# Comparison of Various Beach Locations in Florida

## Introduction/ Business Problem

Florida is known worldwide as the “Sunshine State” and with its abundance of amusement parks and beaches is a vacation destination throughout the year for people from all over the world. For many families, couples or individuals, the beaches provide a huge draw to the state. Each come for different reasons and this report is designed to provide guidance on the best beach locations based on their vacation wants and needs.

Four different beach areas have been identified near airports – Tampa (Clearwater area), West Palm Beach, Jacksonville and Pensacola (the Panhandle). This report will help to categorize each of the areas as family-oriented, romantic, or a “party” type of atmosphere, based on the number and types of restaurants, bars, parks and other types of venues nearby each of the beach areas selected.

This report’s audience is anyone that is interested in visiting Florida beaches and wanting additional information to decide which of the selected regions region would be best based on their travel companions and plans.

## Data

Based on definition of our problem:

* Beach areas will be defined based on a group of cities within certain latitude/ longitude coordinates. Cities will be limited to allow for a reasonable amount of data to be reported.
* factors that will influence our decision are number and type of restaurants, bars, parks, amusement areas, etc. in each of the beach areas

We will be using the following data and data sources to perform the beach area analysis:

* Latitudes and Longitudes of Florida Cities table from the website <https://www.mapsofworld.com/usa/states/florida/lat-long.html>
* Foursquare API to provide details on nearby venues for each of the cities in the defined beach areas.

The latitudes and longitudes data will be used to map out the specific cities in the beach areas selected in the introduction above. The data will be scraped from the website, cleansed for use in the analysis and categorized by beach area determined by latitude and longitude coordinates.

The Foursquare API will be used to extract the venues for each of the beach areas. The data will be categorized by venue type (i.e, family restaurant, bar, park, amusement area, etc) to determine which beach area seems to cater to which types of travelers.

## Methodology

The first step to performing the analysis is to install/ import the appropriate libraries and packages.

Next we need to scrape the data from the website and cleanse the data. The data was read from an html into a Pandas dataframe, where is was reviewed to determine the type of data cleansing that was required. Following was performed:

1. Multi- indexing was removed to allow for accurate identification of individual columns
2. We renamed the columns for clarity and consistency
3. We deleted all rows with Nan in any of the columns
4. Converted the longitude values to a float

The data was then made into smaller dataframes as stated in the original definition of the project. The beach areas were defined based on their latitude and longitude values and were:

* Tampa
* Jacksonville
* West Palm Beach
* The Florida Panhandle

We then combined the individual beach area dataframes into a single dataframe for analysis.

We mapped each of the cities in the beach areas and color code the cities by area. Tampa is blue, West Palm Beach is red, Jacksonville is purple and the Panhandle is green. Results are as follows:

Map

Description automatically generated

Next, we used the Foursquare API to get information for each of the beach areas to be reviewed.

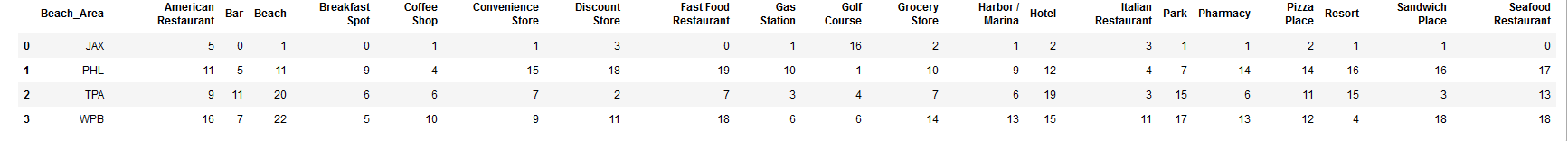
We defined our Foursquare credentials, version and other variables, then defined and called a function to get a list of venues for the selected beach areas.

We needed to look at the number of venue categories and the details returned to determine if it was a useable population. There were over 200 venue categories with many showing less than 5 venues. We decided to pare down the population to include only the venue categories in the top 20 by frequency across all of the beach locations.

To decrease the total population, we created a dataframe across all beach areas that showed the number of venues by category.

Finally, we created a dataframe of only the top 20 venue categories. This is the dataframe we will use to analyze the types of venues that are available in each of the beach areas.

Using this dataframe, we used one hot encoding to show the number of category venues in each of the beach areas selected.



We created and called a function to show the top five venue categories for each of the beach areas.

Graphical user interface, application

Description automatically generated

We created a second view of the top five venues by beach area that provided some additional information regarding the counts of the beach area venues.

Text, table

Description automatically generated with medium confidence

To narrow the data down further, we created a dataframe that included only the venue categories in the top 5 of each of the Beach areas.

Using one hot encoding we created a dataframe for graphing purposes.

Graphical user interface, application

Description automatically generated

Last of all we created a graph to visualize the results.

Chart, bar chart

Description automatically generated

## Results

We started out with a list of 920 cities in the state of Florida. After reviewing a state map that included latitude and longitude values, we divided this list into four different beach areas. There were 18 cities in the Tampa/ Clearwater region, 33 cities in the West Palm Beach region, 7 in the Jacksonville region and 43 in the Panhandle region. A map of the regions is displayed below. The number of cities greatly varies by area, however that is another indication of the type of vacation once could expect to have in those locations.

Map

Description automatically generated

The results of the data slicing clearly show that the largest number of cities are in the West Palm Beach and Panhandle areas. As you can also see from the map, we selected four different regions that are on the east coast, west coast, north and south of Florida in order to provide a cross section of the venue availability and differences based on location.

Based on a review of the data, Jacksonville and its surrounding areas have a significantly larger number of golf courses compared to the other beach areas, and a significantly lower number of beach and beach activities than the other beach areas. The second highest number of venues in Jacksonville are its restaurants, with no fast food restaurants reported.

The Panhandle has second largest number of restaurants of varying types. It also has the largest number of hotels and resorts of all of the beach areas researched. The panhandle also has the largest number of convenience and discount stores.

The Tampa/ Clearwater area has the largest number of hotels and resorts and the second highest number of beach locations reported.

The West Palm Beach has the highest overall number of venues reported. It has the largest number of beaches and water activities as well as restaurants, however it had surprisingly few hotels and resorts compared to the other beach locations.

The areas with the largest number of fast food restaurants and sandwich shops are West Palm Beach and the Panhandle. They also have the largest number of seafood restaurants. Not surprisingly, seafood restaurants are the most commonly reported types of restaurants in all of the beach locations except for Jacksonville which had the largest number of American Restaurants.

## Observations

Based on the analysis of the results of the data collected. Tampa, West Palm Beach and the Panhandle appear to have the most diverse types of venues which would make them ideal locations for any kind of vacation – family, romantic, friends “get away”. Both have a large number of restaurants and activities that may be enjoyed by various individuals of all ages. Due to the lower number of hotels and resorts in the West Palm Beach area, individuals or families planning to travel to this area should make plans well in advance to ensure availability. Due to the number of discount and convenience stores in the Panhandle would make the area ideal for individuals or families that enjoy a shopping experience while on vacation.

Jacksonville had the fewest number of venues all together, however it also had the smallest number of cities reporting venues on Foursquare. This seems to point to the fact that Jacksonville has not reached the point of a large vacation destination right now. That may be an attractive option for some travelers, so even lack of venues gives an indication of whether an area is desirable for a particular individual or traveling party.

## Conclusion

This analysis could be used as a first step in determining a vacation destination. Once the high level types of venues are identified as they are in this report, the traveler should begin to go into the venue details for specific types of attractions, accommodations and ratings for venues in which they are interested.