

Choosing Location for Jazz Cafe in Zagreb

Natalia Odintsova

Business Problem

- The project is targeted to **stakeholders who considering opening a jazz cafe in Zagreb.**
 - Zagreb has been attracting tourists and businesses from all over the world
 - Zagreb is known for its interesting architecture, pedestrian zones and parks, and rich cultural life.
- Zagreb has a vibrant nightlife, with numerous cafes, bars, nightclubs, and lounges.
 - They are mostly concentrated in the city center.
 - Although this seems an ideal location for a jazz cafe, the competition among in this area may be high.
- In this project, we explore the neighborhoods of Zagreb and try to **determine what would be the best location for a jazz cafe.**

Business requirements for location of a jazz cafe

- Located in a neighborhood similar to the city center.
 - We define this as neighborhoods that have similar frequencies of venue categories
- Located in an 'artistic' environment, that is, close to arts galleries, theaters, or other arts venues.
- Have no direct competitors within 500 m radius.
 - By direct competitors we mean music venues like jazz cafes/clubs, rock clubs, piano bars, etc.
- Have moderate to low density of nightlife venues.
 - We consider nightlife venues (bars, nightclubs, lounges, etc) our second-tier competitors. Some nightlife infrastructure is welcome, but we want to avoid overly hot nightlife areas.

Data Sources

- Geolocations of Zagreb neighborhoods: zagreb_croatia_places.geojson at https://www.nextzen.org/metro-extracts/index.html#zagreb_croatia
 - 169 items in raw data
 - Population density of districts of Zagreb: wiki page
https://en.wikipedia.org/wiki/Districts_of_Zagreb
- Foursquare API
 - Venues: <https://api.foursquare.com/v2/venues/explore>
 - Category hierarchy:
<https://api.foursquare.com/v2/venues/categories>

Data Cleansing and Extending

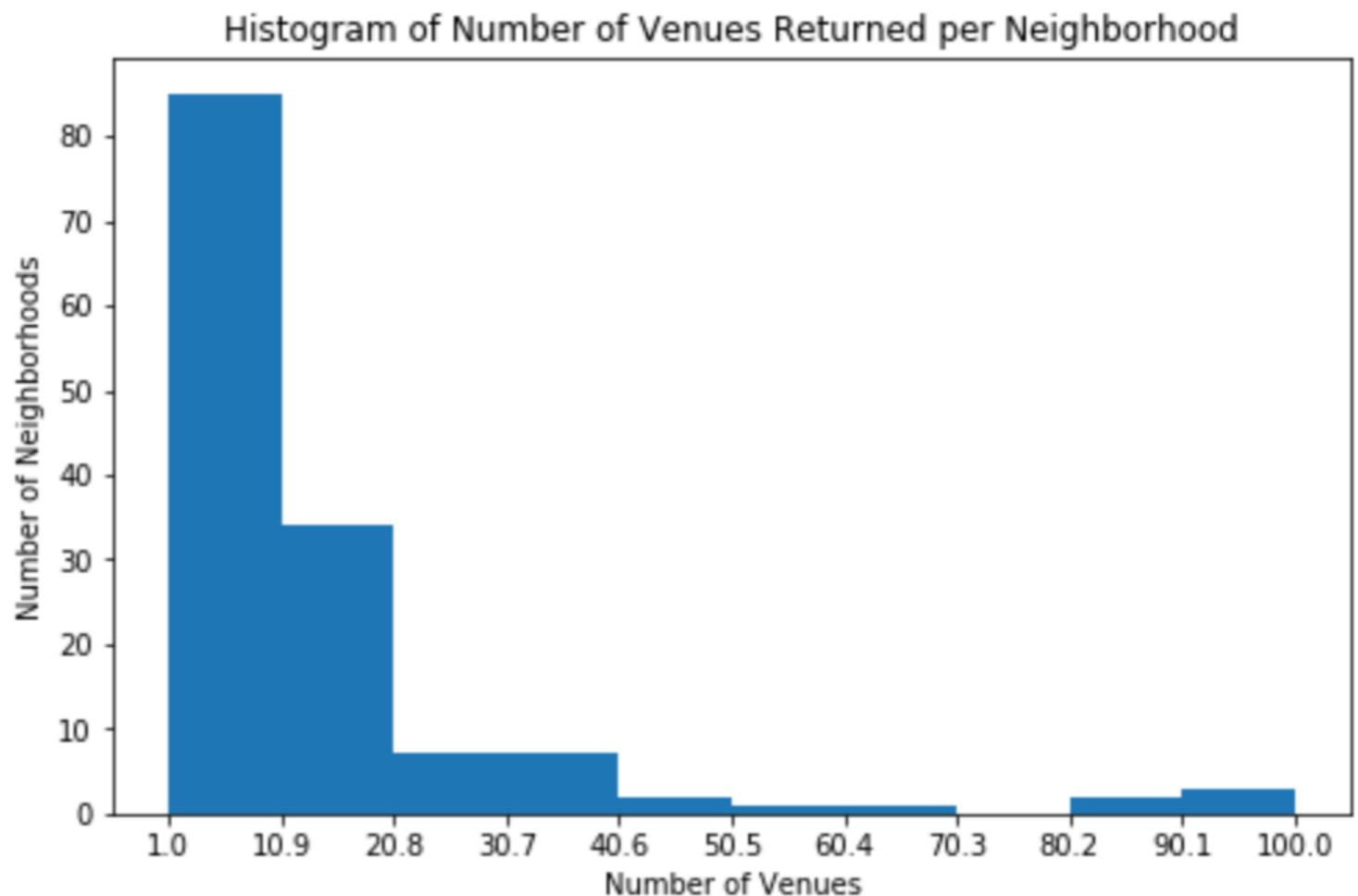
- Cleaned neighborhood data
 - deleted rows with null names
 - removed rows with duplicate names
 - removed rows with type ‘village’ and ‘hamlet’
- Added neighborhoods locations from

https://en.wikipedia.org/wiki/Gornji_Grad
[%E2%80%93Medve%C5%A1%C4%8Dak](#)

- Resulting dataset had 151 neighborhood

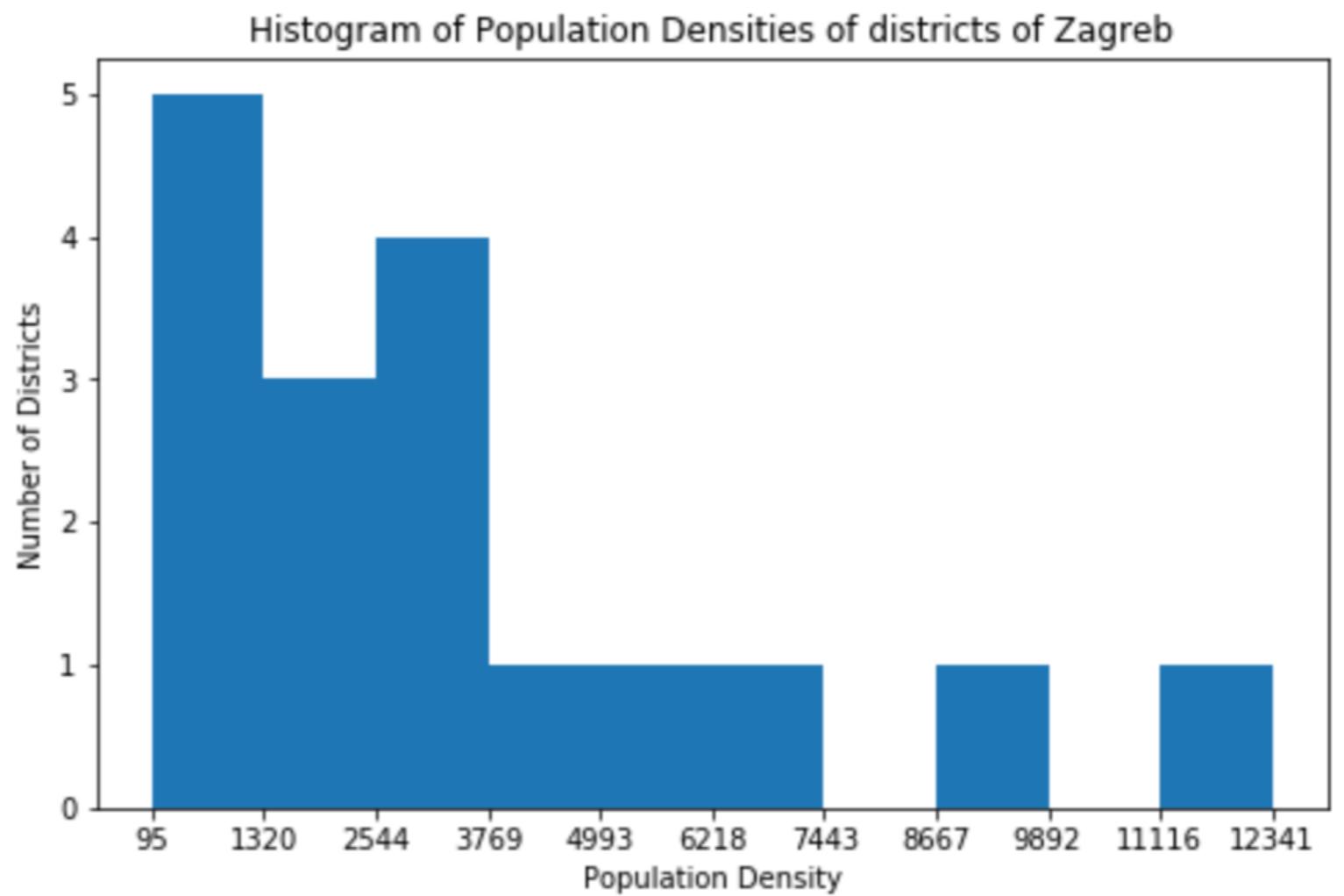
Data Exploration

- Foursquare API returned venues for 142 neighborhoods.
- More than half neighborhoods had less than 10 venues.
- Several neighborhoods had 100 venues (hit the limit)



Data Exploration (cont)

- Venue frequencies were on par with population density distribution in Zagreb
- Zagreb has large number of districts with low population density
- Dropped the neighborhoods with less than 10 venues.

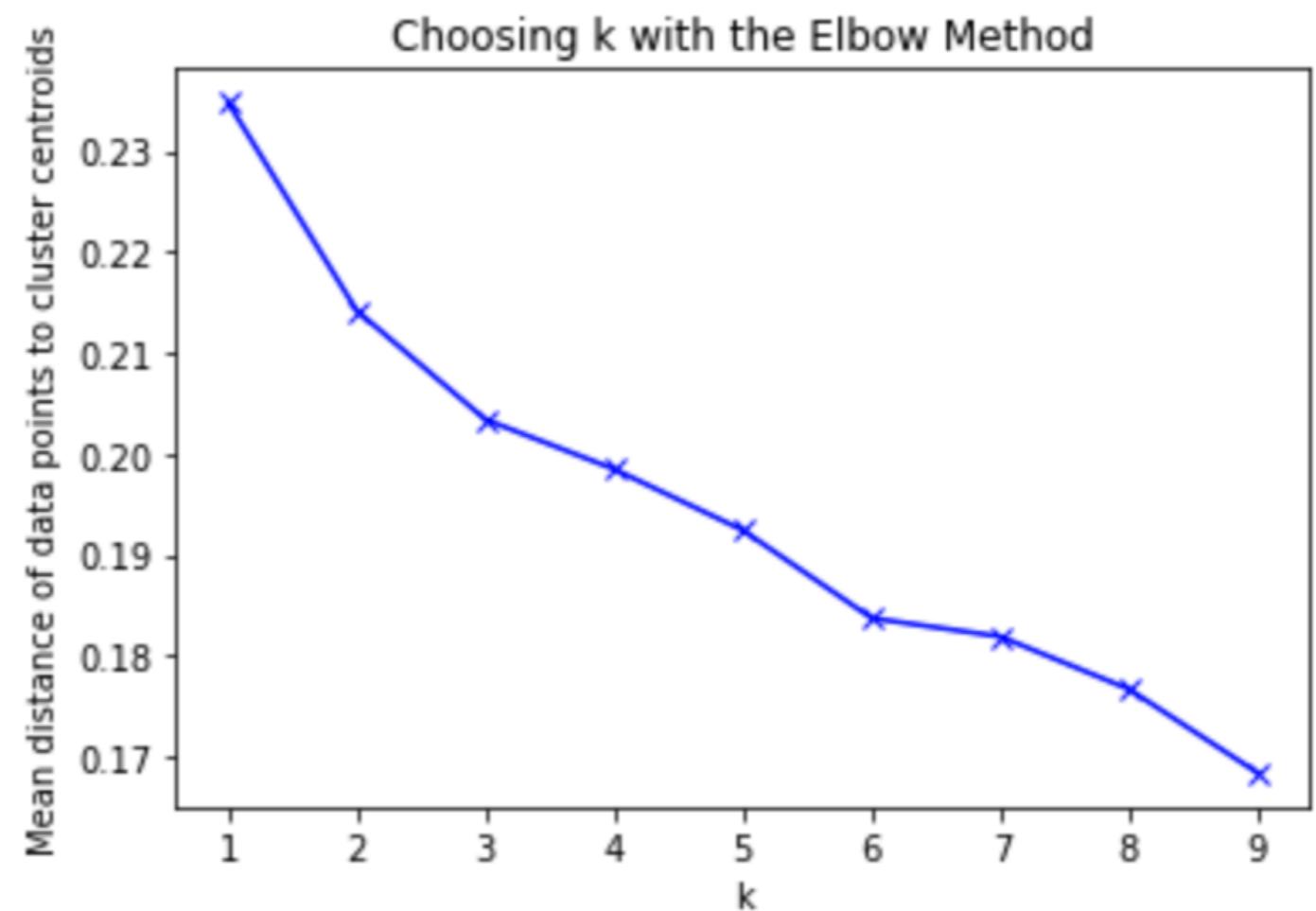


Methodology

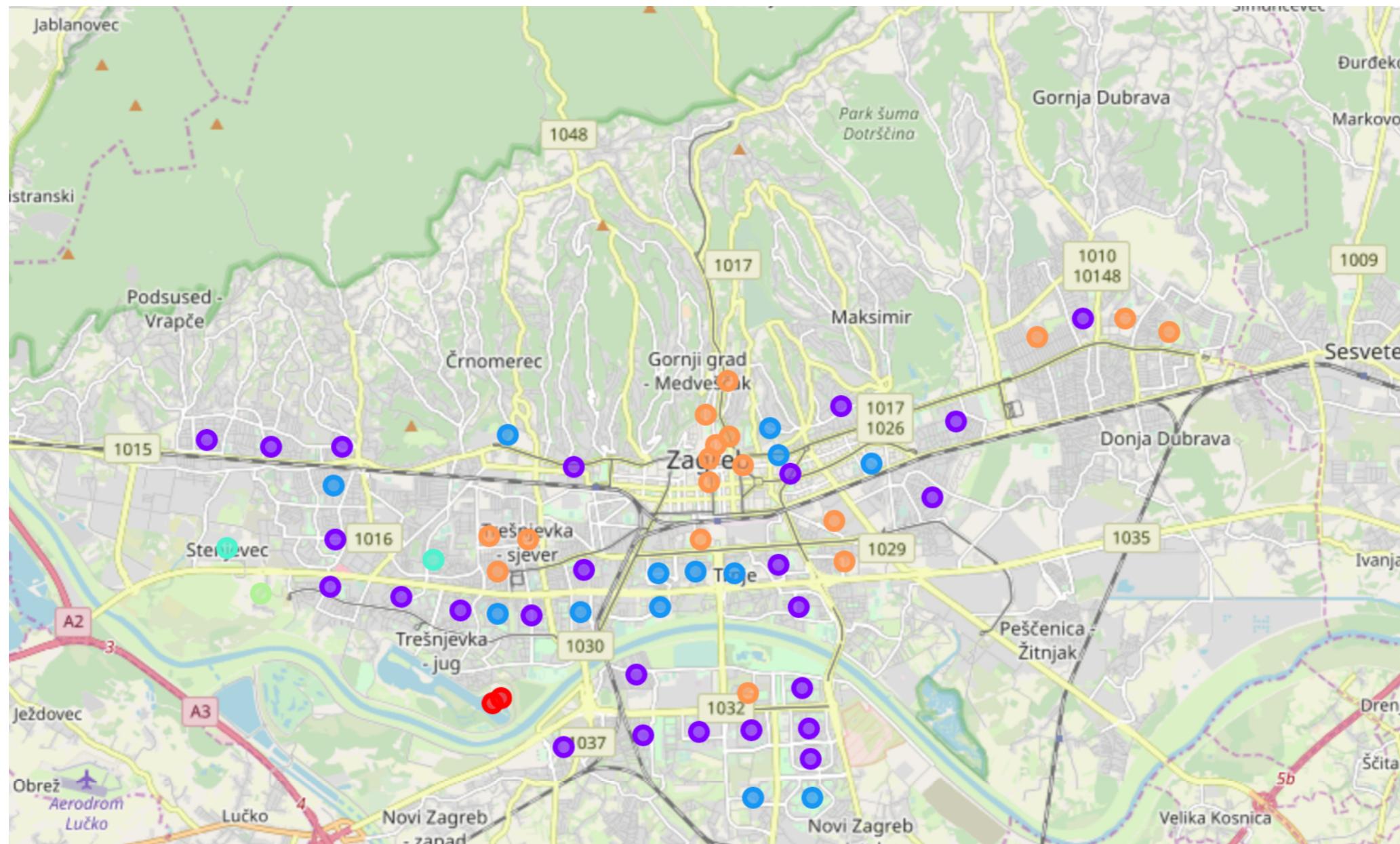
- Used k-means clustering to determine the neighborhoods that are similar to the center. Zoomed-in on those neighborhoods.
- Using the locations of music venues, determined the areas to stay clear of.
- Using the heat map of arts venues, determined the areas of high densities of arts venues. These are areas we want to be in.
- Using the heat map of nightlife venues, determined areas of moderate to low densities. These are areas we want to be in.

Clustering the Neighborhoods

- Used k-means clustering to segment the neighborhoods according to the frequencies of occurrence of each category in the neighborhood.
- 60 neighborhoods, 150 unique venue categories.
- Used ‘elbow method’ to select optimal number of clusters.

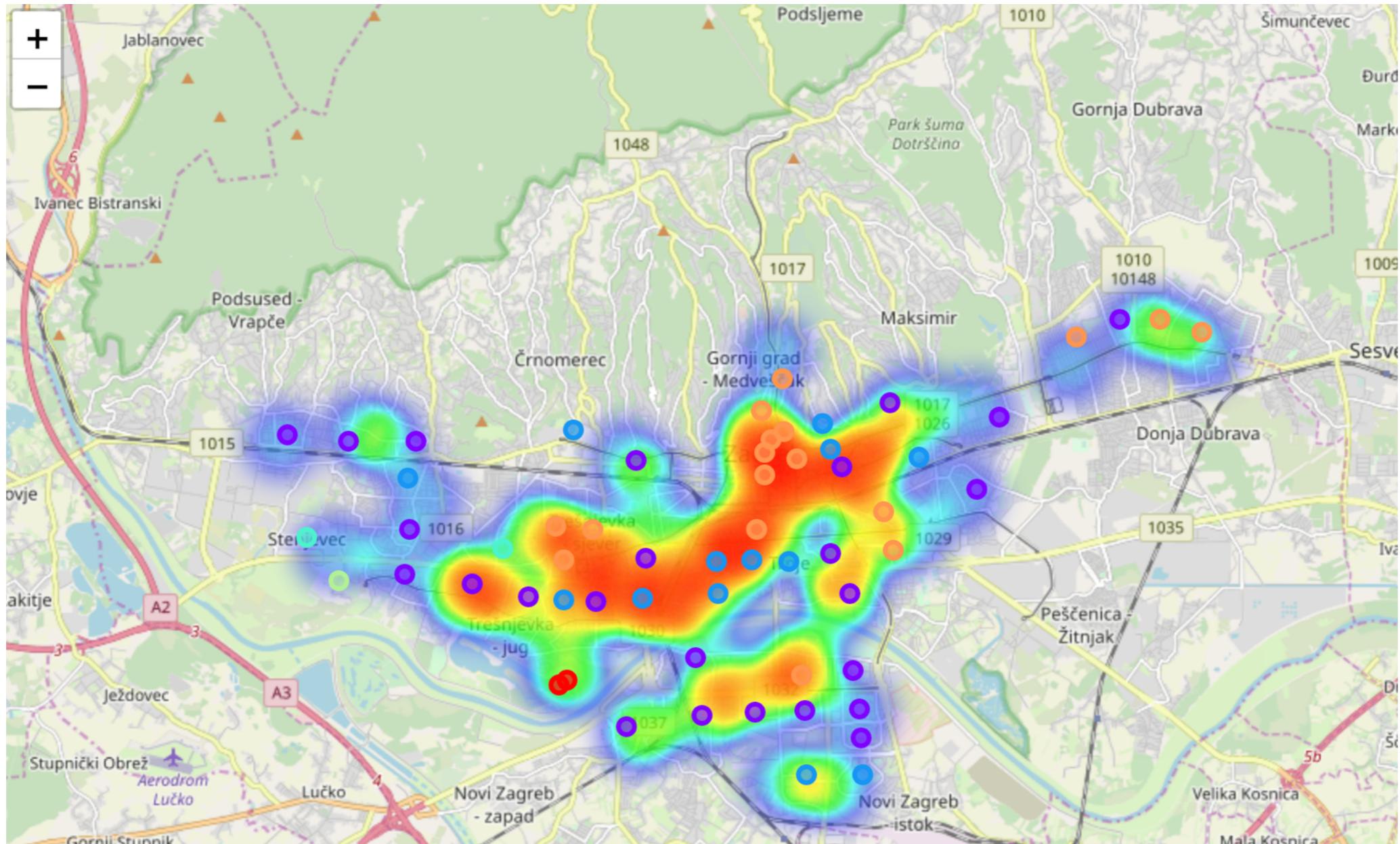


Results of k-means clustering



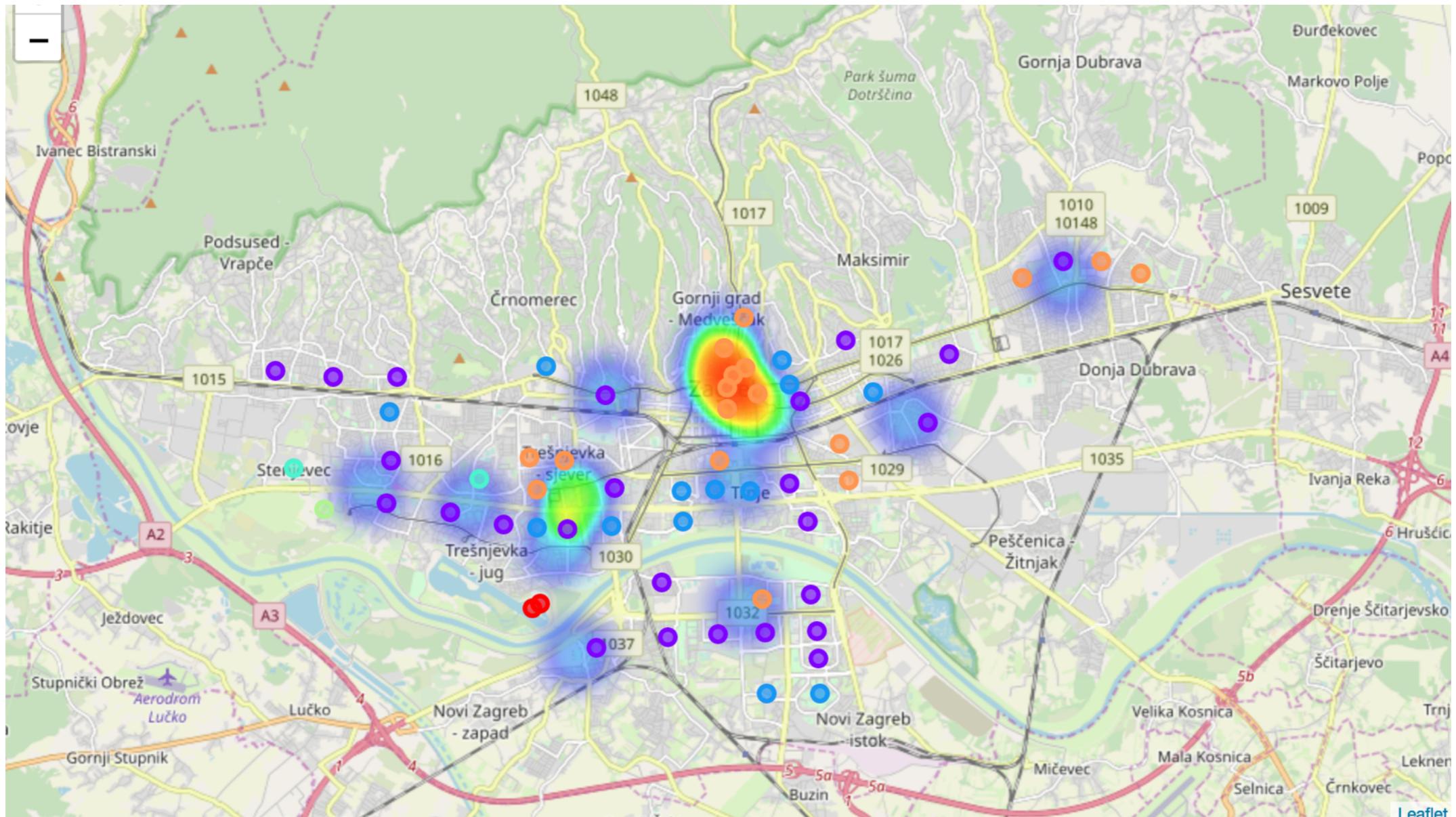
Segmented neighborhoods into 6 clusters. We are interested in 'orange', or 'central' cluster.

Heatmap of Nightlife Spots



The majority of the neighborhoods of 'orange cluster' are located in hot nightlife areas. Exceptions are far north-east (3 orange neighborhoods there), and several neighborhoods south of the center. Since the requirement for the location was low to moderate density of nightlife spots, we need to move out of central area.

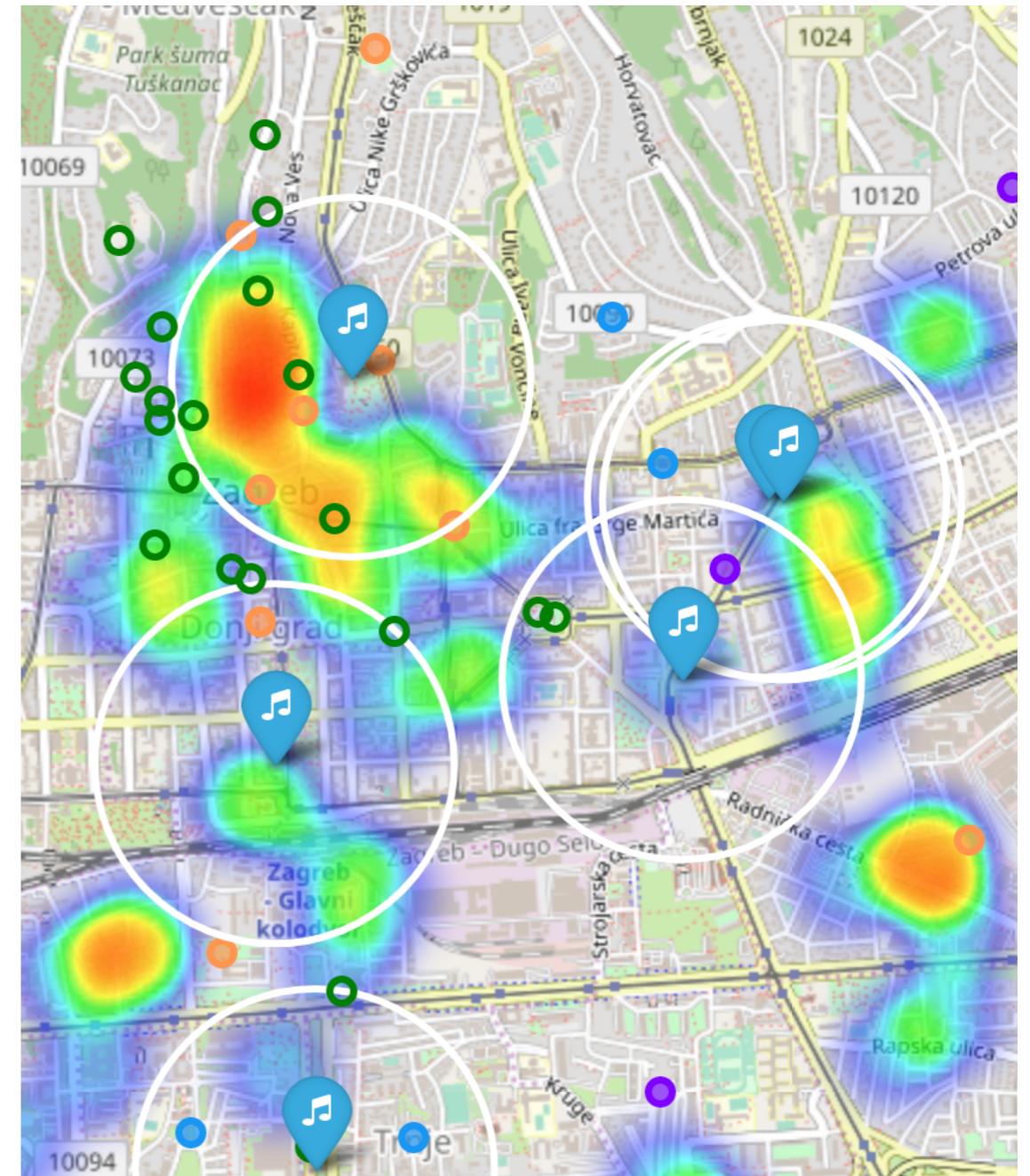
Heatmap of Arts Venues



This map is much less dense. The majority of arts venues are concentrated in the central districts. Outside that central part, we have several ‘orange’ neighborhoods in low-to-moderate arts density areas.

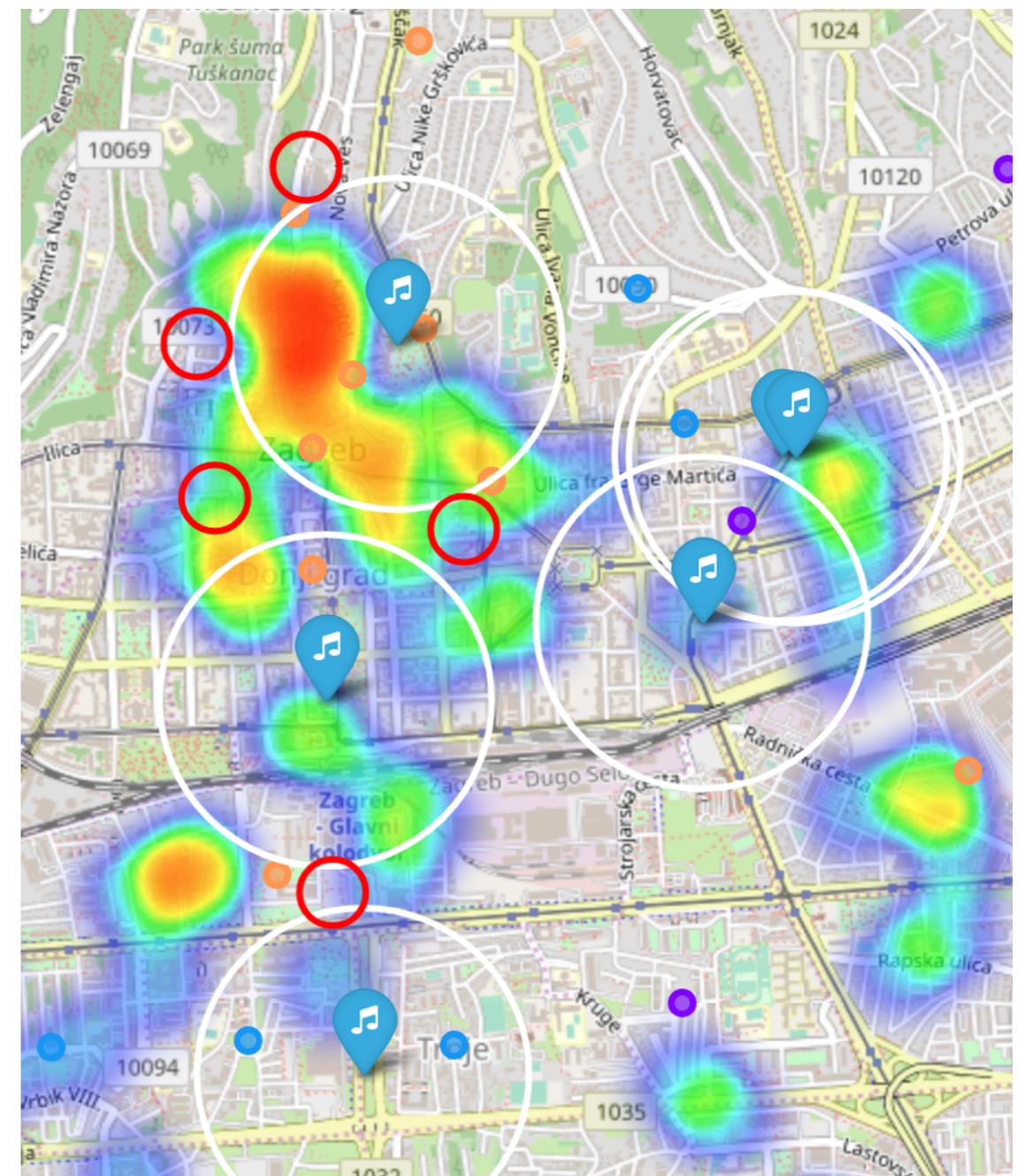
Choosing Locations in Central Districts

- ‘Orange’ neighborhoods (orange circles)
- 500m from competing music venues (white circles)
- Close to arts venues (green circles)
- Low to moderate density of nightlife spots (purple-green on heat map)



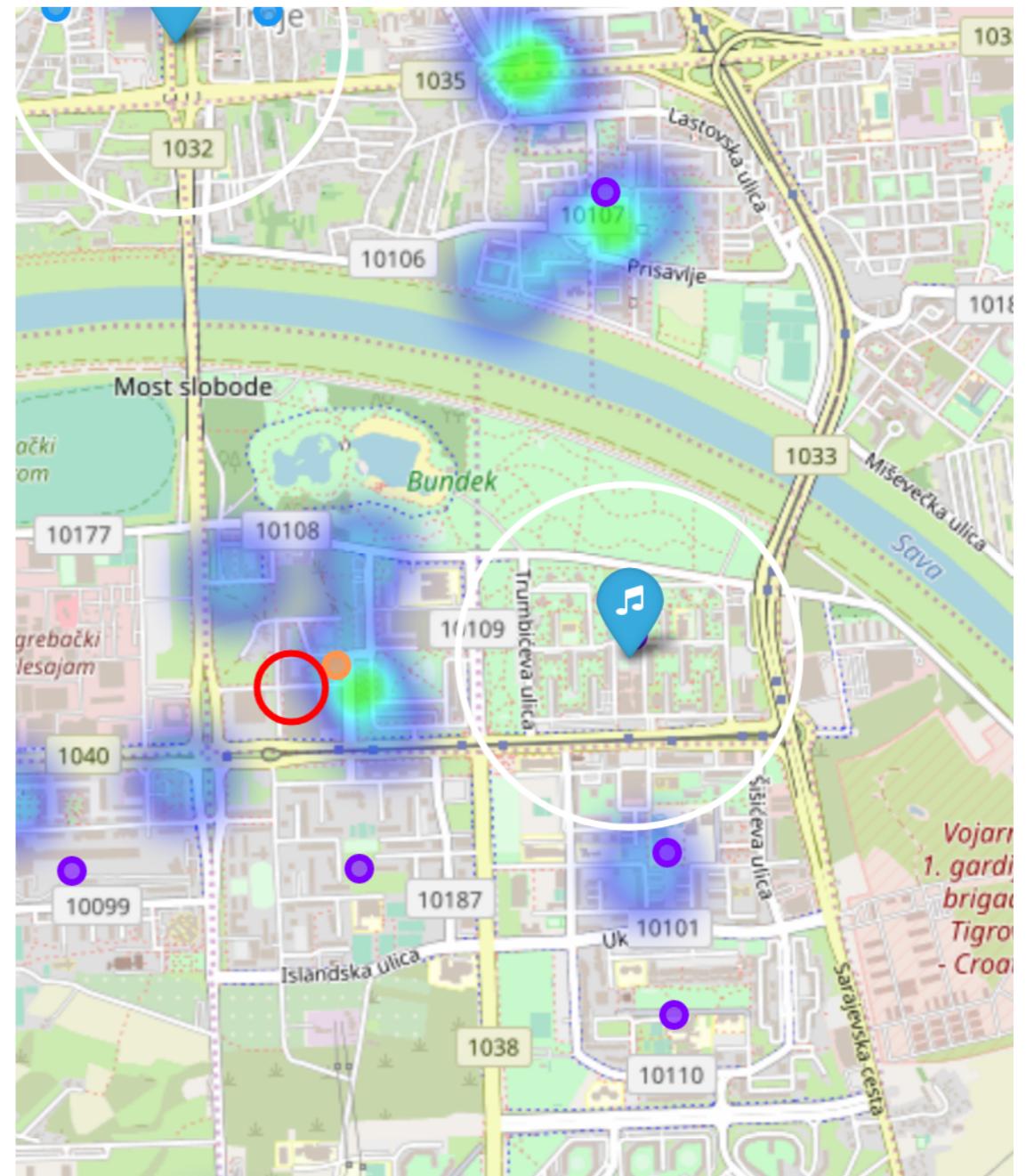
Selected Locations in Central Districts

- Selected 5 locations (red circles)
- 4 locations in the central area, 1 location further to the south
- Locations satisfy the stakeholder requirements
 - located in an 'orange' cluster
 - no competing venues with 500m
 - low-moderate density of nightlife spots
 - arts venues nearby



Choosing location in Središće neighborhood

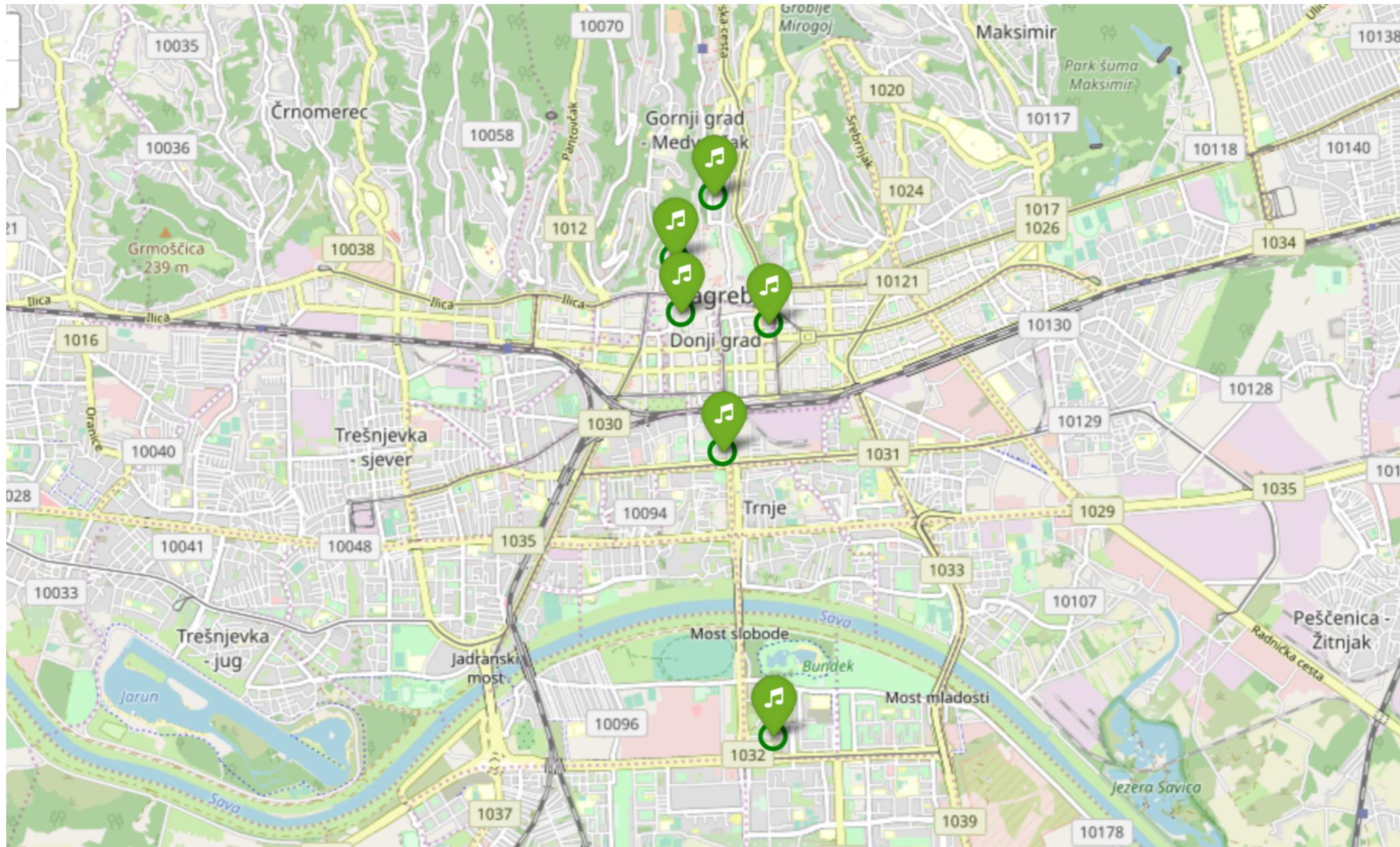
- Located far from city center
- Located in nice area
- Museum of Modern Arts nearby
- Low to moderate nightlife spots density
- More than 500m from the music venue.



Summary of Suggested Locations

	Location	Latitude	Longitude	Distance from Center,km	Num Arts Venues within 250m	Num Night Venues within 250m	Num Competing Music Venues within 500m
1	Donji grad	45.811830	15.973250	0.330929	3	4	0
2	Tkalčićeva	45.816000	15.972560	0.469197	5	3	0
0	Gornji grad	45.810987	15.982906	0.516291	1	4	0
3	Medveščak	45.820780	15.976793	0.845270	2	0	0
4	Martinovka	45.801159	15.977822	1.337139	1	1	0
5	Središće	45.779329	15.983404	3.794393	1	1	0

Suggested locations on the map



Discussion and Conclusion

- 'Arts' venues are mostly concentrated in the central parts of the city.
 - This forced us to look for the desired locations in the central neighborhoods, where both, the music venue density (our first-tier competitors) and nightlife spots density (our second-tier competitors) were high
 - This prevented us from considering more remote neighborhoods from the same cluster.
- There are other factors that the stakeholder would need to consider
 - location availability,
 - commercial real estate prices in the area
 - other
- The locations we suggest fall into wide range of distances from the city center - the closest being 300m from the center, and the most remote almost 4km from the center.
 - This gives the stakeholder more flexibility, since real estate prices may be significantly higher in the central neighborhoods than in more remote areas.