



Analysis of Socio economic conditions among Norway communes

Part of IBM Capstone project

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Date: 30/03/2019

Introduction & problem description

With world becoming smaller, people migrate for work. It is often difficult to get realistic picture of socio economic conditions using public data available.

Could we help a skilled worker contemplating on relocating to Norway by providing more realistic information on socio economic conditions, based on facts and exploratory analytics?

Norway has 422 municipalities. What are their characteristics? Which is best suited for an individual?

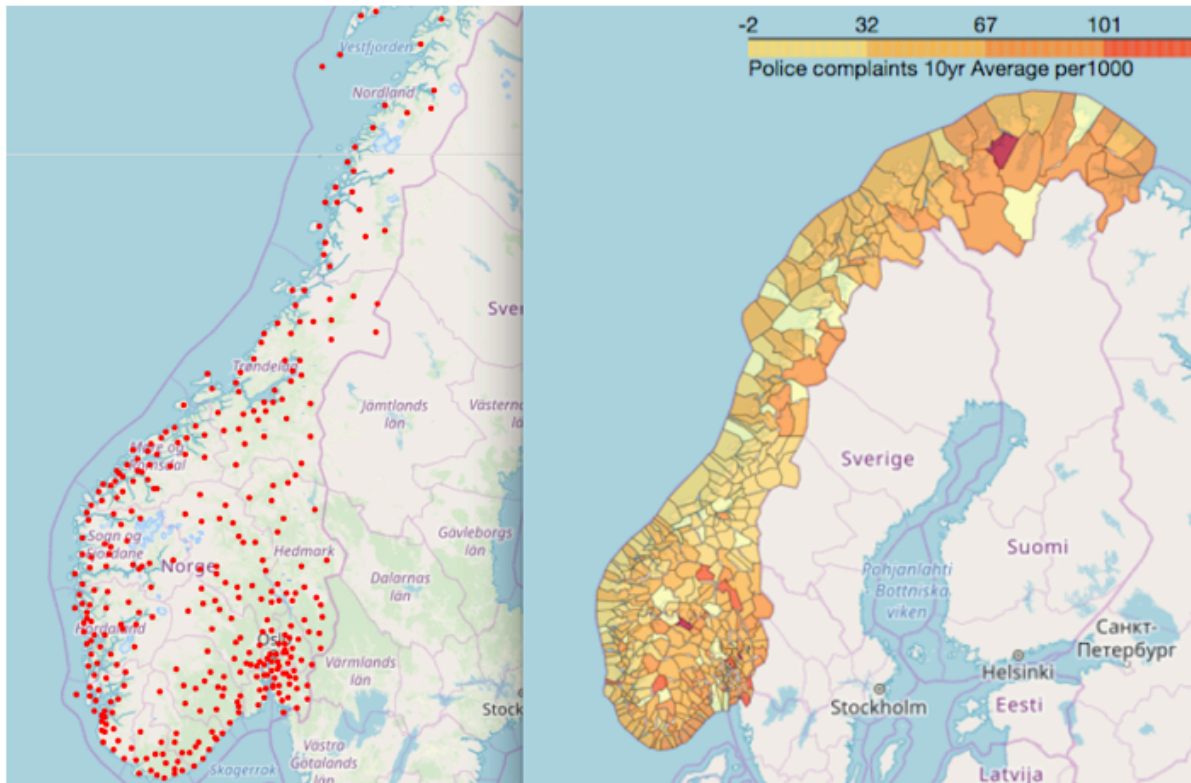
This analysis might also be interest to anyone who wants to know more about Norway.



Data

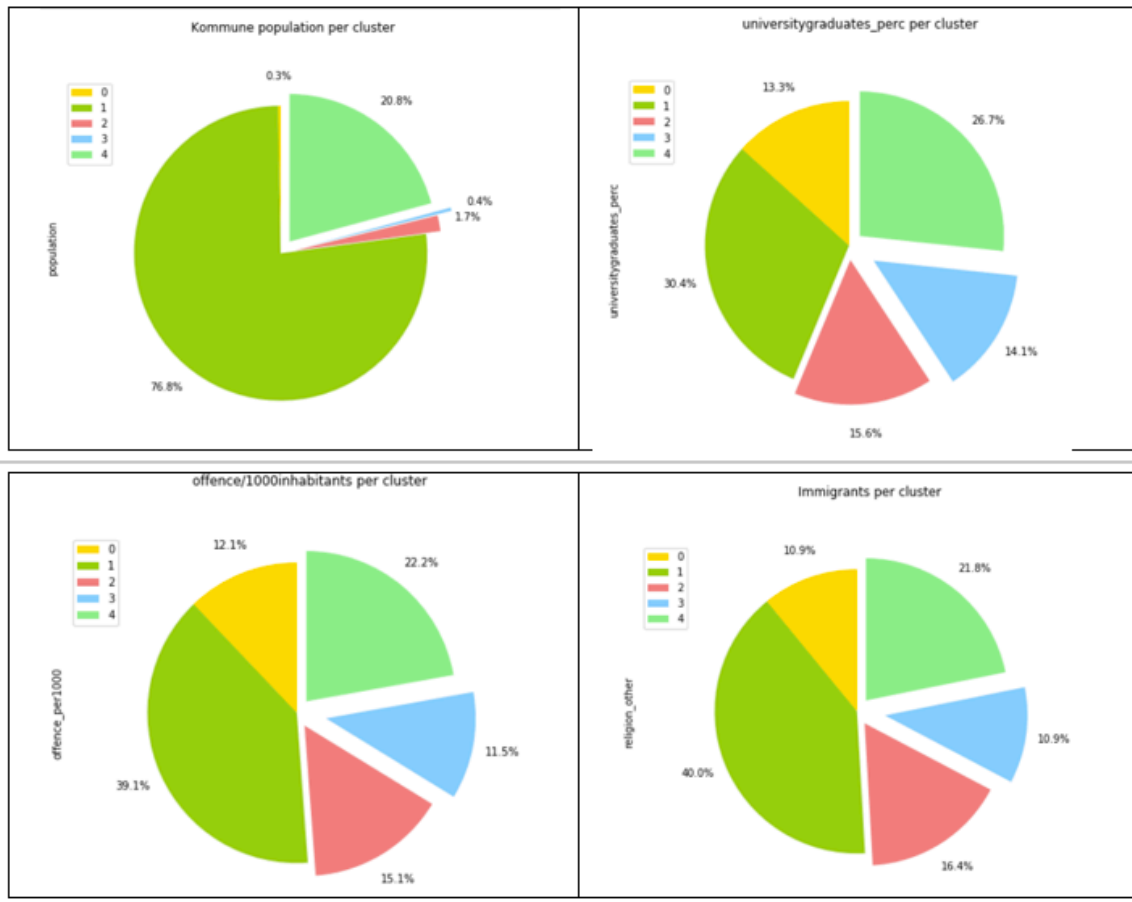
- ▶ **Commune wise indicators** - From Norwegian statistics page
Tool: Beautiful soup, data wrangling
- ▶ **Crime data** - Table from statistics department with crime per police district
- ▶ **Geo Co ordinates** - Post code with corresponding co ordinates from postal dept
- ▶ **Geo json** - Polygons for each commune with co ordinates from Geonorge
- ▶ **Clustering** - Kmeans clustering
 - ▶ Number of clusters 5
 - ▶ Total communes 422
 - ▶ Features 10

Data before clustering



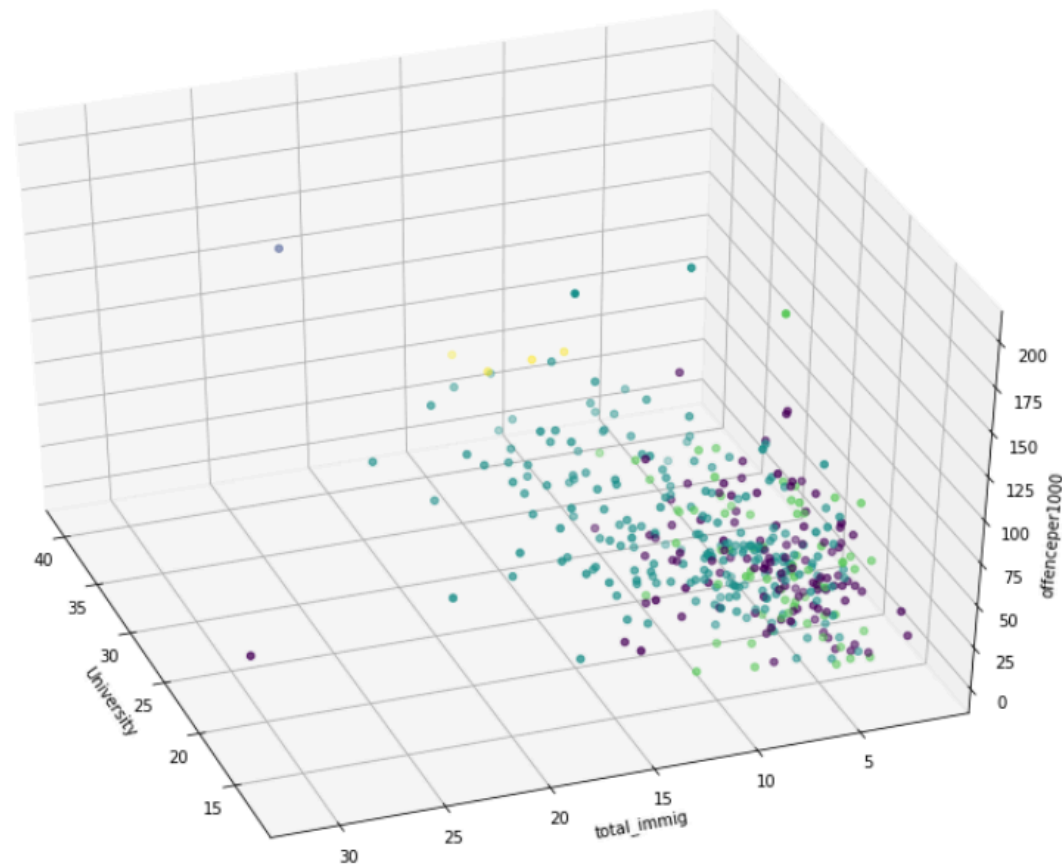
Left: Crime data on centroids
Right: Crime data commune wise

Data after clustering



Pie chart
All cluster mean values

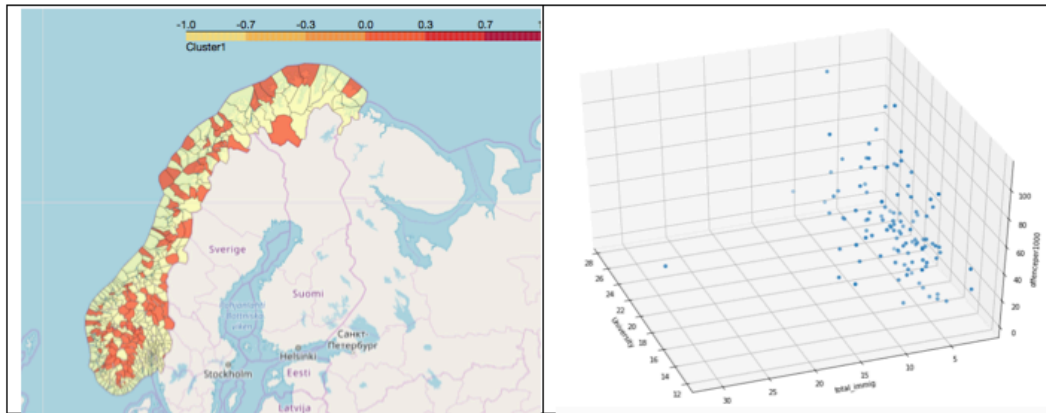
Data after clustering



All clusters
Scatter

Data after clustering

Cluster 1:



Cluster 1 contains 112 communes

Mean population	2547
University graduates%	18
Immigrants %	6
Kommunes profitability %	3
Per capita income	127126
Debt per capita	74847
Offence per 1000 inhabitants (10yrs avg)	41

Example of cluster
analysis
(cluster 1)

Results

- ▶ Cluster 2 and 4 containing Oslo, Bergen, Baerum, Trondheim and Stavanger were strong candidates to be recommended.
- ▶ Recommendation were based on high population, high education, low debt per capita, high income, high immigrant population.

