A beautiful city for a good investment

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Introduction

Naples is the city where I was born. It is in Italy and is a wonderful city, near the sea and with a mild climate.

In this city you can eat very good food everywhere, from pizza to pasta and thousand of different cakes.

It is a city of art, full of museums and churches where you can find different art styles as Baroque, Neoclassicism and Romantic.

It is historic since the city was conquered by different population in the past as Angevin and Aragonese.

The people are very kind with everyone and it is an alive city also for night life.

It is a city of culture, indeed, there are different universities which are very important as University Federico II that is one of the oldest in the world.

The site Teleport ([1]) asserts:

> *Naples, Italy, is characterized by reasonably priced housing. Our data reflects that this city has a good ranking in healthcare and tolerance.*

The site also considers Naples as 17th from a total of 163 countries for what each country on earth contributes to the common good of humanity, and what it takes away, relative to its size.

The mayor is trying to give an impulse to the city. He is facing the criminality and dealing with public debt, aiming to increment tourism. In the 2014 and 2013 he could get the charge to host respectively the **Copa Davis** and **Copa America**.

Naples is a city with a very high density of population so it could be a good investment for a local as a restaurant, or hotels, or pizza shop, coffee shop.

I want to use data to show what is the best area for an investment by stakeholders in these city.

Data Requirements

Naples is structured in Municipalities and Neighborhoods. There are 10 municipalities and 31 neighborhoods. I want to find the best area for an investment in commercial area. So I want to get the venues for every municipality, do a clusterization of municipalities according their venues and then find the area. Mainly I need for this geospatial data. In particular, the data I will need for my notebook are:

- Data for economy of the city. I will use BeautifulSoap[1] to scrape these data from Wikipedia [2];
- Data for municipality and neighborhoods. I will use BeautifulSoap to scrape these data from Wikipedia[3];
- Data for boundaris of every municipality. I will download the data from open data of the website of the city[4]. These data are in the shapefile format. This format is a GIS (Geospatial Information System) standard for geospatial data. Every data is described in the standard WKT (Well Known Text) that describes an element of a map with Point, Linestring, Polygon. In this case the data are polygons that are difficult to manipulate. Yet, from polygons is possible to extract the boundaries as Linestring and the centroids as Point. I did this with an opensource tool QGIS. With shapefiles of boundaries and centroids it is easier to visualize Municipalities on Folium[2] map. In figure 1 you can see an example of what I mean.;
- Data for climate of the city. Being a city of sun, with a good climate, it is full of tourists the whole year. I will scrape them from a site[5] with BeautifulSoap;
- Data from Foursquare API[3] to extract venues for every municipality. The referring point for every municipality is the centroid of the municipality extracted as seen before;

As I mentioned the idea is to cluster municipality by venues, analyze the features of clusters. Then do a heatmap for the area of investement described previously and for every area find what is the best place to invest using density map or contour map.

[1] BeutifulSoap is a powerful Python library for scraping website

[2] Folium is a Python library to visualize geospatial data on a map

[3] he Foursquare Places API provides location based experiences with diverse information about venues, users, photos, and check-ins

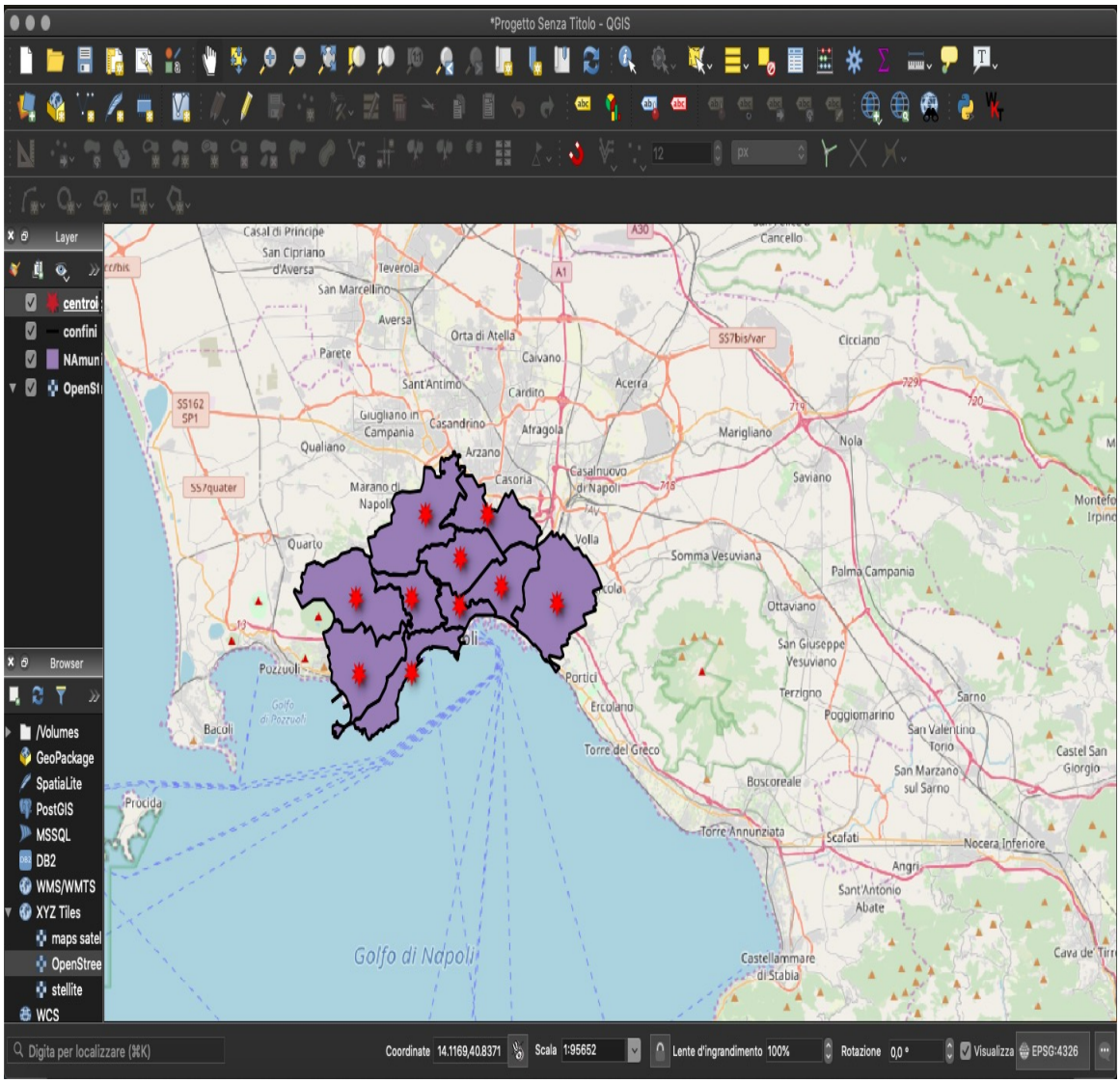

Figure 1: Example of shapfile imported in QGIS. In violet the polygons representing the municipalities. In black the boundaries. In red star the centroids.

Bibliography

[1] https://teleport.org/cities/naples/

[2] https://en.wikipedia.org/wiki/Naples

[3] https://it.wikipedia.org/wiki/Municipalit%C3%A0_di_Napoli

[4] http://www.comune.napoli.it/flex/cm/pages/ServeBLOB.php/L/IT/IDPagina/26531

[5] https://en.climate-data.org/europe/italy/campania/naples-4561/