

Crimes in the UK

Week 10 – 25.01.2017

Sergiu Soima
Chaoran Chen
Aser Abdelrahman



Predicting Number of Crimes

Demographic Data

- Population, #males/females
- Age distribution
- Ethnicity group
- Religion
- ...



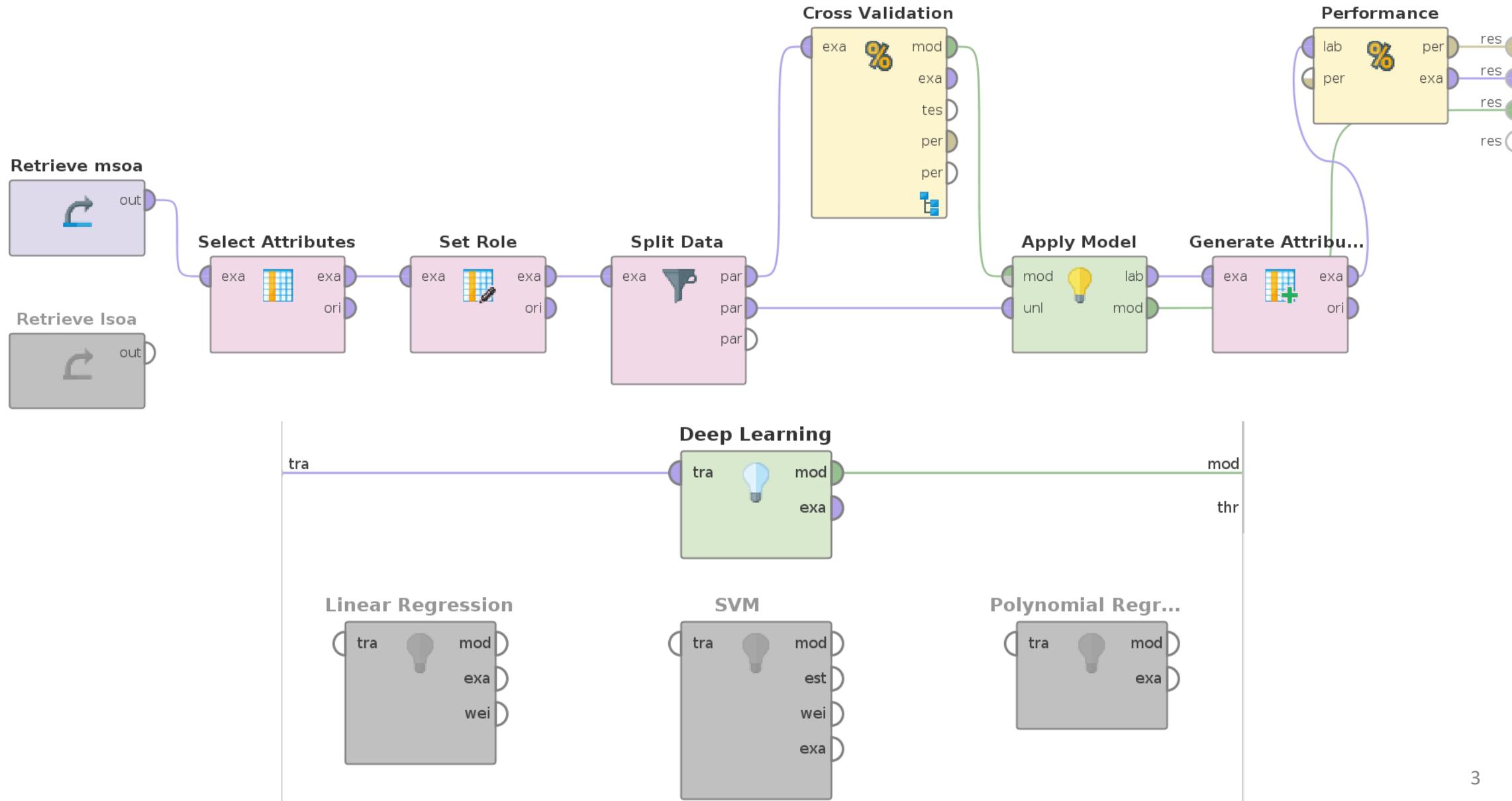
Number of crimes

- Total number
- Of a certain crime type

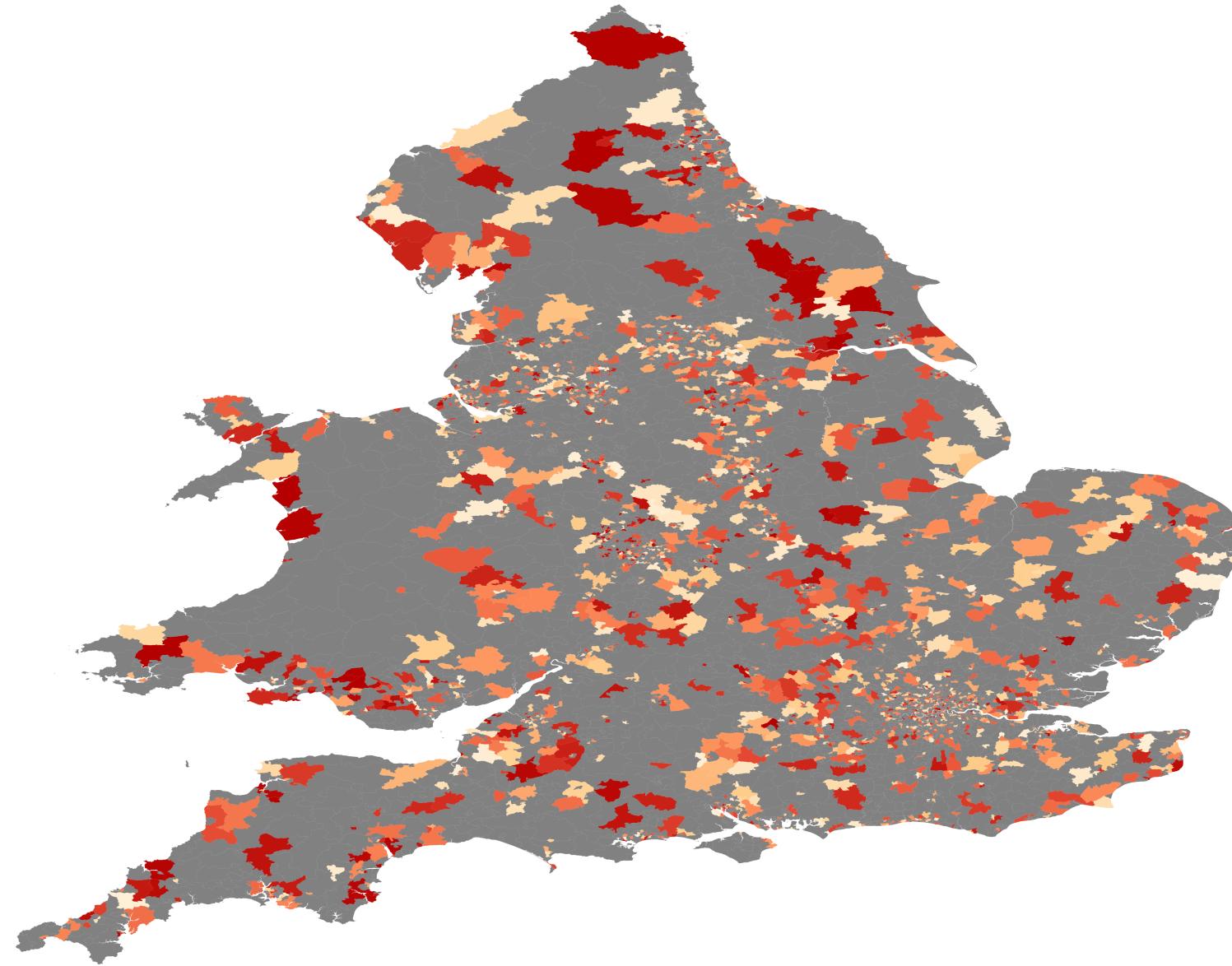
Points of Interest

- Total number
- Number of supermarkets
- ...

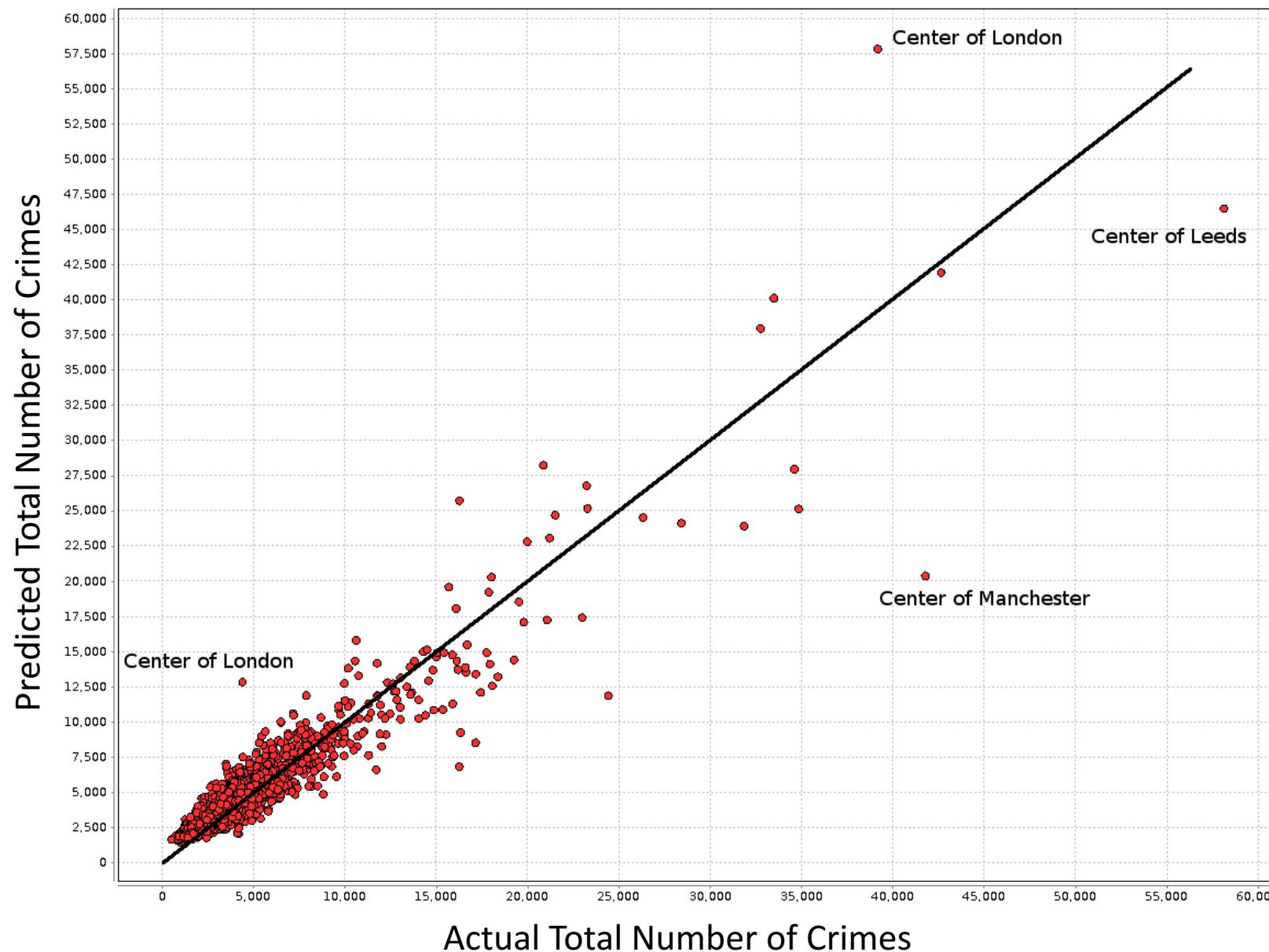
Predicting Number of Crimes



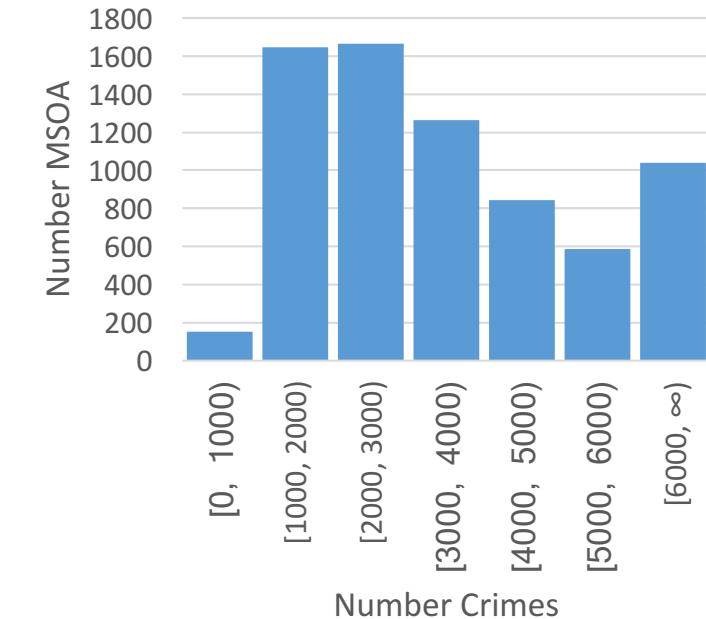
Predicting Number of Crimes



Predicting Number of Crimes

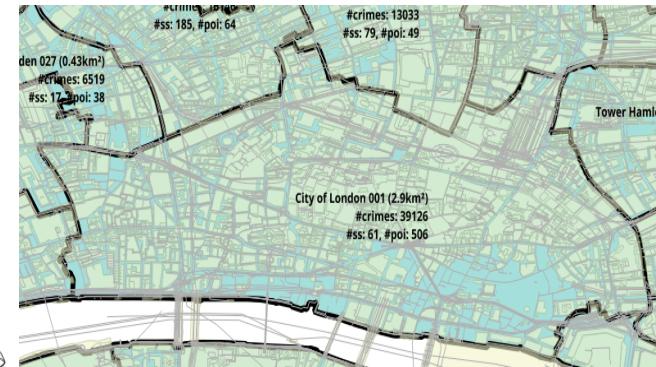


- Root mean – squared error: 1424
- Root relative - squared error: 37.3%
- Correlation: 93.5%



Average number of crimes: $\approx 4,000$

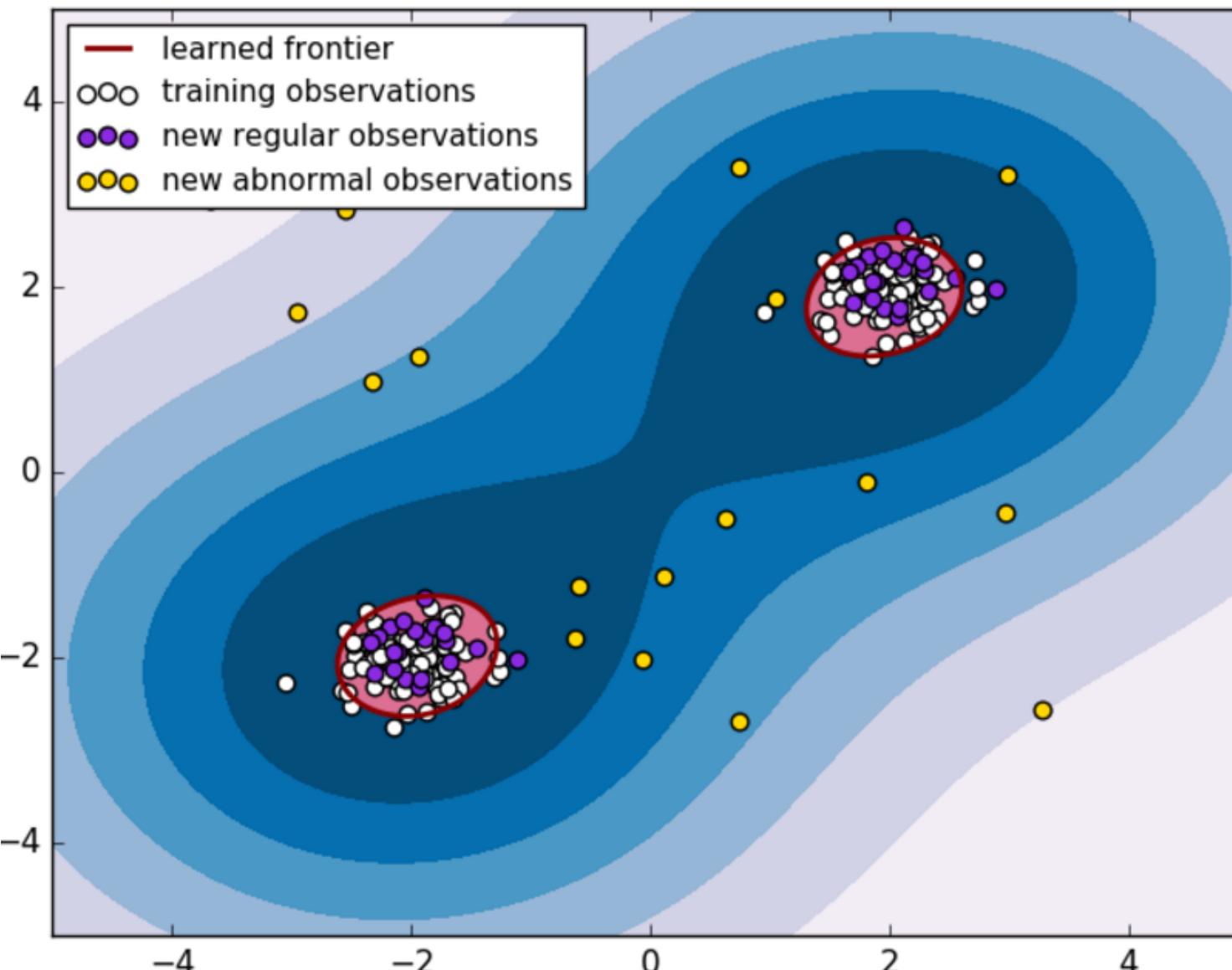
Outlier detection



? =

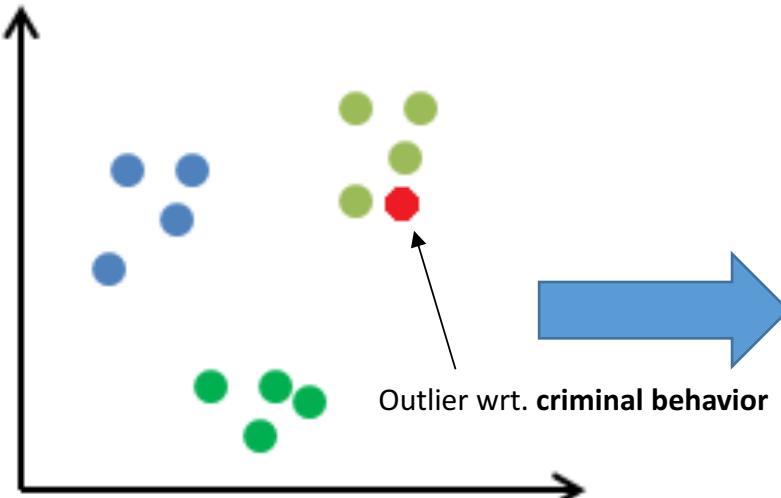
OUTLIER

Outlier detection with OneClassSVM

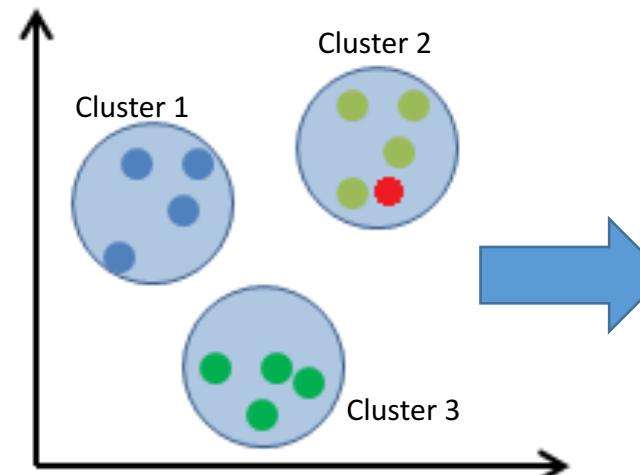


In which respect are those 673 MSAOs abnormal?

1. Start only with **demographic** data



2. Form cluster



3. What factors define an “outlier”?

`mean_crime_data(cluster 1)`:

number_anti_social	number_bicycle_theft	...	number_ss_black_searches
1043	45	...	15

V.S

`crime_data(abnormal MSOA)`:

number_anti_social	number_bicycle_theft	...	number_ss_black_searches
250	40	...	12

Updated UK police

Main findings – descriptive statistics

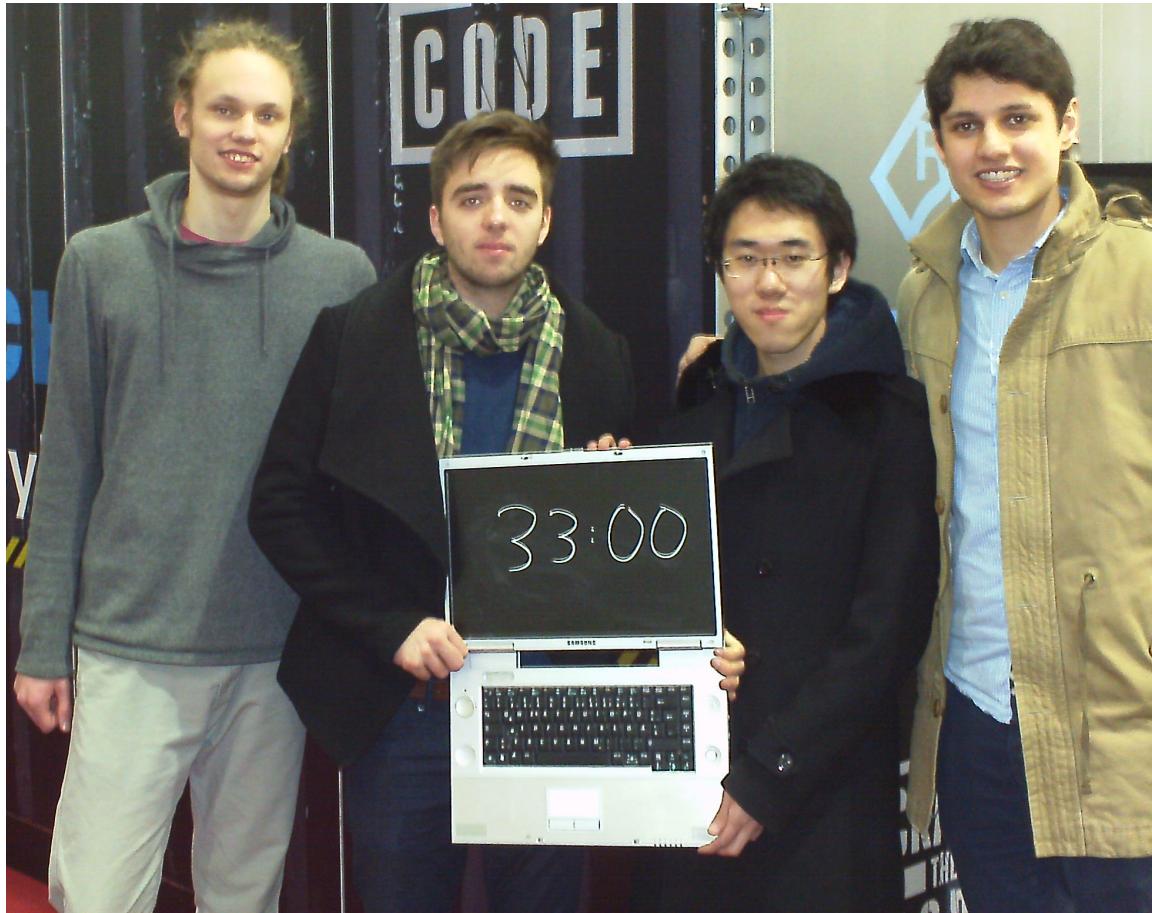


POLICE.UK



Home Office

Predicting Stop and Searches



Predicting Stop and Searches – Data preparation

- mapped geolocations to MSOA codes
- computed absolute numbers of stop and searches
- made stop and search assumptions

Next steps:

- finish the data preparation
- run the prediction algorithms