



VIRTUAL TRIP AND PLANNING ADVISOR

Applied Data Science Capstone Project
IBM Data Science Professional Certificate Specialization
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How to Plan a Trip or Look at nice Pictures



Gather data about Ukrainian Carpathian Mountains and nearest venues



Apply clustering with k-Mean

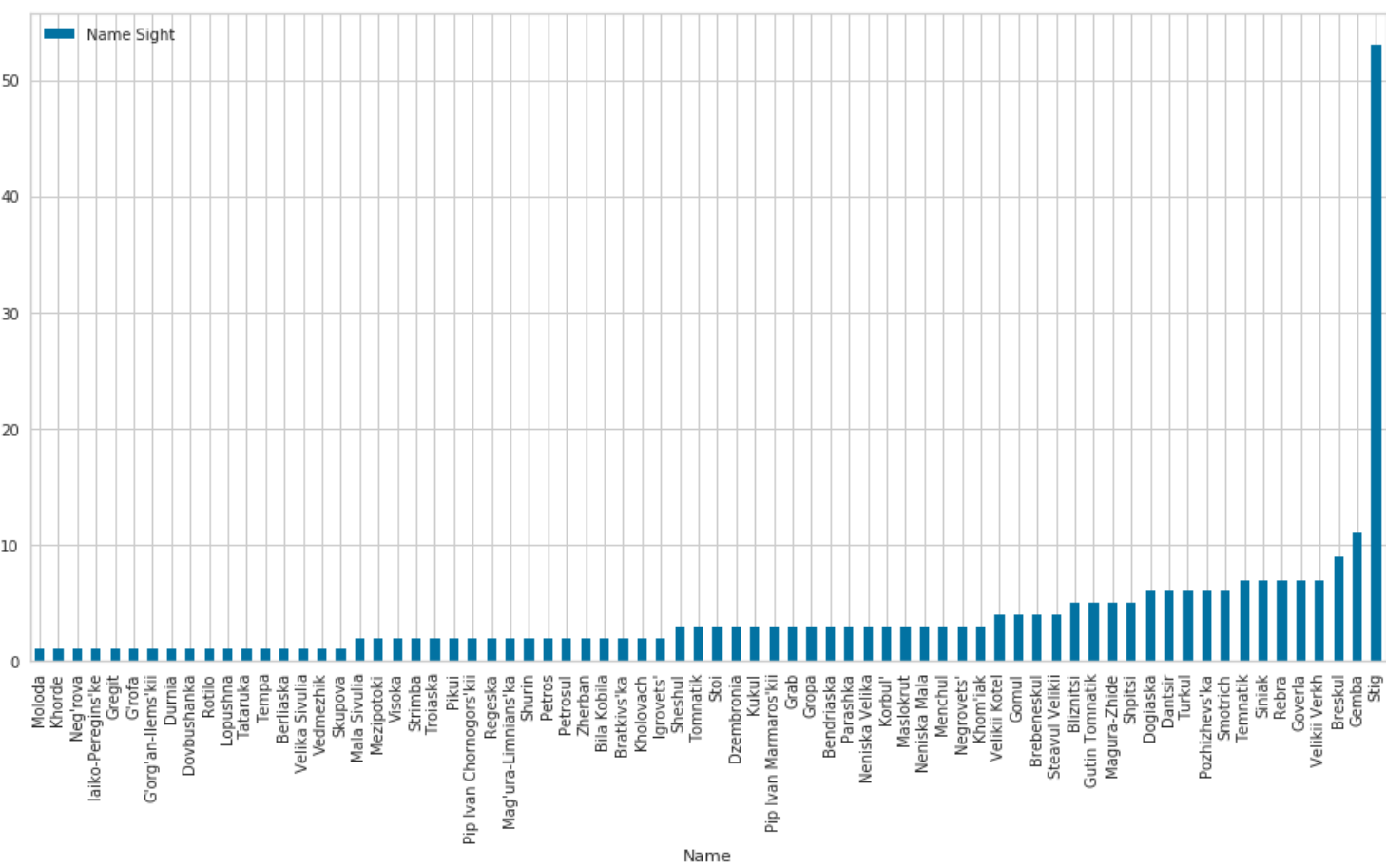


Study result



	Name	Height	Location	id	Latitude	Longitude
0	Goverla	2061.0	Chornogora	1	48.15111	24.50000
1	Brebeneskul	2035.8	Chornogora	2	48.09833	24.58056
2	Pip Ivan Chornogors'kii	2028.5	Chornogora	3	48.04778	24.62778
3	Petros	2022.5	Chornogora	4	48.17194	24.42111
4	Gutin Tomnatik	2016.4	Chornogora	5	48.10000	24.55667

	id	Name	Category	Latitude	Longitude
0	1	Говерла (2061 м) / Hoverla	Mountain	48.16039	24.50037
1	2	Брескул (1911 м) / Breskul	Mountain	48.15037	24.51103
2	3	Гірське Крісло	Other Great Outdoors	48.16272	24.50573
3	4	Говерлянка	Mountain	48.16615	24.50546
4	5	Пожижевська (1822 м)	Mountain	48.14430	24.52357



Gather data
from Wikipedia
and Fousquare



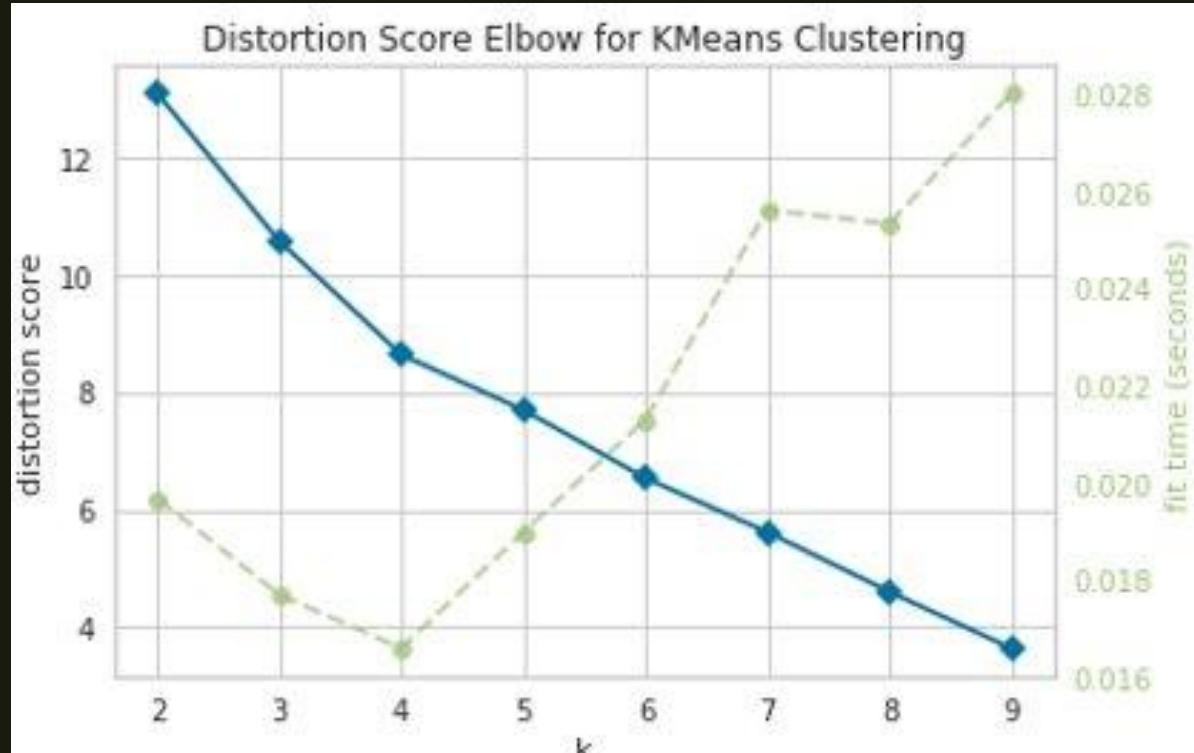
Apply k-Mean to cluster Mountain Peaks by categories of nearest venues.



Use elbow method to determine optimal number of clusters $k = 6$.

Perform k-Means and pick up proper cluster names

Display result on a map



Use elbow method to determine optimal number of clusters $k = 6$.

Perform k-Means and pick up proper cluster names

```
In [55]: # set number of clusters
k = 6

# run k-means clustering
kmeans = KMeans(n_clusters=k, random_state=0).fit(sights_categories.drop(['Name'], 1).drop

# check cluster labels generated for each row in the dataframe
kmeans.labels_

Out[55]: array([[0, 5, 1, 1, 1, 2, 5, 4, 1, 5, 2, 0, 5, 1, 2, 2, 2, 0, 1, 1, 1, 4,
                2, 1, 1, 1, 0, 4, 0, 0, 1, 2, 0, 2, 0, 1, 4, 4, 0, 1, 2, 2, 3, 5],
                dtype=int32)

In [67]: cluster_names = ['Lakes', 'Mountains', 'Ski Lodges', 'Hills', 'Forests', 'Ski Services']
```


A person wearing a red coat is standing next to a vintage suitcase. A hand is reaching for the handle of the suitcase. The background is blurred, suggesting an outdoor setting. The image is overlaid with a dark semi-transparent layer, and the text "THANK YOU" and "Stay healthy and positive" is centered on it. There are also white L-shaped decorative elements in the corners.

THANK YOU

Stay healthy and positive