



# Battle of Neighborhoods Florence by Night

IBM Data Science Capstone Project

# Introduction and scope

Target audience: business owner  
planning to open a new place

Market: Florence nightlife spots

Research question: identify most  
promising location and venue type  
for the new place

# Data acquisition and preprocessing

- ◇ Data acquired from several sources the core being Foursquare venues data
- ◇ See details below

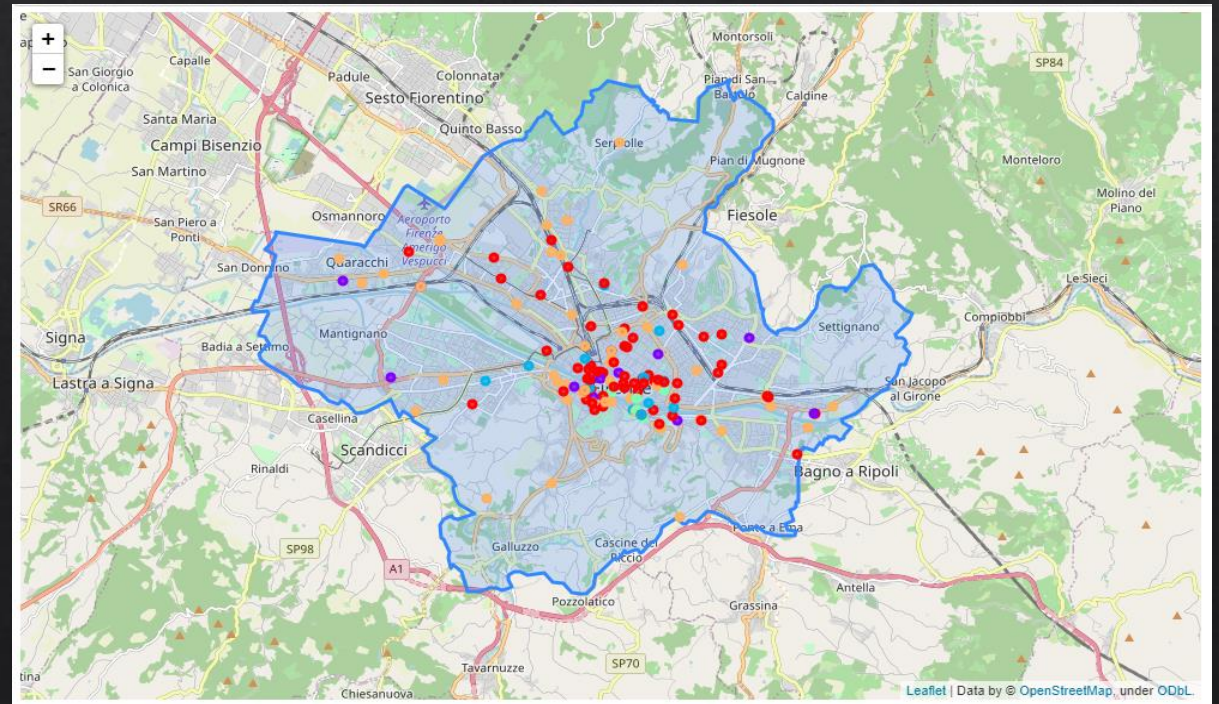
Data content	Data Source	Transformation and other processing steps
Venue Name, Geocoordinates, Category and ID	Foursquare API v2 explore endpoint	
Venue District	Foursquare API + Openstreetmap Nominatim	based on districts boundaries
Venue Neighborhood	Foursquare API + Openstreetmap Nominatim	based distance to neighborhood center
Venue Market Category	Foursquare API explore + categories endpoint	venues divided to competitors, other relevant and irrelevant
Venue Likes	Foursquare API venue details endpoint	NaNs filled, log transformation
Venue Pricetier	Foursquare API venue details endpoint	NaNs filled
Venue Tips	Foursquare API venue details endpoint	NaNs filled, log transformation
Venue Rating	Foursquare API venue details endpoint	NaNs filled, log transformation



# Classification model

- ◆ DBSCAN algorithm
- ◆ Features: are venue details, likes, tips, rating
- ◆ Identified one cluster ahead of the rest
- ◆ Items in cluster 3 are bars in San Niccolo and Oltarno

Cluster Labels	Venue Rating	Venue Pricetier	Venue likes	Venue tips
outliers	7,4	1,9	35,5	14,2
0	7,5	2,1	36,3	16,3
1	7,4	2,2	12,1	6,2
2	7,0	1,8	6,8	3,8
3	8,1	1,8	93,7	35,2



# Regression model

- ◇ Linear regression model
  - ◇ Target: venue likes
  - ◇ Features: venue location (neighborhood), venue type and price tier
  - ◇ Best locations: Oltarno, San Niccolo, Statuto
  - ◇ Nightclub is the best venue type
  - ◇ Middle priced venues are liked the most

# Conclusion and future directions

- ◇ Created models to identify the locations and the venue profile
  - ◇ Ideal location is San Niccolò or Oltarno
  - ◇ Ideal venue type is bar or nightclub (location is more important)
- ◇ There's still need for further research regarding the following questions.
  - ◇ Positive and negative external effects of the proximity of different venue types on the operation of bars.
  - ◇ Customer behavioural patterns during a night out in the city.
  - ◇ Regulations in different parts of the city.
  - ◇ Level and type of market competition.
  - ◇ Cost and availability of potential places.
  - ◇ Possible marketing and pricing strategies might be specific to location.