Best Neighborhood for retirement in South Florida

Capstone Project

The Battle of Neighborhoods

December 29, 2020

Introduction

South Florida, with its year-round warm weather, beaches, golf courses and flat geography, is an attractive option for retirement.

First, the weather, older people hate old and they want to spend their retirement days in a warm and sunny place. And the Sunshine State is the perfect place for this.

Florida is also cheaper and has no income tax. This is a major factor for senior citizens living on restricted income. There are more seniors moving to Florida than in some other parts of the USA.

Problem

For someone considering retiring to South Florida, there are dozens of cities, hundreds of neighborhoods available, and it can be a daunting task deciding where to move to.

The Objective

Through this project, we will find the most suitable location in South Florida for retirement.

Target Audience

This project is aimed towards retired or retiring people, or old people considering moving to South Florida. The analysis will provide vital information that can be used by the target audience.

Data - Sources & Acquisition

Source	Acquisition and Cleaning
Florida Cities Data https://dos.myflorida.com/library-archives/research/florida-information/government/local-resources/citycounty-list/counties/	Loaded to Pandas Dataframe Filtered for South Florida Cities
Florida Crime Data https://ucr.fbi.gov/crime-in-the-u.s/2015/crime-in-the-u.s.-2015/tables/table-8/table-8-state-pieces/table_8_offenses_known_to_law_enforcement_florida_by_city_2015.xls	Loaded to Pandas Dataframe
Florida Beaches https://wallethub.com/edu/best-beach-towns-to-live-in/36567/	Loaded to Pandas Dataframe Filtered for Florida Beaches
Geolocation Data	Retrieved using using Geopy geocoder https://geopy.readthedocs.io/en/stable/
Neighborhood Venues	Foursquare Places API https://developer.foursquare.com/docs/places-api/endpoints/

Methodology

Exploratory Data Analysis

01. Get SoFlorida Cities

Extract and load South Florida cities by county in a Panda Dataframe

02. Calculate Safest Cities

Merge the South Florida cities data, with cities crime rate data to find safest cities

03. Find Beach Cities

Merge the South Florida Safe cities Dataframe, with List of Beach cities to get South Florida beach Cities.

04. Neighborhoods in top safe beach cities

Top neighborhood data was retrieved from Wikipedia and loaded to lists and merged to create a neighborhood Dataframe.

05. Geolocating Neighborhoods

Geolocations for each neighborhood retrieved from geopy

Methodology

Data Pre-Processing and cleaning

Load Venues for Neighborhoods

- Loaded using Foursquare Places API

```
unique_vc = len(sofl_venues['V
print(f'There are {unique_vc}
sofl_venues.groupby('Venue Cat
```

```
There are 224 unique venue cat

Venue Category
Hotel                    52
Pizza Place              51
Seafood Restaurant       40
Italian Restaurant       38
American Restaurant      33
                         ..
```

Aggregate Like Venues

- Derived Dataframe cleaned to merge related venue categories

```
Venue Category
Restaurant        267
Cafe              104
Dining             74
Hotel              52
Park               40
                  ...
Music Store         1
Nail Salon          1
Nightclub           1
Office              1
Jewelry Store       1
Name: Venue Category, Length: 163,
```

Filter Desired Venues

- List of categories that of interest to a person retiring used to create a final dataset of neighborhoods and venues

```
cats_of_interest_retire = ['Park',  'Museum',
                           'Dessert Shop','Outdoors'



fl_retire_venues = sofl_venues[sofl_venues['V
print(fl_retire_venues['Venue Category'].uniq
fl_retire_venues.head(5)
```

```
['Park' 'Museum' 'Beach' 'Restaurant' 'Cafe'
 'Dessert Shop' 'Outdoors' 'Pet Services' 'Th
```

Methodology

One-Hot-Encoding

	Neighborhood	Beach	Bookstore
0	Marco Island, Florida	0	0
2	Marco Island, Florida	0	0
4	Marco Island, Florida	1	0
5	Marco Island, Florida	0	0
6	Marco Island, Florida	0	0
7	Marco Island, Florida	0	0
8	Marco Island, Florida	1	0
9	Marco Island, Florida	0	0

Feature Generation

Neighborhood	Beach	Bookstore	Cafe
Baker Homestead, Florida	1	0	2
Century Village, Florida	0	0	5
Coconut One, Florida	0	0	1
Cocoplum, Florida	0	0	0
Coral Groves, Florida	0	1	2
Deering Bay, Florida	0	0	0

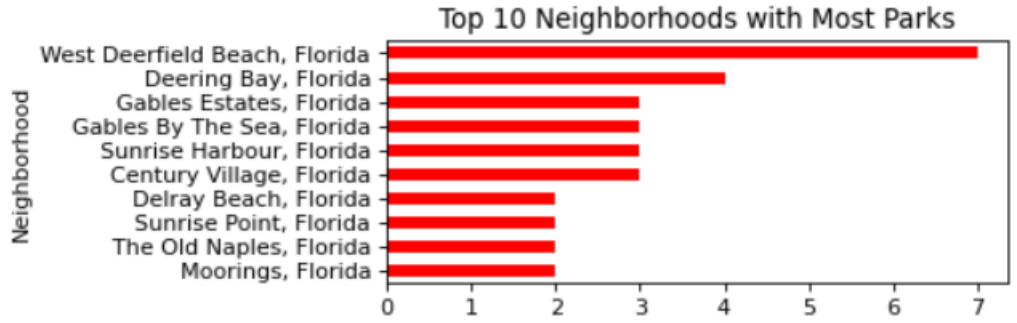
Cluster Modelling

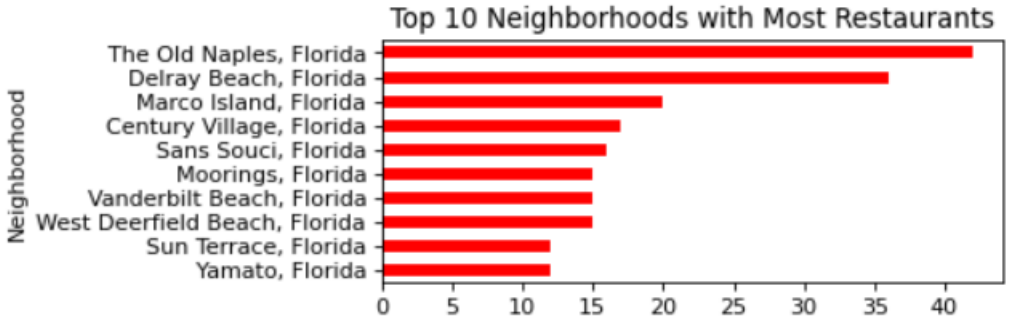
```
from sklearn.cluster import KMeans
kclusters = 5
venue_grouped_clustering = flvenue_mean.drop('Nei
kmeans = KMeans(n_clusters=kclusters, random_stat
neighborhoods_top_venue_categories.insert(1,'Clus
neighborhoods_top_venue_categories.head(10)
```

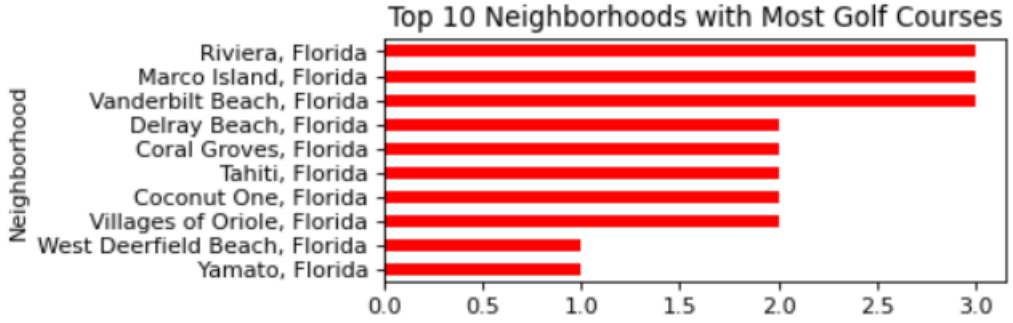
	Neighborhood	Cluster Labels	1st Top Venue Category
0	Baker Homestead, Florida	1	Restaurant
1	Century Village, Florida	1	Dining
2	Coconut One, Florida	1	Golf Course
3	Cocoplum, Florida	1	Park
4	Coral Groves, Florida	0	Bookstore
5	Deering Bay, Florida	1	Park
6	Delray Beach, Florida	2	Theater

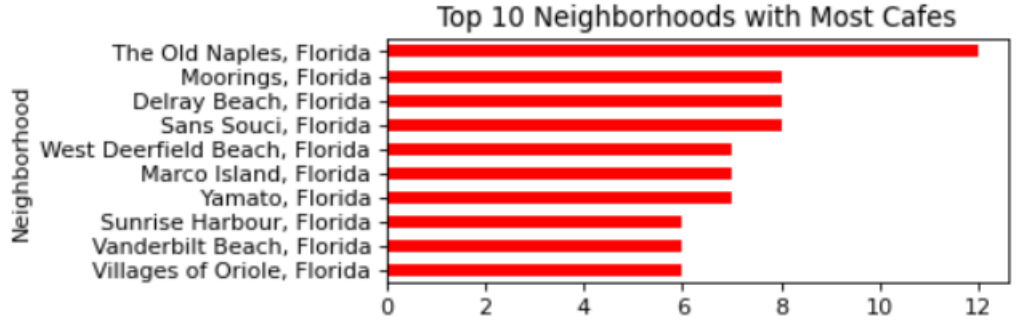
Results

Top neighborhoods for each venue









Results

Neighborhoods with Similar profiles

```
fl_neighborhood_retire_profile = sofl_venues.join(neighborhoods_top
fl_neighborhood_retire_profile.head()
```

]:

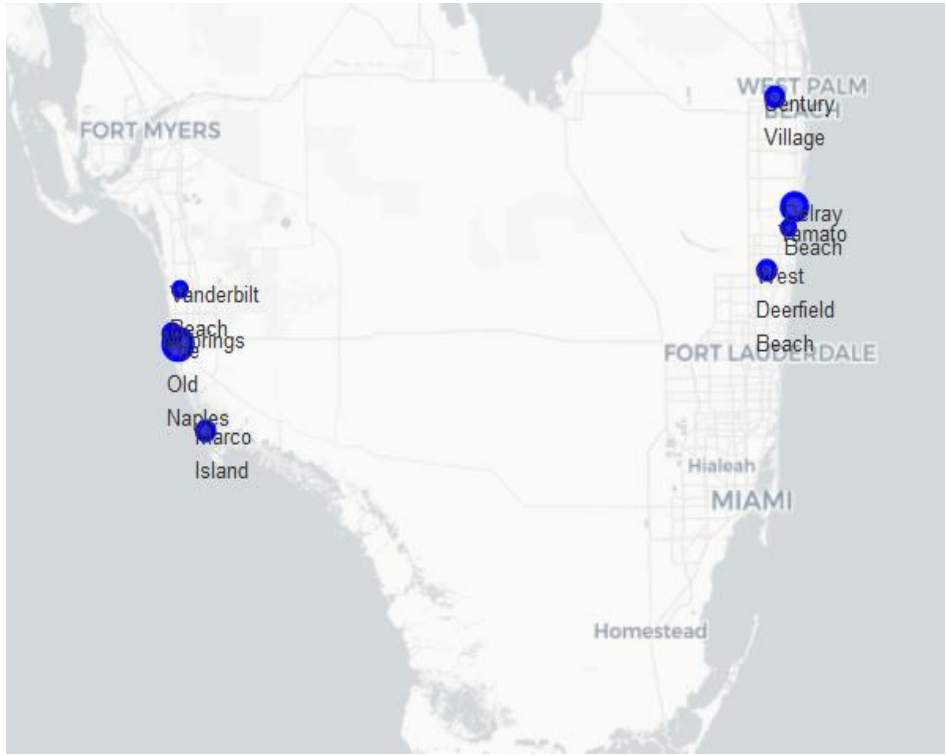
	Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue
0	Marco Island, Florida	25.936336	-81.715683	Mackle Park
1	Marco Island, Florida	25.936336	-81.715683	JW Marriott Marco Island Beach Resort
2	Marco Island, Florida	25.936336	-81.715683	Marco Island Museum
3	Marco Island, Florida	25.936336	-81.715683	Tiki Bar
4	Marco Island, Florida	25.936336	-81.715683	Marco Beach

Results

Top Neighborhoods

```
for index, row in  fl_conclude_ratings.iterrows():
    dffinal = dffinal.append({'venuetotal': row['V
dffinal
```

	venuetotal	neighbourhood_address
0	71	The Old Naples, Florida
1	61	Delray Beach, Florida
2	44	Marco Island, Florida
3	42	Moorings, Florida
4	40	West Deerfield Beach, Florida
5	35	Century Village, Florida
6	33	Vanderbilt Beach, Florida
7	33	Sans Souci, Florida
8	30	Sun Terrace, Florida
9	27	Yamato, Florida



Discussion

Based on the results of our analysis, Neighborhood 'The Old Naples' in Naples, 'Delray Beach' in Boca Raton and Marco Island are the top neighborhood for retiring. Based on bestplaces.net, neighborhoods in Naples, Boca Raton and Marco Island do top the most desirable places in South Florida. All these neighborhoods are residential enclaves with beaches and a variety of activities, serves more year-round and winter residents than vacationing tourists. There are many golf courses and golf-course developments with upscale housing and shopping areas. The area is generally attractive and has a relaxed, modern feel, and the commercial activity is mainly related to supporting the area’s residents.

Limitations

All of the above analysis is based on Four-Square Places API. The Places API offers real-time access to Foursquare's global database of rich venue data, but since we used a free Sandbox Tier Account of Foursquare that has limitations on number of API calls and results returned. To get better results, future research work and more comprehensive analysis could consider using a paid account to bypass these limitations as well as incorporating data from other external databases.

Conclusions

- Using this project, we tried to solve problem, provides a solution - List of top stakeholder's neighborhoods in South Florida and groups of 'similar' neighborhoods - based on Machine learning and clustering algorithms.

- This project can be expanded on in several different ways. The desired venue categories can be based on user preferences (Some Retired people may like Bars and nightlife instead of quite neighborhoods). Foursquare’s API could be further interrogated to retrieve and consider more venues. The clustering model could become the basis for a recommendation system aimed to provide neighborhoods of similar profile to users.

References

[0] — List of Florida cities by county

[1] — Crime date for Florida

[2] — ‘Places API’ Documentation — Foursquare

[3] — geopy for finding geolocations for cities/neighborhoods

Thank you