Report on Beach Venues

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Introduction

Objectives:

- To evaluate what kind of venues exist on the top beaches of the world;
- To help guide future investors or developers to choose the best suited venue for beach development.

Data Description

Sources:

- Top beaches from TripAdvisor’s Travellers’ Choice Award 2021;
- Geocoding with GoogleMapsAPI;
- Venue Search using FourSquare API.

Methodology

Importing data and geocoding:

- Beach data was imported in a CSV file;
- CSV was transformed in a Pandas Dataframe;
- Beaches adresses were geocoded using GoogleMapsAPI.

Methodology

Methodology

Exploring venues on FourSquare API:

- Venues were extracted from each gps point found in geocoding;
- Parameters used: 1000m radius and 100 venues limit per point;
- Further data cleaning was made to remove unwanted venues categories;
- All beaches that had 0 venues or that the only venue was beach were clustered in a group named “Only Beach”.

Methodology

	Beach Name	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
0	Agonda Beach	Indian Restaurant	Café	Italian Restaurant	Bistro	Snack Place	Seafood Restaurant	Vegetarian / Vegan Restaurant	Gastropub	Restaurant	Yoga Studio
1	An Bang Beach	Beach Bar	Seafood Restaurant	Restaurant	Vietnamese Restaurant	Pub	Coffee Shop	Bakery	Italian Restaurant	NaN	NaN
2	Anakena Beach	Restaurant	Historic Site	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
3	Anse Coco Beach	Juice Bar	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN
4	Anse Lazio	Restaurant	Café	Gift Shop	Seafood Restaurant	NaN	NaN	NaN	NaN	NaN	NaN

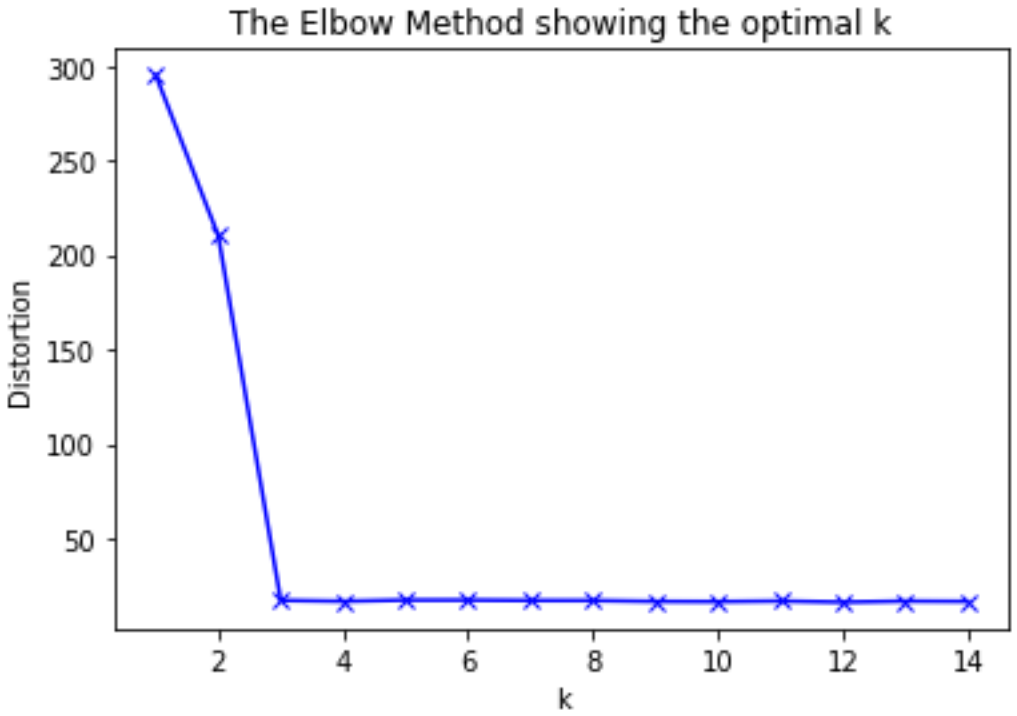
Methodology

Clustering beaches:

- Beaches were clustered by venue similarities using unsupervised learning K-means algorithm;

- To evaluate the best k value was made a test using elbow method.

Methodology



Elbow method showing the optimal k = 3.

Cluster Labels	Beach Name
0	15
1	103
2	1

Cluster result after K-means.

Methodology

Clustering beaches:

- As cluster 2 have only one beach further analysis were made;
- It was perceived as an outlier and was considered part of the group “Only Beaches".

	Cluster Labels	Beach Name	1st Most Common Venue	2nd Most Common Venue
38	2	Half Moon Bay	Clothing Store	NaN

Results

Analyzing the clusters data it is possible to verify 3 kinds of beaches and 1 outlier:

- Cluster 0 - **Smaller beaches;**
- Cluster 1 - **Bigger beaches;**
- Cluster 2 – **Outlier;**
- Cluster 3 - **Nature beaches**.

Results

Cluster 0 - **Smaller beaches :**

- 15 beaches are in this cluster;
- Have a small number of venues (no more than 6);
- Is focused on generic restaurants.

Results

Cluster 0 - **Smaller beaches :**

- Spiaggia di Sansone (Italy)

Results

Cluster 1 - **Bigger beaches :**

- 103 beaches are in this cluster;
- Have a great number of venues (more than 10);
- Is focused on more diverse restaurants (ethnic cousine).

Results

Cluster 1 - **Bigger beaches :**

- Waikiki Beach (USA)

Results

Cluster 2 – **Outlier:**

- Only 1 beach is in this cluster;
- Have only one venue (Clothing Store), making it an outlier;
- It was choosed to evaluate this beach as part of the next cluster.

Results

Cluster 3 - **Nature beaches :**

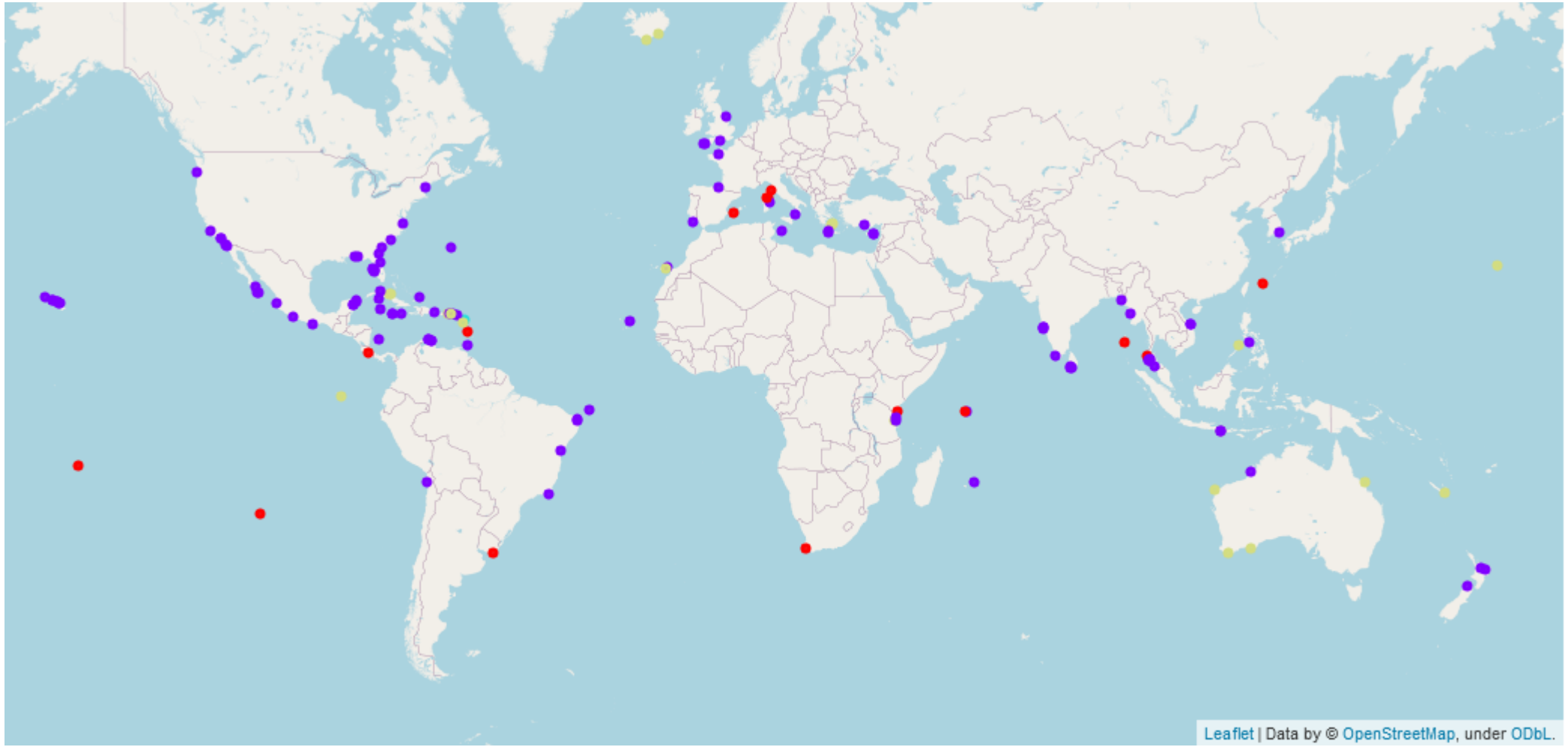
- 22 beaches are in this cluster;
- Do not have any venue;
- Focused on naturally beauty.

Results

Cluster 3 - **Nature beaches :**

- Whitehaven Beach (Australia)

Results



Legend:

Cluster 0: Smaller Beaches

Cluster 1: Bigger Beaches

Cluster 2: Outlier (not shown)

Cluster 3: Nature Beaches

Discussion

- Top beaches in the world are more homogeneous between them;
- Analysing the kind of venues they focus primarily on restaurants;
- Main difference between small and big beaches is the kind of restaurant present;
- Big beaches having more competition and turist focus on more specialized restaurants.

Conclusion

- Support investment in restaurant/food business;
- Factor as other venues will impact in which kind of restaurant should be opened;
- Future studies should aim in less known beaches to see if this pattern also happens.