





[illegible]



[illegible]



[illegible]



[illegible]



[illegible]







[illegible]



[illegible]



[illegible]



[illegible]



[illegible]



[illegible]



[illegible]



[illegible]



[illegible]



[illegible]



[illegible]



[illegible]



[illegible]



[illegible]



[illegible]



[illegible]



[illegible]



[illegible]



```
        'suffix': '.png'}],
        'id': 13199,
        'name': 'Indian Restaurant',
        'icon': {'prefix': 'https://s3.4eqi.net/img/categories_v2/food/indian_',
        'suffix': '.png'}}],
        'chains': [],
        'distances': 1309,
        'geocodes': {'main': {'latitude': 43.679733, 'longitude': -79.339838},
        'roof': {'latitude': 43.679733, 'longitude': -79.339838}},
        'link': '/v3/places/4a6db1a9f3944a520432e21a3',
        'location': {'address': '861 Danforth Ave',
        'country': 'CA',
        'formatted_address': '861 Danforth Ave (East of Jones, south side), Toronto ON M4J 1L8',
        'locality': 'Toronto',
        'neighborhood': 'East York',
        'postcode': 'M4J 1L8',
        'region': 'ON',
        'name': 'Danforth Dragon Restaurant',
        'related_places': {},
        'cross_street': 'America/Toronto',
        (''eq_id': '4e38955318a8d2fc62353ca',
        'categories': {'id': 13034,
        'name': 'Café',
        'icon': {'prefix': 'https://s3.4eqi.net/img/categories_v2/food/cafe_',
        'suffix': '.png'}}),
        ('id': 13065,
        'name': 'Restaurant',
        'icon': {'prefix': 'https://s3.4eqi.net/img/categories_v2/food/default_',
        'suffix': '.png'}})],
        'distances': 1716,
        'geocodes': {'main': {'latitude': 43.684421, 'longitude': -79.365094},
        'roof': {'latitude': 43.684421, 'longitude': -79.365094}},
        'link': '/v3/places/4e38955318a8d2fc62353ca',
        'location': {'address': '550 Bayview Ave',
        'country': 'CA',
        'formatted_address': '550 Bayview Ave (at Evergreen Brick Works',
        'locality': 'Toronto',
        'neighborhood': 'East York',
        'postcode': 'M4W 3K8',
        'region': 'ON',
        'name': 'Cafe Belong',
        'related_places': {'parent': {''eq_id': '4ad9d993f964a520431b21e3',
        'name': 'Evergreen Brick Works',
        'timezone': 'America/Toronto',
        ...}}
```

```
In [81]: br_df = pd.DataFrame.from_dict(results['results'], orient='columns')
br_df=br_df.drop(columns=[''eq_id','chains','link','related_places','timezone','distance'])
```

```
In [82]: br_df
```

	categories	geocodes	location	name
0	[{'id': 17018, 'name': 'Bookstore', 'icon': f...}]	{'main': {'latitude': 43.653755, 'longitude': ...}}	{'address': '220 Yonge St', 'address_extended': ...}}	Indigo
1	[{'id': 13068, 'name': 'American Restaurant', ...}]	{'main': {'latitude': 43.65151, 'longitude': ...}}	{'address': '1 Richmond St W', 'country': 'CA', ...}}	Richmond Station
2	[{'id': 10039, 'name': 'Music Venue', 'icon': ...}]	{'main': {'latitude': 43.650708, 'longitude': ...}}	{'address': '145 Queen St W', 'country': 'CA', ...}}	The Four Seasons Centre for the Performing Arts
3	[{'id': 17043, 'name': 'Clothing Store', 'icon': ...}]	{'main': {'latitude': 43.655961, 'longitude': ...}}	{'address': '220 Yonge St', 'country': 'CA', ...}}	Uniqlo ユニクロ
4	[{'id': 10039, 'name': 'Music Venue', 'icon': ...}]	{'main': {'latitude': 43.653129, 'longitude': ...}}	{'address': '189 Yonge St', 'country': 'CA', ...}}	Elgin & Winter Garden Theatre Ctr
...	...	...	...	...
8812	[{'id': 17018, 'name': 'Movie Theater', 'icon': ...}]	{'main': {'latitude': 43.722421, 'longitude': ...}}	{'address': '22 Lebovic Ave', 'country': 'CA', ...}}	Cineplex Odeon Cinemas
8813	[{'id': 17076, 'name': 'Liquor Store', 'icon': ...}]	{'main': {'latitude': 43.735507, 'longitude': ...}}	{'address': '510 Brimley Rd', 'country': 'CA', ...}}	Lcbo
8814	[{'id': 17034, 'name': 'Discount Store', 'icon': ...}]	{'main': {'latitude': 43.727831, 'longitude': ...}}	{'address': '1920 Eglinton Ave E', 'country': 'CA', ...}}	Dollarama
8815	[{'id': 13145, 'name': 'Fast Food Restaurant', ...}]	{'main': {'latitude': 43.734671, 'longitude': ...}}	{'address': '2567 Eglinton Ave E', 'country': 'CA', ...}}	KFC
8816	[{'id': 17069, 'name': 'Grocery Store / Superm...', 'icon': ...}]	{'main': {'latitude': 43.725291, 'longitude': ...}}	{'address': '8 Lebovic Ave', 'country': 'CA', ...}}	Healthy Planet

8817 rows × 4 columns

```
In [83]: places = br_df[['name', 'categories', 'location', 'geocodes']]
```

```
In [84]: places
```

	name	categories	location	geocodes
0	Indigo	[{'id': 17018, 'name': 'Bookstore', 'icon': f...}]	{'address': '220 Yonge St', 'address_extended': ...}}	{'main': {'latitude': 43.653755, 'longitude': ...}}
1	Richmond Station	[{'id': 13068, 'name': 'American Restaurant', ...}]	{'address': '1 Richmond St W', 'country': 'CA', ...}}	{'main': {'latitude': 43.65151, 'longitude': ...}}
2	The Four Seasons Centre for the Performing Arts	[{'id': 10039, 'name': 'Music Venue', 'icon': ...}]	{'address': '145 Queen St W', 'country': 'CA', ...}}	{'main': {'latitude': 43.650708, 'longitude': ...}}
3	Uniqlo ユニクロ	[{'id': 17043, 'name': 'Clothing Store', 'icon': ...}]	{'address': '220 Yonge St', 'country': 'CA', ...}}	{'main': {'latitude': 43.655961, 'longitude': ...}}
4	Elgin & Winter Garden Theatre Ctr	[{'id': 10039, 'name': 'Music Venue', 'icon': ...}]	{'address': '189 Yonge St', 'country': 'CA', ...}}	{'main': {'latitude': 43.653129, 'longitude': ...}}
...	...	...	...	...
8812	Cineplex Odeon Cinemas	[{'id': 10024, 'name': 'Movie Theater', 'icon': ...}]	{'address': '22 Lebovic Ave', 'country': 'CA', ...}}	{'main': {'latitude': 43.722421, 'longitude': ...}}
8813	Lcbo	[{'id': 17076, 'name': 'Liquor Store', 'icon': ...}]	{'address': '510 Brimley Rd', 'country': 'CA', ...}}	{'main': {'latitude': 43.735507, 'longitude': ...}}
8814	Dollarama	[{'id': 17034, 'name': 'Discount Store', 'icon': ...}]	{'address': '1920 Eglinton Ave E', 'country': 'CA', ...}}	{'main': {'latitude': 43.727831, 'longitude': ...}}
8815	KFC	[{'id': 13145, 'name': 'Fast Food Restaurant', ...}]	{'address': '2567 Eglinton Ave E', 'country': 'CA', ...}}	{'main': {'latitude': 43.734671, 'longitude': ...}}
8816	Healthy Planet	[{'id': 17069, 'name': 'Grocery Store / Superm...', 'icon': ...}]	{'address': '8 Lebovic Ave', 'country': 'CA', ...}}	{'main': {'latitude': 43.725291, 'longitude': ...}}

8817 rows × 4 columns

Getting category title

```
In [85]: br_df['categories'][0][0]['name']
```

```
Out[85]: 'Bookstore'
```

```
In [104]: name_list2 = []
name2 = []
for i in range(len(br_df)):
    name2 = []
    for j in range(len(br_df['categories'][i])):
        name2.append(br_df['categories'][i][j]['name'])
    if not name2:
        pass
    else:
        name_list2.append(name2[0])
```

```
In [112]: name_list = []
name = []
for i in range(len(br_df)):
    name = []
    for j in range(len(br_df['categories'][i])):
        name.append(br_df['categories'][i][j]['name'])
    if not name:
        pass
    else:
        name_list.append(name[0])
```

```
In [113]: name_list[0]
```

```
Out[113]: 'Bookstore'
```

```
In [114]: places['Category'] = name_list
```

```
<ipython-input-114-285d97d98991>:1: SettingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame.
Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#ret
places['Category'] = name_list
```

```
In [115]: places.head()
```

	name	categories	location	geocodes	Category
0	Indigo	[{'id': 17018, 'name': 'Bookstore', 'icon': f...}]	{'address': '220 Yonge St', 'address_extended': ...}}	{'main': {'latitude': 43.653755, 'longitude': ...}}	Bookstore
1	Richmond Station	[{'id': 13068, 'name': 'American Restaurant', ...}]	{'address': '1 Richmond St W', 'country': 'CA', ...}}	{'main': {'latitude': 43.65151, 'longitude': ...}}	American Restaurant
2	The Four Seasons Centre for the Performing Arts	[{'id': 10039, 'name': 'Music Venue', 'icon': ...}]	{'address': '145 Queen St W', 'country': 'CA', ...}}	{'main': {'latitude': 43.650708, 'longitude': ...}}	Music Venue
3	Uniqlo ユニクロ	[{'id': 17043, 'name': 'Clothing Store', 'icon': ...}]	{'address': '220 Yonge St', 'country': 'CA', ...}}	{'main': {'latitude': 43.655961, 'longitude': ...}}	Clothing Store
4	Elgin & Winter Garden Theatre Ctr	[{'id': 10039, 'name': 'Music Venue', 'icon': ...}]	{'address': '189 Yonge St', 'country': 'CA', ...}}	{'main': {'latitude': 43.653129, 'longitude': ...}}	Music Venue

Getting postal codes of all places

```
In [116]: br_df['location'][0]['postcode'].split()[0]
```

```
Out[116]: 'M5B'
```

```
In [117]: import numpy as np
for row in br_df['location'].iteritems():
    if not 'postcode' in row[1].keys():
        row[1]['postcode'] = np.random.choice(df['PostCode'])
    else:
        if row[1]['postcode'] == '':
            row[1]['postcode'] = np.random.choice(df['PostCode'])
```

```
In [118]: for i in range(len(br_df)):
location = []
for j in range(len(br_df['location'][i])):
    if not br_df['location'][i][j]['postcode']:
        print(br_df['location'][i][j]['postcode'])
```

```
In [119]: postalCode = []
location = []
for i in range(len(br_df)):
    location = []
    for j in range(len(br_df['location'][i])):
        if br_df['location'][i][j]['postcode']:
            location.append(br_df['location'][i][j]['postcode'].split()[0])
        else:
            location.append(br_df['location'][i][j]['postcode'])
    if location:
        postalCode.append(location[0])
    else:
        postalCode.append(location)
```

```
In [120]: len(postalCode)
```

```
Out[120]: 8817
```

```
In [121]: places['PostalCode'] = postalCode
```

```
<ipython-input-121-74a871219b29>:1: SettingWithCopyWarning:
A value is trying to be set on a copy of a DataFrame.
Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#ret
places['PostalCode'] = postalCode
```

```
In [122]: places = places.drop(columns=['categories', 'location', 'geocodes'])
```

```
In [123]: places.head()
```

	name	Category	PostalCode
0	Indigo	Bookstore	M5B
1	Richmond Station	American Restaurant	MSH
2	The Four Seasons Centre for the Performing Arts	Music Venue	MSH
3	Uniqlo ユニクロ	Clothing Store	M5B
4	Elgin & Winter Garden Theatre Ctr	Music Venue	MSB

```
In [124]: newdf.head()
```

	PostalCode	Borough	Neighborhood	Latitude	Longitude
0	M3A	North York	Parkwoods	43.753259	-79.329656
1	MAA	North York	Victoria Village	43.725882	-79.315572
2	M5A	Downtown Toronto	Regent Park/Harbourfront	43.654260	-79.360636
3	M6A	North York	Lawrence Manor, Lawrence Heights	43.718518	-79.464763
4	M7A	Queen's Park	Ontario Provincial Government	43.662301	-79.389494

```
In [125]: final_df=pd.merge(places, newdf, on='PostalCode')
```

```
In [126]: final_df=final_df.rename(columns={'name':'Place Name'})
```

```
In [127]: len(final_df)
```

```
Out[127]: 7204
```

```
In [128]: len(final_df['Place Name'].unique())
```

```
Out[128]: 2399
```

Removing duplicates from data based on the place name column.

```
In [130]: final_df = final_df.drop_duplicates(subset=['Place Name'], keep=False)
```

```
In [131]: #final_df = final_df.drop_duplicates(subset=['Place Name', 'Category'], keep=False)
```

```
In [132]: final_df
```

	Place Name	Category	PostalCode	Borough	Neighborhood	Latitude	Longitude
11	Elgin & Winter Garden Theatre Ctr	Music Venue	M5B	Downtown Toronto	Garden District, Ryerson	43.657162	-79.378937
21	Carville Mill Park	Park	M5B	Downtown Toronto	Garden District, Ryerson	43.657162	-79.378937
34	Hina's Beauty Care	Hair Salon	M5H	Downtown Toronto	Richmond, Adelaide, King	43.650571	-79.384568
23	Richmond Station	American Restaurant	MSH	Downtown Toronto	Richmond, Adelaide, King	43.650571	-79.384568
44	Cactus Club Cafe	American Restaurant	MSH	Downtown Toronto	Richmond, Adelaide, King	43.650571	-79.384568
...	...	...	...	...	...	...	...
7123	Exchange Cafe	Cafe	M4N	Central Toronto	Lawrence Park	43.728020	-79.388790
7183	Melmir Bra & Swimsuits Inc	Clothing Store	M4N	Central Toronto	Lawrence Park	43.728020	-79.388790
7192	Boom Breakfast & Co	Diner	M4R	Central Toronto	North Toronto West	43.715383	-79.405678
7193	Burger Shack	Burger Joint	M4R	Central Toronto	North Toronto West	43.715383	-79.405678
7194	The Healthy Butcher	Butcher	M4R	Central Toronto	North Toronto West	43.715383	-79.405678

954 rows × 7 columns

Storing the file with the name data.csv on the local machine.

```
In [133]: final_df.to_csv('data.csv', encoding='utf-8')
```

```
In [134]: final_df.shape
```

```
Out[134]: (954, 7)
```