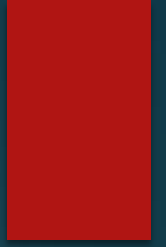


Reside in Sweden



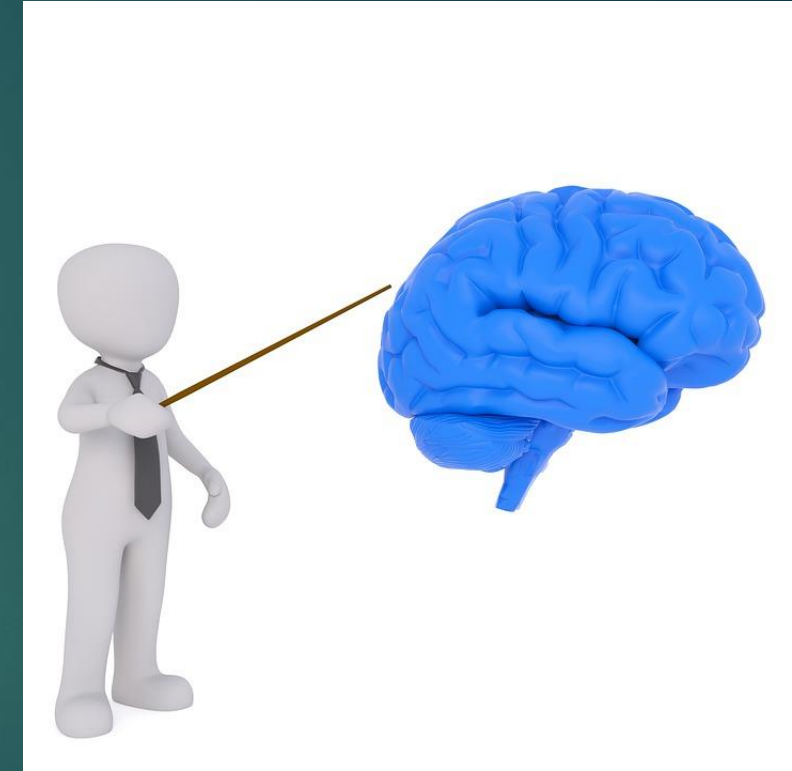
Introduction

- ▶ Moving to Sweden
- ▶ Where to settle down?
- ▶ Suitable municipality
- ▶ Income
- ▶ Taxes
- ▶ Low crime rate
- ▶ Venues

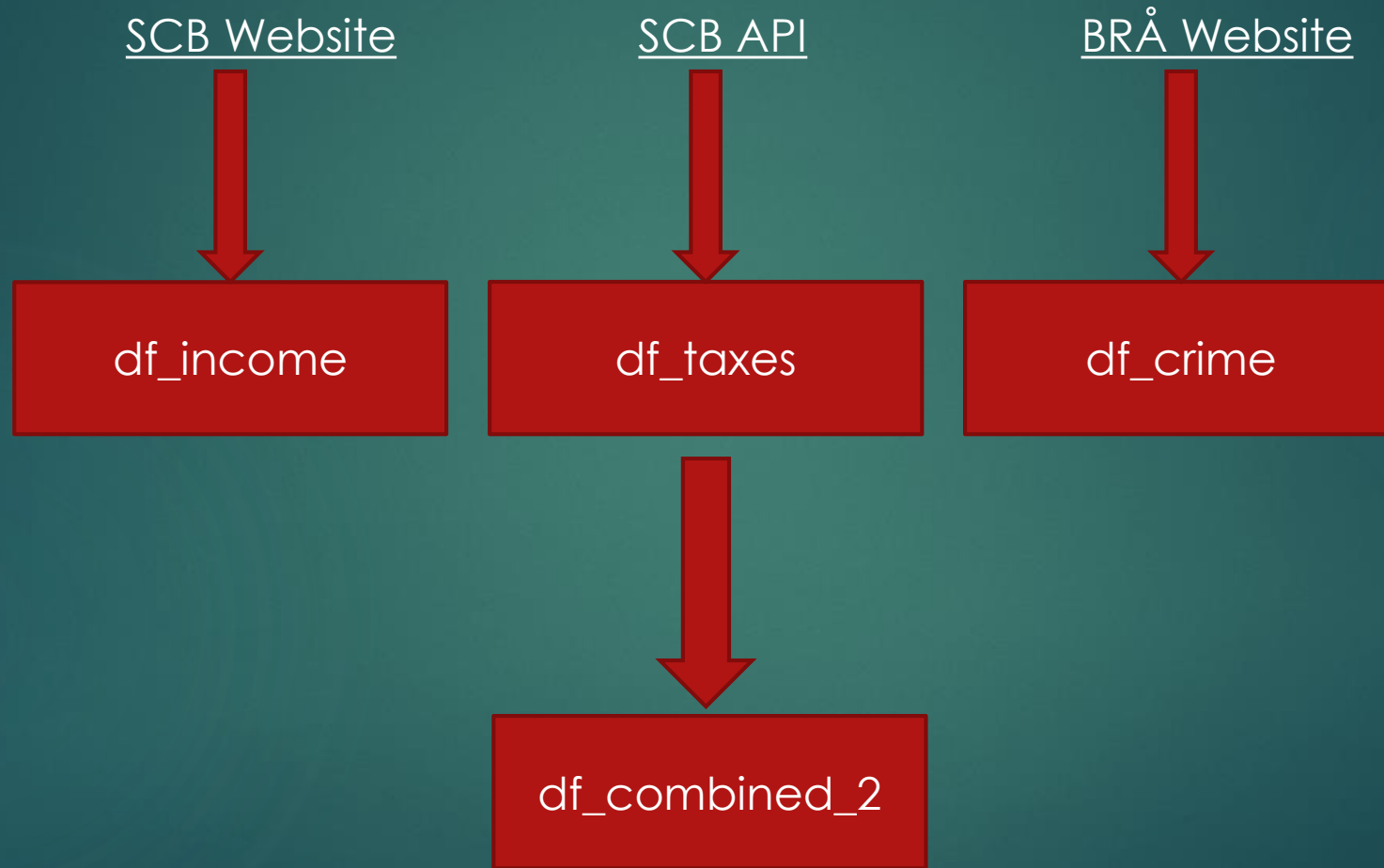


Approach

- ▶ Data collection
 - ▶ 2018
- ▶ Processing
- ▶ Modelling
- ▶ Visualization



Data sources

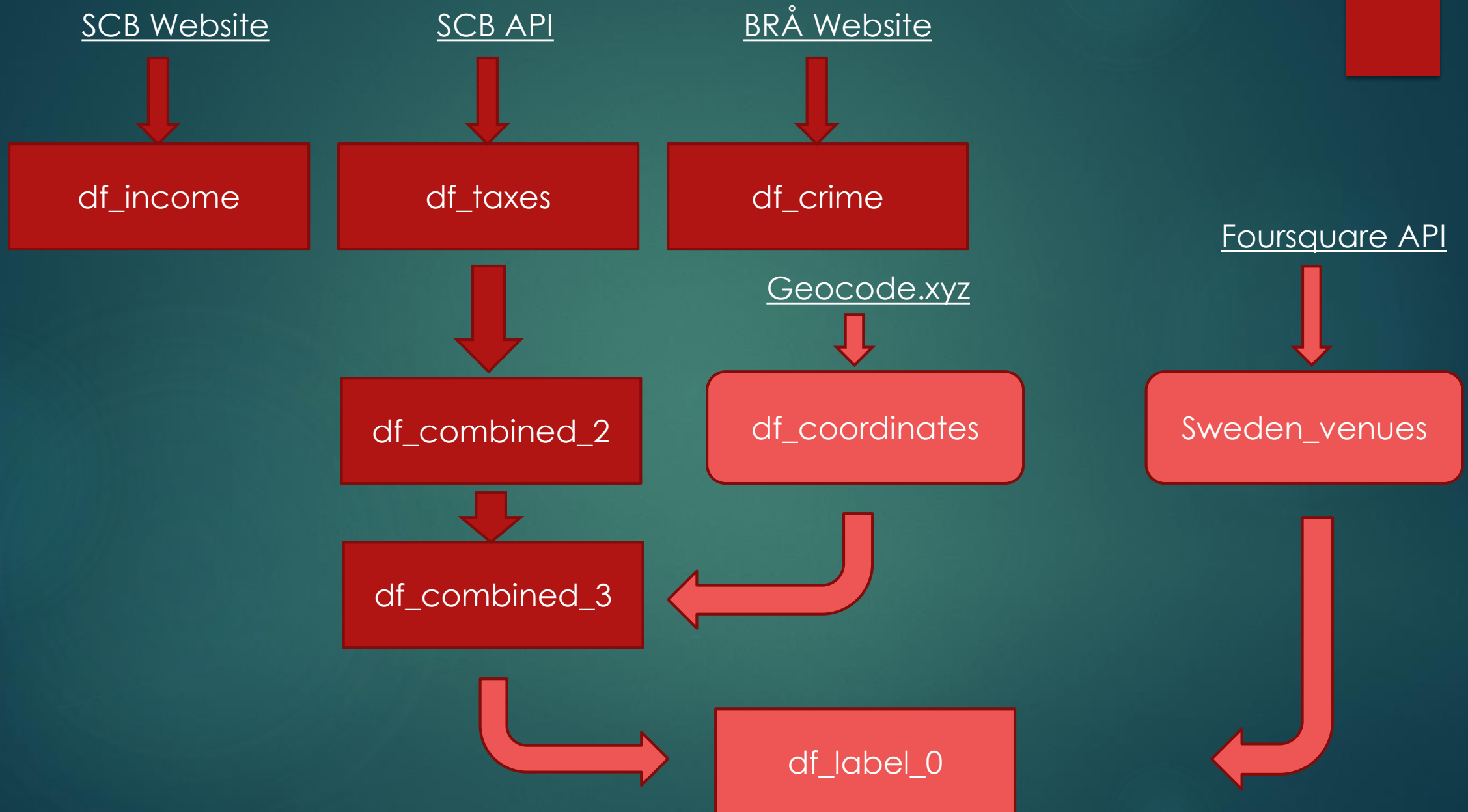


Clustering income, crime and taxes

- ▶ K-means
- ▶ Unsupervised machine learning
- ▶ Preprocessing
 - ▶ Cleaning
 - ▶ Normalization
- ▶ Modelling
 - ▶ $K = 10$

	Area	Average income	Taxes	Reported_crimes	Labels
0	Upplands Väsby	332223.127685	19.52	5406.0	3
1	Vallentuna	376842.659233	19.00	2479.0	3
2	Österåker	373765.558531	17.35	3398.0	2
3	Värmdö	376978.450939	19.18	3844.0	3
4	Järfälla	338237.293383	19.15	9687.0	3
...
285	Luleå	315026.131767	22.50	9319.0	4
286	Piteå	309056.575747	22.25	3379.0	4
287	Boden	302280.374044	22.60	3261.0	4
288	Haparanda	257613.748612	22.50	1137.0	4
289	Kiruna	339817.584341	23.05	3082.0	9

Additional data sources



Clustering venues

- ▶ K-means
- ▶ Unsupervised machine learning
- ▶ Preprocessing
 - ▶ Cleaning
 - ▶ One hot encoding
- ▶ Modelling
 - ▶ $K = 5$

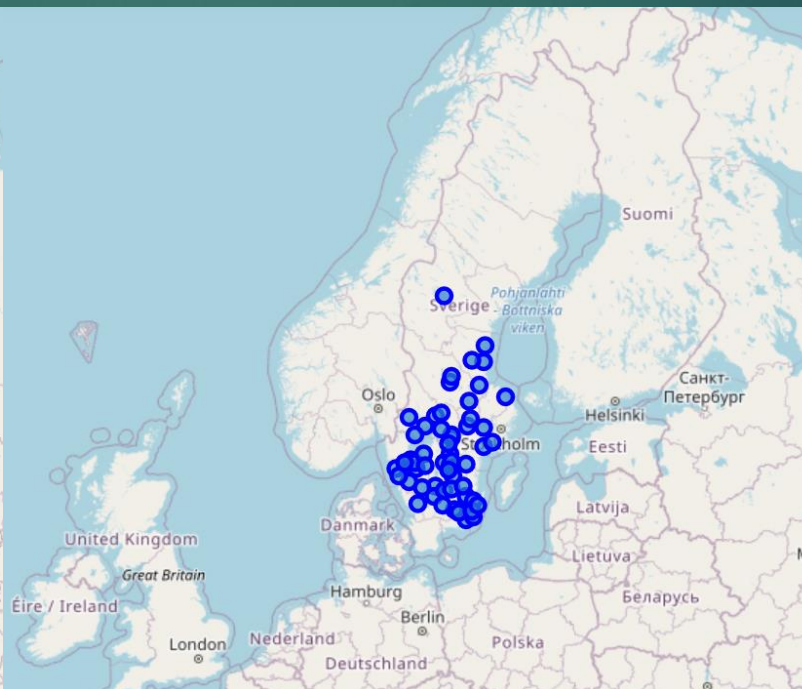
	Area	Average income	Taxes	Reported_crimes	Labels	Latitude	Longitude	Cluster Labels	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue
141	Ulricehamn	299825.097330	21.05	1648.0	0	57.78878	13.41531	4.0	Café	Food & Drink Shop	Liquor Store
143	Mariestad	290399.049092	21.26	2059.0	0	58.69624	13.82760	1.0	Construction & Landscaping	Pizza Place	Arts & Crafts Store
144	Lidköping	306792.623321	21.26	3498.0	0	58.50357	13.14677	0.0	Clothing Store	Bakery	Grocery Store
145	Skara	292996.047463	21.10	1976.0	0	58.38685	13.43133	0.0	Grocery Store	Café	Movie Theater
146	Skövde	313195.379264	20.86	4713.0	0	58.39060	13.84831	0.0	Hotel	Restaurant	Café

Visualization

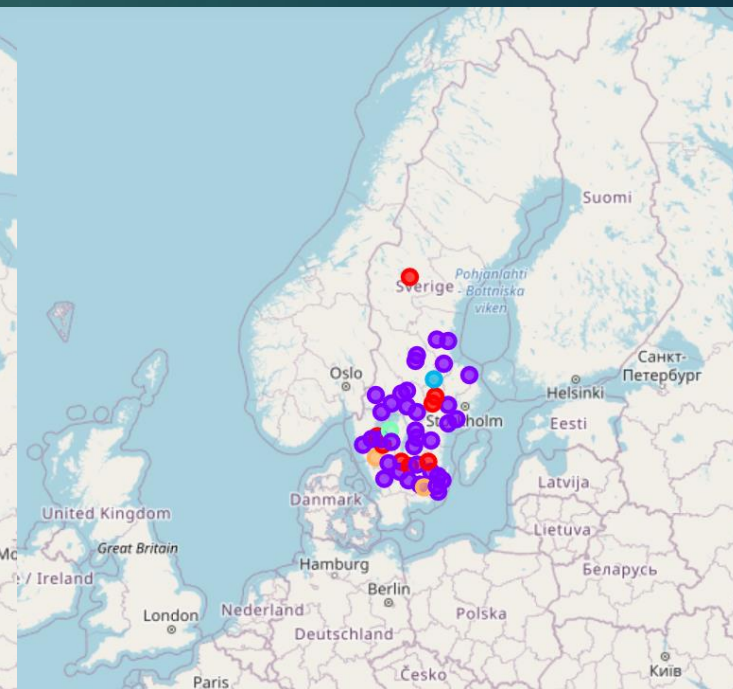
All municipalities in Sweden



Selected clusters



Selected clusters with
venue clustering



Conclusion

- ▶ Good overview for users
- ▶ Interactive visualization using Folium
- ▶ Commercial geocoding solution

