



Expanding into new Markets in *Banking*

Recommending locations for new bank branches

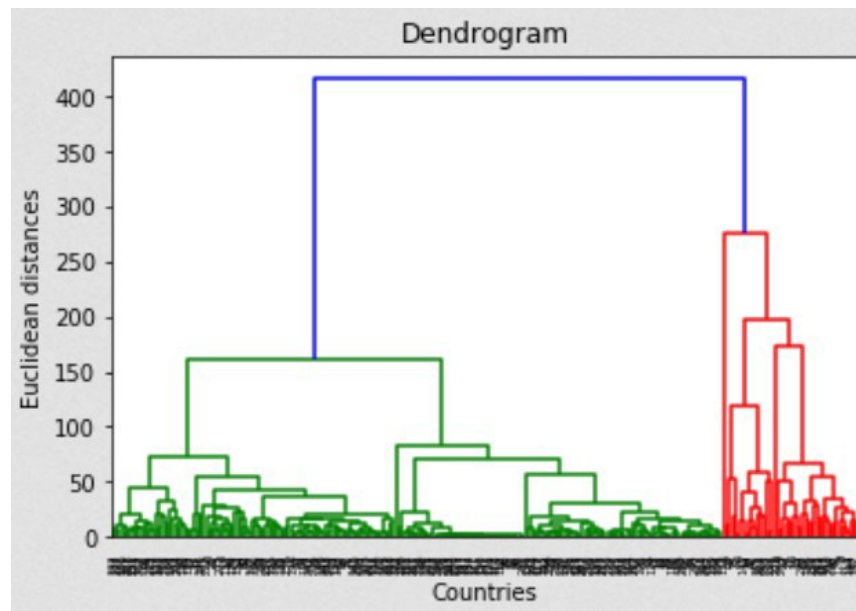
- Branch presence is still considered an important part of broadening bank customer reach
- A retail bank wants to expand into a foreign country as a new market
- Following needs to be considered to find the optimal new bank branch location
 - Financial system of the country of interest should be close to that of the origin of the client
 - The region of interest is Central and Eastern Europe
 - Proximity to the city center
 - Low number of bank branches in the vicinity of the suggested locations of the new bank branches

Data acquisition and cleaning

- Financial data, for comparing the Financial systems
 - The need indicators from the World Bank DataBank
 - 8 indicators access via *wbdata*
- Venue Data & Geocoding
 - 173 individual banks in the initial area of interest which was 6×6km around the central Macedonia square in Skopje
 - The data was retrieved with the *Googles Geocoding API* and locations was explored with the *Foursquare API*

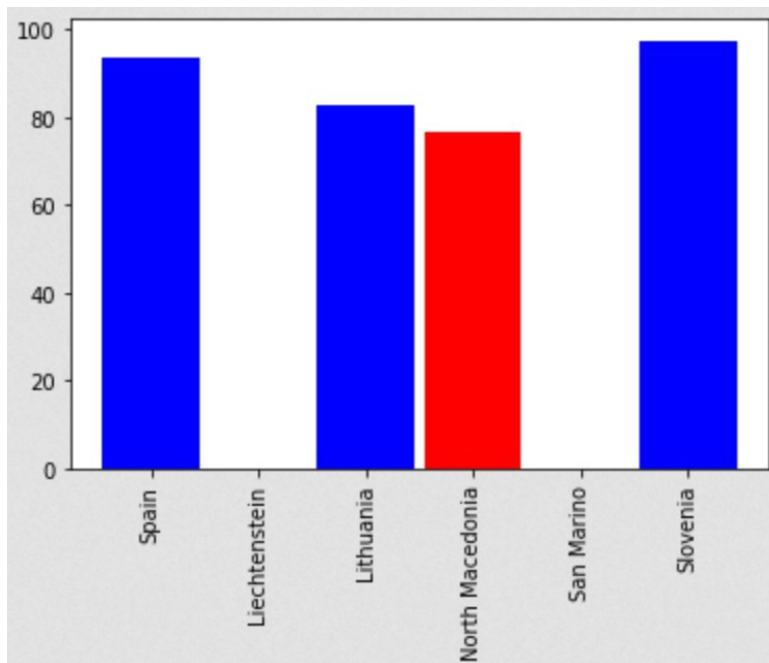
Financial system of the countries

- Compare other countries financial systems to system of Spain based on hierarchical clustering
- Dendrogram of the financial characteristics of countries based on Word Bank data
- Find following candidates from Central and Eastern Europe
 - Lithuania,
 - North Macedonia,
 - Slovenia

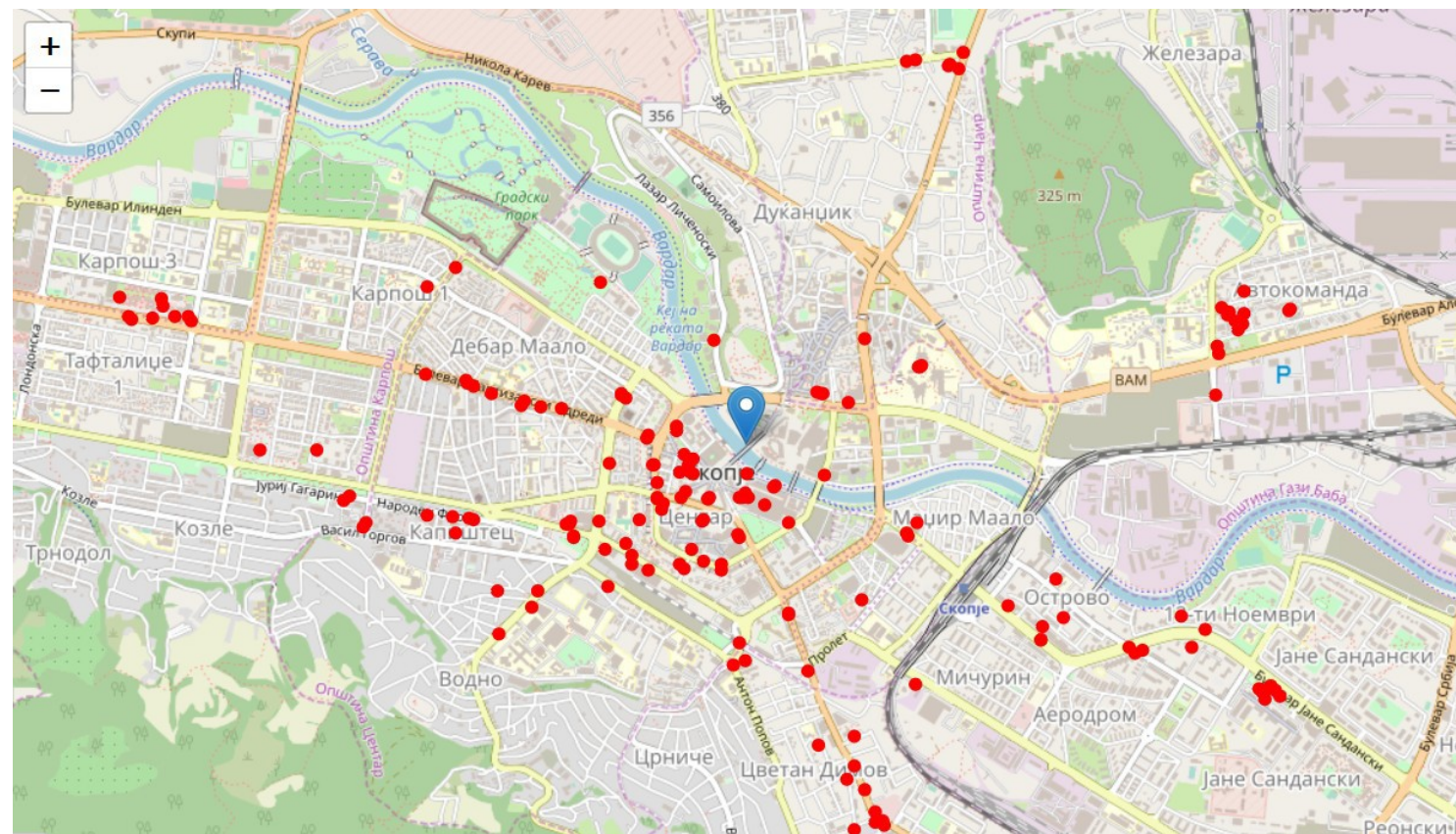


Bank account access

- North Macedonia was selected, since has the lowest bank account per citizen, with 76.57%
- This is the largest proportion of the population with no bank account in the group
- That is the largest *potential* market for new bank customers



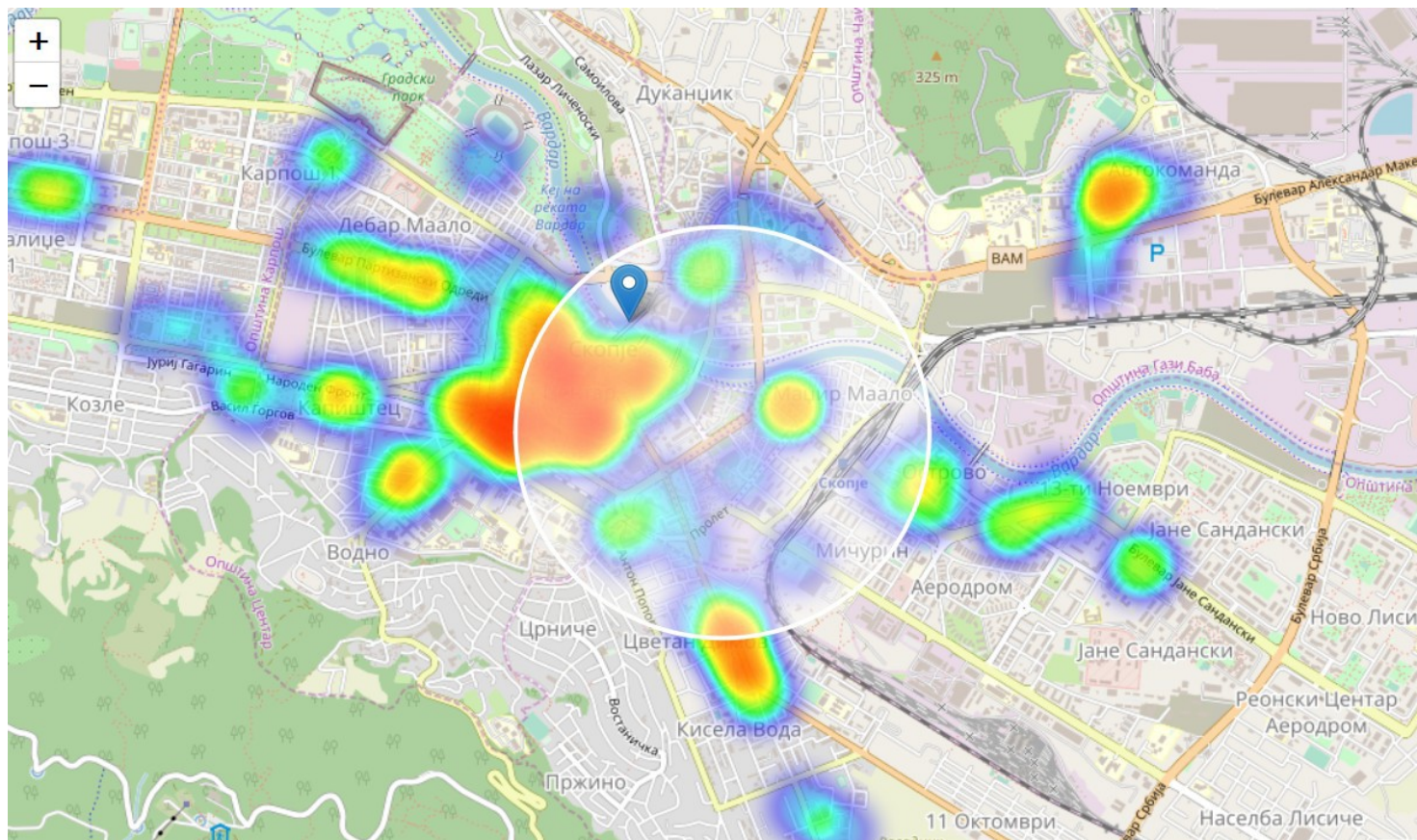
Locate Banks in Skopje



Skopje is largest city in North Macedonia

173 bank branches in the central 6×6 km around the central Macedonia square

Heat map of bank branch location



- Focus of the analysis is on the **south-east** from the center
- Low bank density
- Close to city center
- north from the city center, were not considered, since more residential areas *not suitable* for a bank branch

All interesting locations



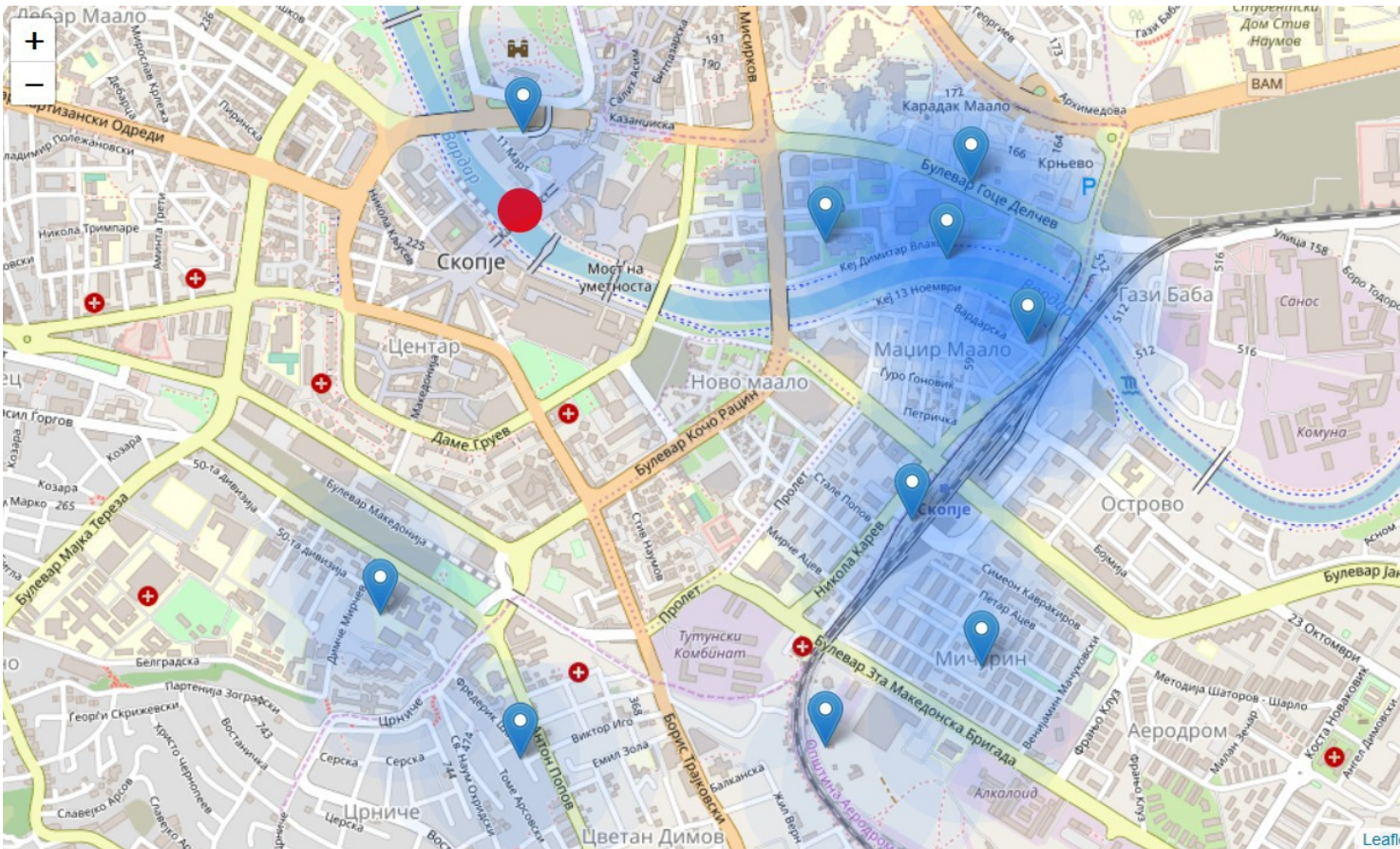
- All possible locations in the 1km radius
- Condition: do not have more the 2x banks in a 250m radius

Clusters of good locations



- Cluster to have a short list of addresses
- The central point of circles will be recommended
- Clustering with *KMeans*

Addresses of centers of areas recommended for further analysis



- List of 10 addresses
- Close to city center
- Looking for vivid business areas
- Well-connected by public and individual transport

Conclusion and future directions

- Found financial systems close to that of Spain by hierarchical clustering
- Identify a country in Central and Eastern Europe with a low number bank accounts per citizen
- Compile a list of addresses in with low bank density and proximity to city center of Skopje
- Final decision on optimal bank branch location will be made by the Spanish client