Capstone

Where should we open the next Vegan Resaurant - Vegans 'R US

Graeme Hutcheon – Deep Analytics Corp – 12/30/2017

Introduction

Customer –

Vegans ‘R US

Author –

Graeme Hutcheon – Deep Analytics Corp

Summary –

Provide suggested new City for Vegans ‘R US to expand into.

Utilizing machine learning, Deep Analytics Corp will provide a suggested new location.

Data

Source – FourSquare.com

Capability –

The client has provided 14 top choices for the next location

Each location can be presented to FourSquare and in return we received a Restaurant Dataset.

Transformation –

The city restaurant data is then transformed into a dataset which can be used by Kmeans.

The data is Hot Coded and Averaged by City by Restaurant type to provide this dataset.

	City	African Restaurant	Alsatian Restaurant	American Restaurant	Arepa Restaurant	Argentinian Restaurant	Asian Restaurant	Auvergne Restaurant	BBQ Joint	Bagel Shop	...
0	Atlanta	0.00	0.00	0.090909	0.00	0.00	0.018182	0.00	0.018182	0.00	...
1	Boston	0.00	0.00	0.070000	0.00	0.00	0.010000	0.00	0.000000	0.01	...
2	Bristol	0.00	0.00	0.020000	0.00	0.00	0.040000	0.00	0.030000	0.00	...
3	Cardiff	0.00	0.00	0.020408	0.00	0.00	0.020408	0.00	0.000000	0.00	...
4	Edinburgh	0.00	0.00	0.010000	0.00	0.00	0.020000	0.00	0.000000	0.00	...
5	London	0.02	0.00	0.020000	0.00	0.01	0.010000	0.00	0.000000	0.00	...
6	Los Angeles	0.00	0.00	0.020000	0.00	0.00	0.010000	0.00	0.020000	0.00	...
7	Montreal	0.00	0.00	0.000000	0.00	0.00	0.000000	0.00	0.000000	0.00	...
8	New Orleans	0.00	0.00	0.060000	0.00	0.01	0.000000	0.00	0.000000	0.00	...
9	New York	0.00	0.00	0.030000	0.01	0.00	0.010000	0.00	0.010000	0.05	...
10	Paris	0.01	0.01	0.000000	0.00	0.00	0.000000	0.01	0.000000	0.01	...
11	Portland	0.00	0.00	0.070000	0.00	0.00	0.010000	0.00	0.000000	0.00	...
12	San Diego	0.00	0.00	0.080000	0.00	0.00	0.000000	0.00	0.000000	0.00	...
13	Seattle	0.00	0.00	0.040000	0.00	0.00	0.030000	0.00	0.010000	0.00	...
14	Toronto	0.00	0.00	0.050000	0.00	0.00	0.020000	0.00	0.000000	0.00	...

Results

Kmeans Output –

Kmeans output a data list assigning a Cluster to each row of the input

	City	Cluster Labels
0	New York	1
1	Montreal	0
2	Toronto	3
3	Boston	3
4	Atlanta	3
5	New Orleans	4
6	Seattle	4
7	Portland	3
8	San Diego	3
9	Los Angeles	4
10	Edinburgh	2
11	Cardiff	1
12	Bristol	0
13	London	4
14	Paris	4

Interpretation –

Notice that our home City – New York was assigned to Cluster 1

Looking further down the table – Cardiff, UK is also in Cluster 1

Result –

Vegan ‘R US should open their next location in Cardiff, UK

Conclusion

Using City Restaurant data feed through an Unsupervised Machine Learning algorithm we took gut feeling out of the choice of where to move next.

Working under the pretext – “We are successful in New York, USA, where else is like New York, NY”

Using the location data describing the restaurant demographics for 14 of the most interesting to the client the analysis suggests -

Open the next venture in Cardiff, UK as it’s Food makeup is most similar to New York.