==True]
data_very_expensive = data[data['affluence'] == "$$$$"]


bd_coordinate = [23.6850, 90.3563]
very_expensive_map = folium.Map(location=bd_coordinate, zoom_start=10,
prefer_canvas=True,)

for i in range(0, len(data_very_expensive)):
   folium.Marker(
      location=[data_very_expensive.iloc[i]['latitude'],
data_very_expensive.iloc[i]['longitude']],
      # popup=data_expensive.iloc[i]['name'],

tooltip=str(data_very_expensive.iloc[i]['name'])+','+str(data_very_expensive
.iloc[i]['rating'])
   ).add_to(very_expensive_map)

very_expensive_map
```



5. Remarks

The dataset may contain some anomalies such as Tea Stores or Food Stores that are also registered under Restaurant keyword.