Analysing the best location for a new restaurant in New-York City

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IBM Data Science Professional Certificate Capstone

Data

To attempt a solution at this problem, we'll be using the Foursquare API to fetch venue information and analyse different neighbourhoods.

To fulfil the requirements of the business problem stated, we'll specifically be looking for two types of information:

1- Data on the neighbourhoods in general, specifically:

- The categories for each venue in each Manhattan neighbourhood
- Popular days and hours for venues that serve our target customer (nightlife venues)
- A popularity score for each of the target venues, calculated by:
  - The total number of tips
  - The like/dislike volume and ratio

2- Data on venues that might compete with ours, specifically:

- The relative frequency of all late night restaurants
- The price range of late night restaurants in each neighbourhood
- The cuisine type of late night restaurants in each neighbourhood

Data source:

1- New-York data set:

https://cocl.us/new_york_dataset
https://geo.nyu.edu/catalog/nyu_2451_34572

2- Foursquare API:

https://developer.foursquare.com/

Data (fetching popular venues in a neighbourhood)

```
uniques = venues['Category'].value_counts()
uniques
```

```
Chinese               9
Bubble Tea            6
Cocktail              4
American              4
Dim Sum               4
Vietnamese            4
Bakery                3
Noodles               3
Hotpot                3
Salon / Barbershop    3
Optical               2
Bar                   2
Spa                   2
Coffee Shop           2
Malay                 2
Asian                 2
Dumplings             2
Ice Cream             2
Sandwiches            2
Boutique              1
Cosmetics             1
```

Data (Fetching the popular hours for a venue)

```
VENUE_ID = venues.loc[0, 'venue.id']
url = 'https://api.foursquare.com/v2/venues/{}?&client_id={}&client_secret={}&v={}'.format(
    VENUE_ID,
    CLIENT_ID,
    CLIENT_SECRET,
    VERSION,
    )

details = requests.get(url).json()
popularTimes = details['response']['venue']['popular']
popularTimes
```

```
{'status': 'Likely open',
 'richStatus': {'entities': [], 'text': 'Likely open'},
 'isOpen': True,
 'isLocalHoliday': False,
 'timeframes': [{'days': 'Today',
   'includesToday': True,
   'open': [{'renderedTime': '8:00 AM–3:00 PM'},
    {'renderedTime': '6:00 PM–8:00 PM'}],
   'segments': []},
  {'days': 'Mon',
   'open': [{'renderedTime': '7:00 AM–8:00 AM'},
    {'renderedTime': '11:00 AM–Noon'},
    {'renderedTime': '3:00 PM–9:00 PM'}],
   'segments': []},
  {'days': 'Tue',
   'open': [{'renderedTime': '7:00 AM–9:00 AM'},
    {'renderedTime': '11:00 AM–Noon'},
    {'renderedTime': '5:00 PM–8:00 PM'}],
   'segments': []},
```

Data (Fetching venue attributes)

```
VENUE_ID = '4db3374590a0843f295fb69b'
url = 'https://api.foursquare.com/v2/venues/{}?&client_id={}&client_secret={}&v={}'.format(
    VENUE_ID,
    CLIENT_ID,
    CLIENT_SECRET,
    VERSION,
    )
request2 = requests.get(url).json()
attributes = request2['response']['venue']['attributes']
attributes
```


```
{'groups': [{'type': 'price',
   'name': 'Price',
   'summary': '$',
   'count': 1,
   'items': [{'displayName': 'Price', 'displayValue': '$', 'priceTier': 1}]},
  {'type': 'reservations',
   'name': 'Reservations',
   'count': 3,
   'items': [{'displayName': 'Reservations', 'displayValue': 'No'}]},
  {'type': 'payments',
   'name': 'Credit Cards',
   'summary': 'No Credit Cards',
   'count': 7,
   'items': [{'displayName': 'Credit Cards', 'displayValue': 'No'}]},
  {'type': 'outdoorSeating',
   'name': 'Outdoor Seating',
   'count': 1,
   'items': [{'displayName': 'Outdoor Seating', 'displayValue': 'No'}]},
  {'type': 'serves',
   'name': 'Menus',
   'summary': 'Dinner, Lunch & more',
   'count': 8,
```

Data (fetching number of tips)

```
]: VENUE_ID = '4db3374590a0843f295fb69b'
   url = 'https://api.foursquare.com/v2/venues/{}?&client_id={}&client_secret={}&v={}'.format(
       VENUE_ID,
       CLIENT_ID,
       CLIENT_SECRET,
       VERSION,
       )
   request2 = requests.get(url).json()
   attributes = request2['response']['venue']['tips']
   attributes
```


```
]: {'count': 172,
    'groups': [{'type': 'others',
      'name': 'All tips',
      'count': 172,
      'items': [{'id': '4df167a3b0fb807158b979f8',
        'createdAt': 1307666339,
        'text': 'Big tray chicken. Make sure you ask them to add hand-pulled noodles to it.',
        'type': 'user',
        'canonicalUrl': 'https://foursquare.com/item/4df167a3b0fb807158b979f8',
        'lang': 'en',
```