

Week 5

Introduction where you discuss the business problem and who would be interested in this project.

Where to start our Korean bbq business in Clementi, Singapore to attract people to visit.

Company trying to open a Korean restaurants in Clementi, Singapore. Target Audience will be student studying in Singapore university of Social Sciences, Singapore Institute of Management , Ngee Ann Polytechnic.

Data where you describe the data that will be used to solve the problem and the source of the data. I gather all the korean restaurant near the school using foursquare and using bs4 to extract all the rating for the korean restaurant gather using 4 square and create meaningful visualization and analyze the feasibility of opening korean restaurant near schools.

Import necessary Libraries

```
In [1]: import requests # library to handle requests
import pandas as pd # library for data analysis
import numpy as np # library to handle data in a vectorized manner
import random # library for random number generation

!conda install -c conda-forge geopy --yes
from geopy.geocoders import Nominatim # module to convert an address in
to latitude and longitude values

# libraries for displaying images
from IPython.display import Image
from IPython.core.display import HTML

# tranforming json file into a pandas dataframe library
from pandas.io.json import json_normalize
```

```
!conda install -c conda-forge folium=0.5.0 --yes
import folium # plotting library

print('Folium installed')
print('Libraries imported.')
```

Collecting package metadata (current_repodata.json): ...working... done
Solving environment: ...working... done

All requested packages already installed.

Collecting package metadata (current_repodata.json): ...working... done
Solving environment: ...working... done

All requested packages already installed.

Folium installed
Libraries imported.

Define Foursquare Credentials and Version

Make sure that you have created a Foursquare developer account and have your credentials handy

```
In [2]: CLIENT_ID = 'IL5L2RYXRPC3TNKV3LZ4M2BPIBYDH04KYBU2EPSML0RZX2YP' # your F
        oursquare ID
        CLIENT_SECRET = '0KNMNL4NLZFR44LM0W3D0G1XA1UW0XDIMQZDXV0KN5GRHHGR' # yo
        ur Foursquare Secret
        VERSION = '20200211'
        LIMIT = 30
        print('Your credentials:')
        print('CLIENT_ID: ' + CLIENT_ID)
        print('CLIENT_SECRET: ' + CLIENT_SECRET)
```

Your credentials:
CLIENT_ID: IL5L2RYXRPC3TNKV3LZ4M2BPIBYDH04KYBU2EPSML0RZX2YP
CLIENT_SECRET: 0KNMNL4NLZFR44LM0W3D0G1XA1UW0XDIMQZDXV0KN5GRHHGR

CLIENT_SECRET = '0RNMPL4NLZFR44LPM0W3D0G1XA10W0AD1IMQZDAX0RND0RNN0R'

Let's again assume that you are staying at the Conrad hotel. So let's start by converting the Conrad Hotel's address to its latitude and longitude coordinates.

In order to define an instance of the geocoder, we need to define a user_agent. We will name our agent *foursquare_agent*, as shown below.

```
In [3]: address = '461 Clementi Rd, Singapore 599491'

geolocator = Nominatim(user_agent="foursquare_agent")
location = geolocator.geocode(address)
latitude = location.latitude
longitude = location.longitude
print(latitude, longitude)

1.32884 103.77636
```

1. Search for a specific venue category

```
https://api.foursquare.com/v2/venues/ search ?
client_id= CLIENT_ID &client_secret= CLIENT_SECRET &ll= LATITUDE , LC
```



Now, let's assume that it is lunch time, and you are craving Italian food. So, let's define a query to search for Italian food that is within 500 metres from the Conrad Hotel.

```
In [4]: search_query = 'korean'
```

```
radius = 2000
print(search_query + ' .... OK!')
```

korean OK!

Define the corresponding URL

```
In [5]: url = 'https://api.foursquare.com/v2/venues/search?client_id={}&client_secret={}&ll={},{}&v={}&query={}&radius={}&limit={}'.format(CLIENT_ID, CLIENT_SECRET, latitude, longitude, VERSION, search_query, radius, LIMIT)
url
```

```
Out[5]: 'https://api.foursquare.com/v2/venues/search?client_id=IL5L2RYXRPC3TNKV3LZ4M2BPIBYDH04KYBU2EPSML0RZX2YP&client_secret=0KNMNL4NLZFR44LM0W3D0G1X A1UW0XDIMQZDXV0KN5GRHHGR&ll=1.32884,103.77636&v=20200211&query=korean&radius=2000&limit=30'
```

Send the GET Request and examine the results

```
In [6]: results = requests.get(url).json()
results
```

```
Out[6]: {'meta': {'code': 200, 'requestId': '5e4cad3cb4b684001b2db7c0'},
         'response': {'venues': [{'id': '53d249cc498e53e973aa85a0',
                                   'name': '名家 (Ming Jia) 명가 II Korean BBQ',
                                   'location': {'address': 'B1-55, Bukit Timah Plaza',
                                                'crossStreet': '1 Jalan Anak Bukit',
                                                'lat': 1.3388956709082542,
                                                'lng': 103.77917633494214,
                                                'labeledLatLngs': [{'label': 'display',
                                                                    'lat': 1.3388956709082542,
                                                                    'lng': 103.77917633494214}],
                                                'distance': 1162,
                                                'postalCode': '588996',
                                                'cc': 'SG',
                                                'city': 'Singapore',
```

```

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        'formattedAddress': ['B1-55, Bukit Timah Plaza (1 Jalan Anak Buki
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        '588996',
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orean_',
        'suffix': '.png'},
        'primary': True}],
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        { 'id': '4c08dd6d7e3fc9282fecf082',
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```

```

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        'location': {'address': '19 Lor Kilat, #01-02',
        'lat': 1.3410740978780498,
        'lng': 103.77371466833864,
        'labeledLatLngs': [{'label': 'display',
        'lat': 1.3410740978780498,
        'lng': 103.77371466833864}]},
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        'location': {'address': '106 Clementi Street 12',
        'crossStreet': 'Sunset Way',
        'lat': 1.321923,
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        'lng': 103.770146}]},

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    'location': { 'address': '#04-03 Beauty World Centre',
    'crossStreet': '144 Upper Bukit Timah Rd.',
    'lat': 1.3423915004212605,
    'lng': 103.77634751982013,
    'labeledLatLngs': [{ 'label': 'display',
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    'lng': 103.77634751982013}],
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    'city': 'Singapore',
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    'Singapore']},
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```

```

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   'location': {'address': 'B1-29, Beauty World Centre',
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    'lat': 1.342269,
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       'location': {'address': '#04-01, Beauty World Centre',
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        'lng': 103.77612559202169,

```



```

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orean_',
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```

```

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orean_',
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        'name': '회랑고기랑 Korean Seafood & BBQ Restaurant',
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```

```

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'lng': 103.77450388001515}],
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    { 'id': '4d045c3e8620224b8ed5a840',
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'lat': 1.309643,
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'labeledLatLngs': [{ 'label': 'display',
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'lng': 103.77880844670491,
'labeledLatLngs': [{'label': 'display',
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'lng': 103.77880844670491}]},
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'cc': 'SG',
'city': 'Singapore',
'country': 'Singapore',
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it)',
'588996',
'Singapore']},
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'primary': True}],
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{'id': '4f12b9cce4b07e9ecbbc4a2f',
'name': 'Ga Ya Guem Korean Family Restaurant',
'location': {'address': 'Bukit Timah Shopping Centre',
'crossStreet': '170 Upper Bukit Timah Rd.',
'lat': 1.3432370045440782,
'lng': 103.77573148204549,
'labeledLatLngs': [{'label': 'display',
'lat': 1.3432370045440782,
'lng': 103.77573148204549}]},
'distance': 1604,
'postalCode': '588179',
'cc': 'SG',

```



```

    'city': 'Singapore',
    'country': 'Singapore',
    'formattedAddress': ['Bukit Timah Shopping Centre (170 Upper Bukit
Timah Rd.)',
    '588179',
    'Singapore']},
    'categories': [{ 'id': '4bf58dd8d48988d113941735',
    'name': 'Korean Restaurant',
    'pluralName': 'Korean Restaurants',
    'shortName': 'Korean',
    'icon': { 'prefix': 'https://ss3.4sqi.net/img/categories_v2/food/k
orean_',
    'suffix': '.png'},
    'primary': True}],
    'referralId': 'v-1582083535',
    'hasPerk': False},
    { 'id': '4f633cc2e4b041039c822c3c',
    'name': 'Madang Korean Restaurant',
    'location': { 'address': 'Goh & Goh Building',
    'crossStreet': '120 Upper Bukit Timah Rd.',
    'lat': 1.34091310360221,
    'lng': 103.77594470428667,
    'labeledLatLngs': [{ 'label': 'display',
    'lat': 1.34091310360221,
    'lng': 103.77594470428667}],
    'distance': 1344,
    'cc': 'SG',
    'city': 'Singapore',
    'country': 'Singapore',
    'formattedAddress': ['Goh & Goh Building (120 Upper Bukit Timah R
d.)',
    'Singapore']},
    'categories': [{ 'id': '4bf58dd8d48988d113941735',
    'name': 'Korean Restaurant',
    'pluralName': 'Korean Restaurants',
    'shortName': 'Korean',
    'icon': { 'prefix': 'https://ss3.4sqi.net/img/categories_v2/food/k
orean_',
    'suffix': '.png'},

```

```

        'primary': True}},
        'referralId': 'v-1582083535',
        'hasPerk': False},
        {'id': '53020c0d498ele64fbb024e3',
         'name': '2D1N Soju Bang Korean Restaurant',
         'location': {'address': 'Goh & Goh Building',
                     'crossStreet': 'Upper Bukit Timah Road',
                     'lat': 1.341102,
                     'lng': 103.776072,
                     'labeledLatLngs': [{'label': 'display',
                                           'lat': 1.341102,
                                           'lng': 103.776072}]},
         'distance': 1365,
         'cc': 'SG',
         'city': 'Singapore',
         'country': 'Singapore',
         'formattedAddress': ['Goh & Goh Building (Upper Bukit Timah Road)',
                              'Singapore']},
        'categories': [{'id': '4bf58dd8d48988d113941735',
                         'name': 'Korean Restaurant',
                         'pluralName': 'Korean Restaurants',
                         'shortName': 'Korean',
                         'icon': {'prefix': 'https://ss3.4sqi.net/img/categories_v2/food/korean_',
                                  'suffix': '.png'}},
                         {'primary': True}}],
        'referralId': 'v-1582083535',
        'hasPerk': False},
        {'id': '5c49a99d6fd626002c3a1197',
         'name': 'Don Bang Korean BBQ',
         'location': {'address': '144 Upper Bukit Timah Road #04-60',
                     'lat': 1.342389,
                     'lng': 103.776432,
                     'labeledLatLngs': [{'label': 'display',
                                           'lat': 1.342389,
                                           'lng': 103.776432}]},
         'distance': 1508,
         'postalCode': '588177',

```

```

      'cc': 'SG',
      'city': 'Bukit Timah',
      'state': 'Singapore',
      'country': 'Singapore',
      'formattedAddress': ['144 Upper Bukit Timah Road #04-60',
        '588177',
        'Singapore']},
      'categories': [{ 'id': '4bf58dd8d48988d113941735',
        'name': 'Korean Restaurant',
        'pluralName': 'Korean Restaurants',
        'shortName': 'Korean',
        'icon': { 'prefix': 'https://ss3.4sqi.net/img/categories_v2/food/korean_',
          'suffix': '.png'},
        'primary': True}},
      'referralId': 'v-1582083535',
      'hasPerk': False},
    { 'id': '4df892f318385456c7f50cc7',
      'name': 'G Study Korean School',
      'location': { 'address': 'Beauty World Plaza',
        'crossStreet': '140 Upp Bukit Timah Rd',
        'lat': 1.3424948796663532,
        'lng': 103.7762168672651,
        'labeledLatLngs': [{ 'label': 'display',
          'lat': 1.3424948796663532,
          'lng': 103.7762168672651}],
        'distance': 1520,
        'postalCode': '588176',
        'cc': 'SG',
        'city': 'Singapore',
        'country': 'Singapore',
        'formattedAddress': ['Beauty World Plaza (140 Upp Bukit Timah R
d)',
        '588176',
        'Singapore']},
      'categories': [],
      'referralId': 'v-1582083535',
      'hasPerk': False},
    { 'id': '57ecbe82498e8a9b53b37cf2',

```

```

'name': 'korean snow flake desert',
'location': {'address': 'Clementi mall',
'lat': 1.310956,
'lng': 103.764251,
'labeledLatLngs': [{'label': 'display',
'lat': 1.310956,
'lng': 103.764251}],
'distance': 2404,
'cc': 'SG',
'country': 'Singapore',
'formattedAddress': ['Clementi mall', 'Singapore']},
'categories': [{'id': '4bf58dd8d48988d1c9941735',
'name': 'Ice Cream Shop',
'pluralName': 'Ice Cream Shops',
'shortName': 'Ice Cream',
'icon': {'prefix': 'https://ss3.4sqi.net/img/categories_v2/food/i
cecream_',
'suffix': '.png'},
'primary': True}],
'referralId': 'v-1582083535',
'hasPerk': False},
{'id': '557d62c4498ec5c4ae9865e8',
'name': 'Maru Buffet Korean BBQ',
'location': {'address': '16 Cheong Chin Nam Road',
'lat': 1.3432745707946394,
'lng': 103.7753959990596,
'labeledLatLngs': [{'label': 'display',
'lat': 1.3432745707946394,
'lng': 103.7753959990596}],
'distance': 1610,
'cc': 'SG',
'city': 'Singapore',
'country': 'Singapore',
'formattedAddress': ['16 Cheong Chin Nam Road', 'Singapore']},
'categories': [{'id': '4bf58dd8d48988d1df931735',
'name': 'BBQ Joint',
'pluralName': 'BBQ Joints',
'shortName': 'BBQ',
'icon': {'prefix': 'https://ss3.4sqi.net/img/categories_v2/food/b

```

```

bqalt_',
  'suffix': '.png'},
  'primary': True]],
  'referralId': 'v-1582083535',
  'hasPerk': False},
  {'id': '5c95b1bb037be1002ddc95e1',
   'name': 'Hanssik Korean Bbq Restaurant',
   'location': {'address': '3155 Commonwealth Avenue West, #05-17/18 T
he Clementi Mall',
    'lat': 1.314918,
    'lng': 103.764305,
    'labeledLatLngs': [{'label': 'display',
      'lat': 1.314918,
      'lng': 103.764305}],
    'distance': 2049,
    'postalCode': '129588',
    'cc': 'SG',
    'city': 'Singapore 129588',
    'country': 'Singapore',
    'formattedAddress': ['3155 Commonwealth Avenue West, #05-17/18 The
Clementi Mall',
      '129588',
      'Singapore']}},
  'categories': [{'id': '4bf58dd8d48988d113941735',
    'name': 'Korean Restaurant',
    'pluralName': 'Korean Restaurants',
    'shortName': 'Korean',
    'icon': {'prefix': 'https://ss3.4sqi.net/img/categories_v2/food/k
orean_',
      'suffix': '.png'},
      'primary': True]],
      'referralId': 'v-1582083535',
      'hasPerk': False},
      {'id': '57078865498e1e9de62c1632',
       'name': 'NunSongYee 눈송이 Korean Dessert Cafe',
       'location': {'address': '9 Yuk Yong Ave',
        'lat': 1.341906396454768,
        'lng': 103.77492667703083,
        'labeledLatLngs': [{'label': 'display',

```

```

        'lat': 1.341906396454768,
        'lng': 103.77492667703083}},
        'distance': 1463,
        'postalCode': '596314',
        'cc': 'SG',
        'city': 'Singapore',
        'country': 'Singapore',
        'formattedAddress': ['9 Yuk Yong Ave', '596314', 'Singapore']],
        'categories': [{'id': '4bf58dd8d48988d1d0941735',
            'name': 'Dessert Shop',
            'pluralName': 'Dessert Shops',
            'shortName': 'Desserts',
            'icon': {'prefix': 'https://ss3.4sqi.net/img/categories_v2/food/d
dessert_',
                'suffix': '.png'},
            'primary': True}],
        'referralId': 'v-1582083535',
        'hasPerk': False},
        {'id': '4d8e8bc15091a1cd1b0f9301',
            'name': 'NTUC FoodFare',
            'location': {'address': '#04-20/22, The Clementi Mall',
                'crossStreet': '3155 Commonwealth Ave West',
                'lat': 1.3148755393676084,
                'lng': 103.76403671729595,
                'labeledLatLngs': [{'label': 'display',
                    'lat': 1.3148755393676084,
                    'lng': 103.76403671729595}]},
                'distance': 2073,
                'postalCode': '128588',
                'cc': 'SG',
                'city': 'Singapore',
                'country': 'Singapore',
                'formattedAddress': ['#04-20/22, The Clementi Mall (3155 Commonwea
lth Ave West)',
                    '128588',
                    'Singapore']},
                'categories': [{'id': '4bf58dd8d48988d120951735',
                    'name': 'Food Court',
                    'pluralName': 'Food Courts',

```

```

        'shortName': 'Food Court',
        'icon': {'prefix': 'https://ss3.4sqi.net/img/categories_v2/shops/
food_foodcourt_',
        'suffix': '.png'},
        'primary': True}],
        'referralId': 'v-1582083535',
        'hasPerk': False},
        {'id': '4bd58225637ba5936c72f670',
        'name': 'Koryo Mart',
        'location': {'address': '#01-02 Kilat Court',
        'crossStreet': 'Lorong Kilat',
        'lat': 1.3410928832439744,
        'lng': 103.7744043045351,
        'labeledLatLngs': [{'label': 'display',
        'lat': 1.3410928832439744,
        'lng': 103.7744043045351}],
        'distance': 1381,
        'cc': 'SG',
        'neighborhood': 'Bukit Timah',
        'city': 'Singapore',
        'country': 'Singapore',
        'formattedAddress': ['#01-02 Kilat Court (Lorong Kilat)', 'Singapo
re']}},
        'categories': [{'id': '4bf58dd8d48988d118951735',
        'name': 'Grocery Store',
        'pluralName': 'Grocery Stores',
        'shortName': 'Grocery Store',
        'icon': {'prefix': 'https://ss3.4sqi.net/img/categories_v2/shops/
food_grocery_',
        'suffix': '.png'},
        'primary': True}],
        'referralId': 'v-1582083535',
        'hasPerk': False}]}}

```

Get relevant part of JSON and transform it into a *pandas* dataframe

```

In [7]: # assign relevant part of JSON to venues
venues = results['response']['venues']

```

```
# tranform venues into a dataframe
dataframe = json_normalize(venues)
dataframe.head()
```

Out[7]:

	categories	hasPerk	id	location.address	location.cc
0	[[{'id': '4bf58dd8d48988d113941735', 'name': 'K...'}]]	False	53d249cc498e53e973aa85a0	B1-55, Bukit Timah Plaza	SG
1	[[{'id': '4bf58dd8d48988d113941735', 'name': 'K...'}]]	False	4c08dd6d7e3fc9282fecf082	B1-07/19, Bukit Timah Plaza	SG
2	[[{'id': '4bf58dd8d48988d113941735', 'name': 'K...'}]]	False	4c010d85cf3aa5930e5dccb0	19 Lor Kilat, #01-02	SG
3	[[{'id': '4bf58dd8d48988d113941735', 'name': 'K...'}]]	False	574e82f1498e44b7c8374534	106 Clementi Street 12	SG
4	[[{'id': '4bf58dd8d48988d113941735', 'name': 'K...'}]]	False	4e142e03aeb7727f20ff9f6c	#04-03 Beauty World Centre	SG

Define information of interest and filter dataframe

```
In [8]: # keep only columns that include venue name, and anything that is associated with location
filtered_columns = ['name', 'categories'] + [col for col in dataframe.columns if col.startswith('location.')] + ['id']
dataframe_filtered = dataframe.loc[:, filtered_columns]

# function that extracts the category of the venue
```



```
def get_category_type(row):
    try:
        categories_list = row['categories']
    except:
        categories_list = row['venue.categories']

    if len(categories_list) == 0:
        return None
    else:
        return categories_list[0]['name']

# filter the category for each row
dataframe_filtered['categories'] = dataframe_filtered.apply(get_category_type, axis=1)

# clean column names by keeping only last term
dataframe_filtered.columns = [column.split('.')[0] for column in dataframe_filtered.columns]

dataframe_filtered
```

Out[8]:

	name	categories	address	cc	city	country	crossStreet	distance	f
0	名家 (Ming Jia) 명가 II Korean BBQ	Korean Restaurant	B1-55, Bukit Timah Plaza	SG	Singapore	Singapore	1 Jalan Anak Bukit	1162	
1	Ming Jia 名家 Korean Food	Korean Restaurant	B1-07/19, Bukit Timah Plaza	SG	Singapore	Singapore	1 Jalan Anak Bukit	1132	
2	Woorinara Korean Restaurant	Korean Restaurant	19 Lor Kilat, #01-02	SG	Singapore	Singapore	NaN	1393	
3	Ho Ho Korean Restaurant	Korean Restaurant	106 Clementi Street 12	SG	Singapore	Singapore	Sunset Way	1034	
4	Pink Candy Korean Snack Bar Cafe	Korean Restaurant	#04-03 Beauty World Centre	SG	Singapore	Singapore	144 Upper Bukit Timah Rd.	1508	

	name	categories	address	cc	city	country	crossStreet	distance	f
5	Korean Rice Cake	Food & Drink Shop	B1-29, Beauty World Centre	SG	Singapore	Singapore	144 Upper Bukit Timah Rd.	1495	
6	Joo Mak Korean Restaurant	Korean Restaurant	#04-01, Beauty World Centre	SG	Singapore	Singapore	144 Upper Bukit Timah Road	1505	
7	Daessiksin Korean BBQ Buffet	BBQ Joint	Clementi Mall	SG	NaN	Singapore	NaN	2086	
8	Korean Pub Aunt	Korean Restaurant	NaN	SG	NaN	Singapore	NaN	1068	
9	Zzang Korean Food	Korean Restaurant	#02-K46, Bukit Timah Plaza	SG	Singapore	Singapore	1 Jalan Anak Bukit	1133	
10	회랑고기랑 Korean Seafood & BBQ Restaurant	Korean Restaurant	NaN	SG	NaN	Singapore	NaN	1278	
11	Makan Place	College Cafeteria	Blk 51, Ngee Ann Polytechnic	SG	Singapore	Singapore	535 Clementi Rd	433	
12	Nunsongyee Korean Dessert Cafe	Dessert Shop	9 Yuk Tong Avenue	SG	NaN	Singapore	NaN	1026	
13	Mr Kim Korean Food	Korean Restaurant	NaN	SG	NaN	Singapore	NaN	1159	
14	Korean Cuisine @ BLK 442 Clementi	Coffee Shop	NaN	SG	NaN	Singapore	NaN	1891	
15	Korean massage @ 108 Jln Darmawan	None	NaN	SG	NaN	Singapore	NaN	2020	

	name	categories	address	cc	city	country	crossStreet	distance	f
16	Onlyou Korean Language School	Language School	52A Jalan Jurong Kechil JK Building	SG	Singapore	Singapore	NaN	1313	
17	Korean Cuisine	Korean Restaurant	Food Court 3 (Singapore Polytechnic)	SG	NaN	Singapore	NaN	2145	
18	Bing Go Jung Korean Dessert House	Dessert Shop	#L1-CA2, Bukit Timah Plaza	SG	Singapore	Singapore	1 Jalan Anak Bukit	1087	
19	Ga Ya Guem Korean Family Restaurant	Korean Restaurant	Bukit Timah Shopping Centre	SG	Singapore	Singapore	170 Upper Bukit Timah Rd.	1604	(
20	Madang Korean Restaurant	Korean Restaurant	Goh & Goh Building	SG	Singapore	Singapore	120 Upper Bukit Timah Rd.	1344	
21	2D1N Soju Bang Korean Restaurant	Korean Restaurant	Goh & Goh Building	SG	Singapore	Singapore	Upper Bukit Timah Road	1365	{
22	Don Bang Korean BBQ	Korean Restaurant	144 Upper Bukit Timah Road #04-60	SG	Bukit Timah	Singapore	NaN	1508	
23	G Study Korean School	None	Beauty World Plaza	SG	Singapore	Singapore	140 Upp Bukit Timah Rd	1520	}
24	korean snow flake desert	Ice Cream Shop	Clementi mall	SG	NaN	Singapore	NaN	2404	
25	Maru Buffet Korean BBQ	BBQ Joint	16 Cheong Chin Nam Road	SG	Singapore	Singapore	NaN	1610	

	name	categories	address	cc	city	country	crossStreet	distance	f
26	Hanssik Korean Bbq Restaurant	Korean Restaurant	3155 Commonwealth Avenue West, #05-17/18 The C...	SG	Singapore 129588	Singapore	NaN	2049	,
27	NunSongYee 눈송이 Korean Dessert Cafe	Dessert Shop	9 Yuk Yong Ave	SG	Singapore	Singapore	NaN	1463	
28	NTUC FoodFare	Food Court	#04-20/22, The Clementi Mall	SG	Singapore	Singapore	3155 Commonwealth Ave West	2073	
29	Koryo Mart	Grocery Store	#01-02 Kilat Court	SG	Singapore	Singapore	Lorong Kilat	1381	

Let's visualize the Korean restaurants that are nearby

In [104]: dataframe_filtered.name

```
Out[104]: 0      名家 (Ming Jia) 명가 II Korean BBQ
1      Ming Jia 名家 Korean Food
2      Woorinara Korean Restaurant
3      Ho Ho Korean Restaurant
4      Pink Candy Korean Snack Bar Cafe
5      Korean Rice Cake
6      Joo Mak Korean Restaurant
7      Daessiksin Korean BBQ Buffet
8      Korean Pub Aunt
9      Zzang Korean Food
10     회랑고기랑 Korean Seafood & BBQ Restaurant
11     Makan Place
12     Nunsongyee Korean Dessert Cafe
```

```

13             Mr Kim Korean Food
14         Korean Cuisine @ BLk 442 Clementi
15         Korean massage @ 108 Jln Darmawan
16             Onlyou Korean Language School
17             Korean Cuisine
18         Bing Go Jung Korean Dessert House
19         Ga Ya Guem Korean Family Restaurant
20             Madang Korean Restaurant
21         2D1N Soju Bang Korean Restaurant
22             Don Bang Korean BBQ
23             G Study Korean School
24             korean snow flake desert
25             Maru Buffet Korean BBQ
26             Hanssik Korean Bbq Restaurant
27         NunSongYee 눈송이 Korean Dessert Cafe
28             NTUC FoodFare
29             Koryo Mart
Name: name, dtype: object

```

```

In [164]: venues_map = folium.Map(location=[latitude, longitude], zoom_start=13)
# generate map centred around the Conrad Hotel

# add a red circle marker to represent the Conrad Hotel
folium.features.CircleMarker(
    [latitude, longitude],
    radius=10,
    color='red',
    popup='SIM',
    fill = True,
    fill_color = 'red',
    fill_opacity = 0.6
).add_to(venues_map)

# add the Italian restaurants as blue circle markers
for lat, lng, label in zip(dataframe_filtered.lat, dataframe_filtered.l
ng, dataframe_filtered.categories):
    folium.features.CircleMarker(
        [lat, lng],
        radius=5,

```

```

        color='blue',
        popup=label,
        fill = True,
        fill_color='blue',
        fill_opacity=0.6
    ).add_to(venues_map)

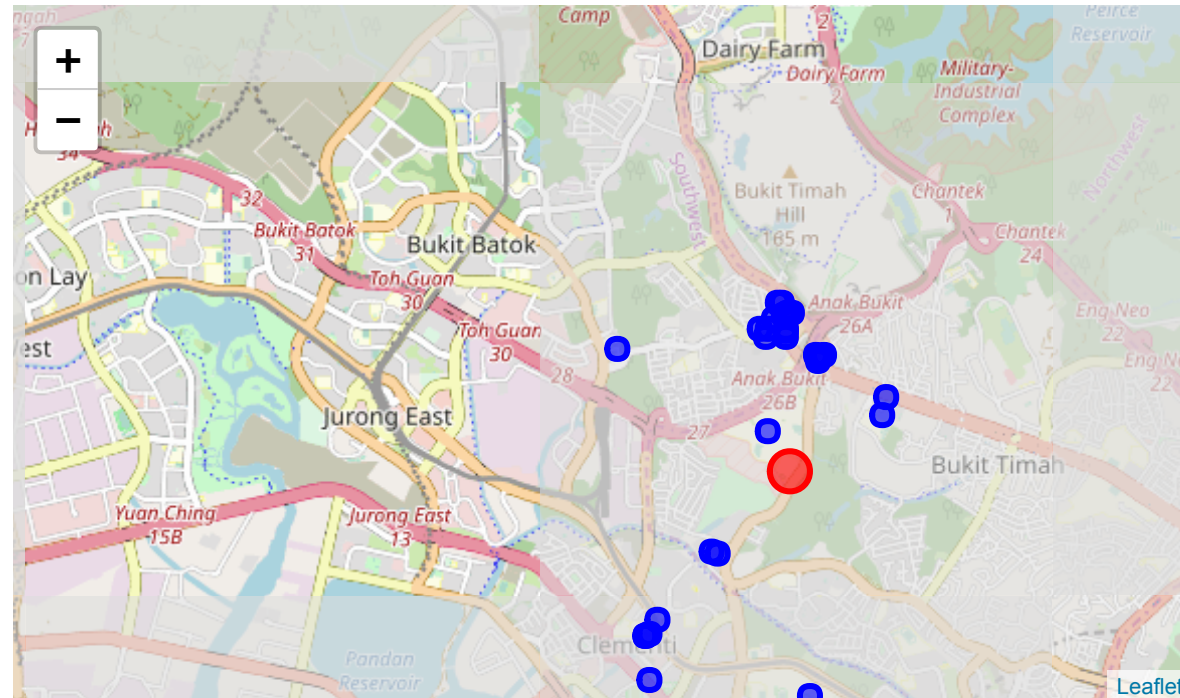
```

```

# display map
venues_map

```

Out[164]:



```

In [141]: import requests
          from bs4 import BeautifulSoup
          import re

          #dataframe_filtered['name']

          masterdata = {}

```

```

for i in dataframe_filtered['name']:
    rquery = i
    query = rquery.replace(" ", "+")
    query = "https://www.google.com/search?q=" + query + "+" + location
    print(query)
    r = requests.get(query)
    html_doc = r.text
    #print(html_doc)

    soup = BeautifulSoup(html_doc, "html.parser")

    df2 = dataframe_filtered[(dataframe_filtered.name == i)]
    x = df2['distance'].iloc[0]
    print(x)

    #print(soup.find(string=re.compile("Rated"))))
    try:
        rating = soup.find("div", class_="Hk2yDb KsR1A")["aria-label"]
    except:
        rating = "none"
    masterdata[rquery] = rating[5:8], x
    print(rating[5:8])

```

```

https://www.google.com/search?q=名家+(Ming+Jia)+명가+II+Korean+BBQ+Clementi
1162
4.2
https://www.google.com/search?q=Ming+Jia+名家+Korean+Food+Clementi
1132
4.0
https://www.google.com/search?q=Woorinara+Korean+Restaurant+Clementi
1393
4.0
https://www.google.com/search?q=Ho+Ho+Korean+Restaurant+Clementi
1034
4.4
https://www.google.com/search?q=Pink+Candy+Korean+Snack+Bar+Cafe+Clementi
1508

```

3.8
<https://www.google.com/search?q=Korean+Rice+Cake+Clementi>
1495
4.5
<https://www.google.com/search?q=Joo+Mak+Korean+Restaurant+Clementi>
1505
4.0
<https://www.google.com/search?q=Daessiksin+Korean+BBQ+Buffet+Clementi>
2086
3.9
<https://www.google.com/search?q=Korean+Pub+Aunt+Clementi>
1068
4.0
<https://www.google.com/search?q=Zzang+Korean+Food+Clementi>
1133
3.3
<https://www.google.com/search?q=회랑고기랑+Korean+Seafood+&+BBQ+Restaurant+Clementi>
1278
4.6
<https://www.google.com/search?q=Makan+Place+Clementi>
433
3.0
<https://www.google.com/search?q=Nunsongyee+Korean+Dessert+Cafe+Clementi>
1026
3.8
<https://www.google.com/search?q=Mr+Kim+Korean+Food+Clementi>
1159
4.4
<https://www.google.com/search?q=Korean+Cuisine+@+BLk+442+Clementi+Clementi>
1891
4.4
<https://www.google.com/search?q=Korean+massage+@+108+Jln+Darmawan+Clementi>
2020
4.5
<https://www.google.com/search?q=Onlyou+Korean+Language+School+Clementi>
1313

5.0
<https://www.google.com/search?q=Korean+Cuisine+Clementi>
2145
4.4
<https://www.google.com/search?q=Bing+Go+Jung+Korean+Dessert+House+Clementi>
1087
3.7
<https://www.google.com/search?q=Ga+Ya+Guem+Korean+Family+Restaurant+Clementi>
1604
4.0
<https://www.google.com/search?q=Madang+Korean+Restaurant+Clementi>
1344
4.4
<https://www.google.com/search?q=2D1N+Soju+Bang+Korean+Restaurant+Clementi>
1365
3.8
<https://www.google.com/search?q=Don+Bang+Korean+BBQ+Clementi>
1508
4.4
<https://www.google.com/search?q=G+Study+Korean+School+Clementi>
1520
5.0
<https://www.google.com/search?q=korean+snow+flake+desert+Clementi>
2404
3.9
<https://www.google.com/search?q=Maru+Buffet+Korean+BBQ+Clementi>
1610
4.1
<https://www.google.com/search?q=Hanssik+Korean+Bbq+Restaurant+Clementi>
2049
3.9
<https://www.google.com/search?q=NunSongYee+눈송이+Korean+Dessert+Cafe+Clementi>
1463
3.8
<https://www.google.com/search?q=NTUC+FoodFare+Clementi>

```
2073
3.7
https://www.google.com/search?q=Koryo+Mart+Clementi
1381
4.0
```

```
In [142]: masterdata
```

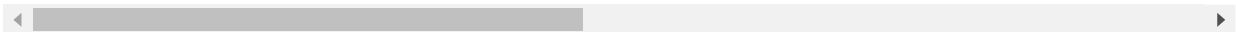
```
Out[142]: {'名家 (Ming Jia) 명가 II Korean BBQ': ('4.2', 1162),
'Ming Jia 名家 Korean Food': ('4.0', 1132),
'Woorinara Korean Restaurant': ('4.0', 1393),
'Ho Ho Korean Restaurant': ('4.4', 1034),
'Pink Candy Korean Snack Bar Cafe': ('3.8', 1508),
'Korean Rice Cake': ('4.5', 1495),
'Joo Mak Korean Restaurant': ('4.0', 1505),
'Daessiksin Korean BBQ Buffet': ('3.9', 2086),
'Korean Pub Aunt': ('4.0', 1068),
'Zzang Korean Food': ('3.3', 1133),
'회랑고기랑 Korean Seafood & BBQ Restaurant': ('4.6', 1278),
'Makan Place': ('3.0', 433),
'Nunsongyee Korean Dessert Cafe': ('3.8', 1026),
'Mr Kim Korean Food': ('4.4', 1159),
'Korean Cuisine @ BLk 442 Clementi': ('4.4', 1891),
'Korean massage @ 108 Jln Darmawan': ('4.5', 2020),
'Onlyou Korean Language School': ('5.0', 1313),
'Korean Cuisine': ('4.4', 2145),
'Bing Go Jung Korean Dessert House': ('3.7', 1087),
'Ga Ya Guem Korean Family Restaurant': ('4.0', 1604),
'Madang Korean Restaurant': ('4.4', 1344),
'2D1N Soju Bang Korean Restaurant': ('3.8', 1365),
'Don Bang Korean BBQ': ('4.4', 1508),
'G Study Korean School': ('5.0', 1520),
'korean snow flake desert': ('3.9', 2404),
'Maru Buffet Korean BBQ': ('4.1', 1610),
'Hanssik Korean Bbq Restaurant': ('3.9', 2049),
'NunSongYee 눈송이 Korean Dessert Cafe': ('3.8', 1463),
```

```
'NTUC FoodFare': ('3.7', 2073),
'Koryo Mart': ('4.0', 1381)}
```

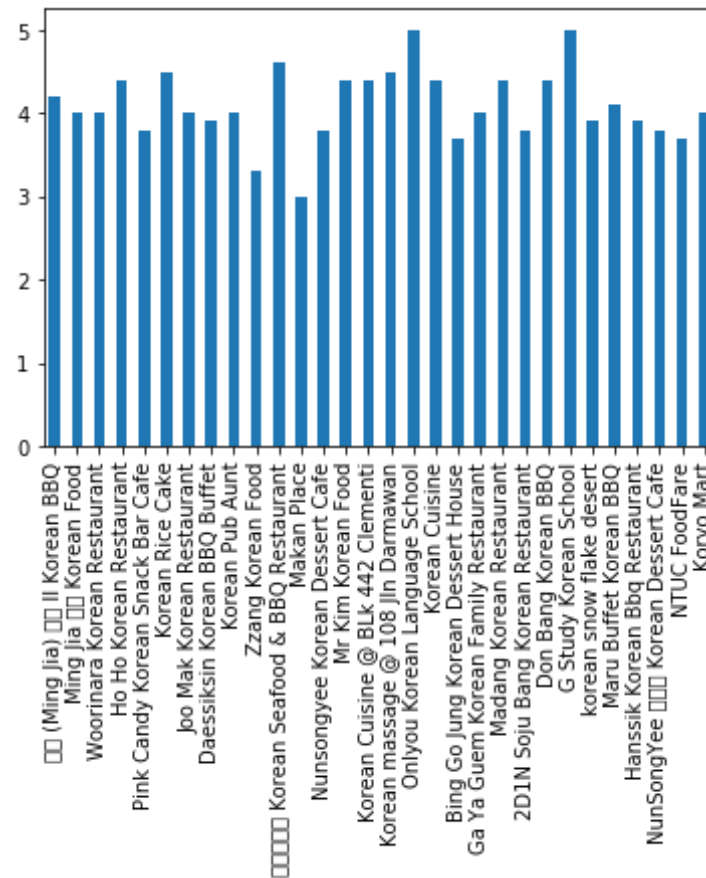
```
In [144]: dfmaster = pd.DataFrame.from_dict(masterdata)
display(dfmaster)
```

	名家 (Ming Jia) 명가 II Korean BBQ	Ming Jia 名家 Korean Food	Woorinara Korean Restaurant	Ho Ho Korean Restaurant	Pink Candy Korean Snack Bar Cafe	Korean Rice Cake	Joo Mak Korean Restaurant	Daessiksin Korean BBQ Buffet	Korean Pub Aunt	Z Kc
0	4.2	4.0	4.0	4.4	3.8	4.5	4.0	3.9	4.0	
1	1162	1132	1393	1034	1508	1495	1505	2086	1068	

2 rows × 30 columns



```
In [155]: import matplotlib.pyplot as plt
row = dfmaster.iloc[0]
row1 = row.astype(float)
row1.plot(kind='bar')
plt.show()
```



```
In [172]: # Nearest place that have korean cuisine
nearest = dataframe_filtered['distance'].min()

dfnear = dataframe_filtered[(dataframe_filtered.distance == nearest)]

print(dfnear.name.iloc[0])
```

Makan Place

Based on graph and the data, I would suggest my company to rethink about opening korean restuarant to attract student as there are alot of korean bbq restuarant nearby and most of them

have good rating (above 4) . If company insist in trying to open korean bbq restuarant to attract student, I would suggest them to open at King Albert park which is opposite the 2 schools and is a walkable distance. Also I would suggest my company to research more about Don Bang Korean BBQ,Korean Rice Cake and learn how they managed to get a rating of 4.4 stars and 4.5 stars. Reason why I exclude the 5 star, the data is not relevant to korean cuisine as it is school rather than restuarant.

In [182]:

```
File "<ipython-input-182-2849e3d77fc9>", line 1
  ./nbconvert.py --format=pdf yourfile.ipynb
    ^
SyntaxError: invalid syntax
```

In []: