



CAPSTONE PROJECT

THE BATTLE OF NEIGHBOURHOODS



coursera

***A COMING BACK FOR THE TURIN
TOURISM POST-COVID***

DESCRIPTION OF THE PROBLEM

The worldwide outbreak of COVID-19 has brought the world to a standstill, and tourism has been the worst affected of all major economic sectors. The coronavirus crisis has flung Europe's tourism sector into chaos, with borders closed and airlines grounded. But if that is frustrating for holidaymakers, it risks ruining holiday businesses and devastating the economies that depend on them. The losses are already dramatic. **The European commission estimates that the EU's hotels and restaurants will lose half their income this year. Tourism revenues fell by 95% in Italy and 77% in Spain in March,** according to the banking group UBS. Across southern Europe, where recovery from the 2008 crisis relied to a significant extent on tourism, the sector is vital to national economies. It accounts for 20% of GDP in Greece, 18% in Portugal, 15% in Spain and 13% in Italy, according to the World Bank.



DESCRIPTION OF THE PROBLEM

The project here presented is aimed at promoting tourism in the city where I live: Turin in Italy. Using Data Science I will provide a data-driven description of the city that can capture the interest of those like myself that might be planning some holidays as soon as the covid-19 pandemic is solved (let's hope soon).

- The city, has recently experienced an important change in its tourism appealing thanks to the experience of the 2006 Winter Olympic games. The data shows that until 2006, Turin had barely a million tourists per year. Once the Games took place, this number shot up, reaching about six million. Thanks to such an increase, Turin has climbed up to become one of the most tourist-populated cities in the whole country, placing just after Rome, Venice and Florence. And before 2006, only 40 per cent of the Milky Way Alpine ski location's customers were foreigners. Now, this number is around 85 per cent.

The purpose here is to help the city coming back to those figures, highlight and promoting the different activities and areas of the city in order to enjoy your vacation time. My stakeholders? All those whose businesses are inevitably related to all tourism activities (Hotels, Museums, Restaurants, Bars, ..) too many to enlist all.

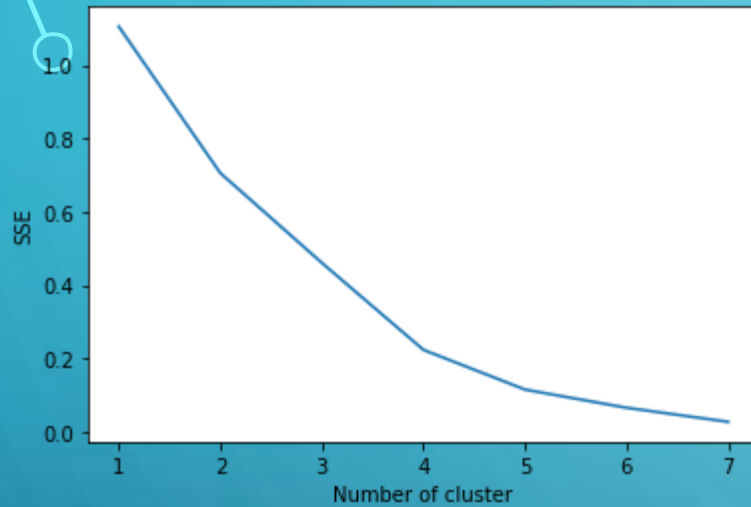
THE DATA



Relying on the Python API for Foursquare there have been collected the most important places of the city of Turin.

In details, these have been retrieved for each of the eight districts of the city.

THE ALGORITHM



For the project it has been followed a Supervised approach by relying on the K-mean clustering.

In details, the K-means is a clustering algorithm that tries to partition a set of points into K sets (clusters) such that the points in each cluster tend to be near each other. It is unsupervised because the points have no external classification

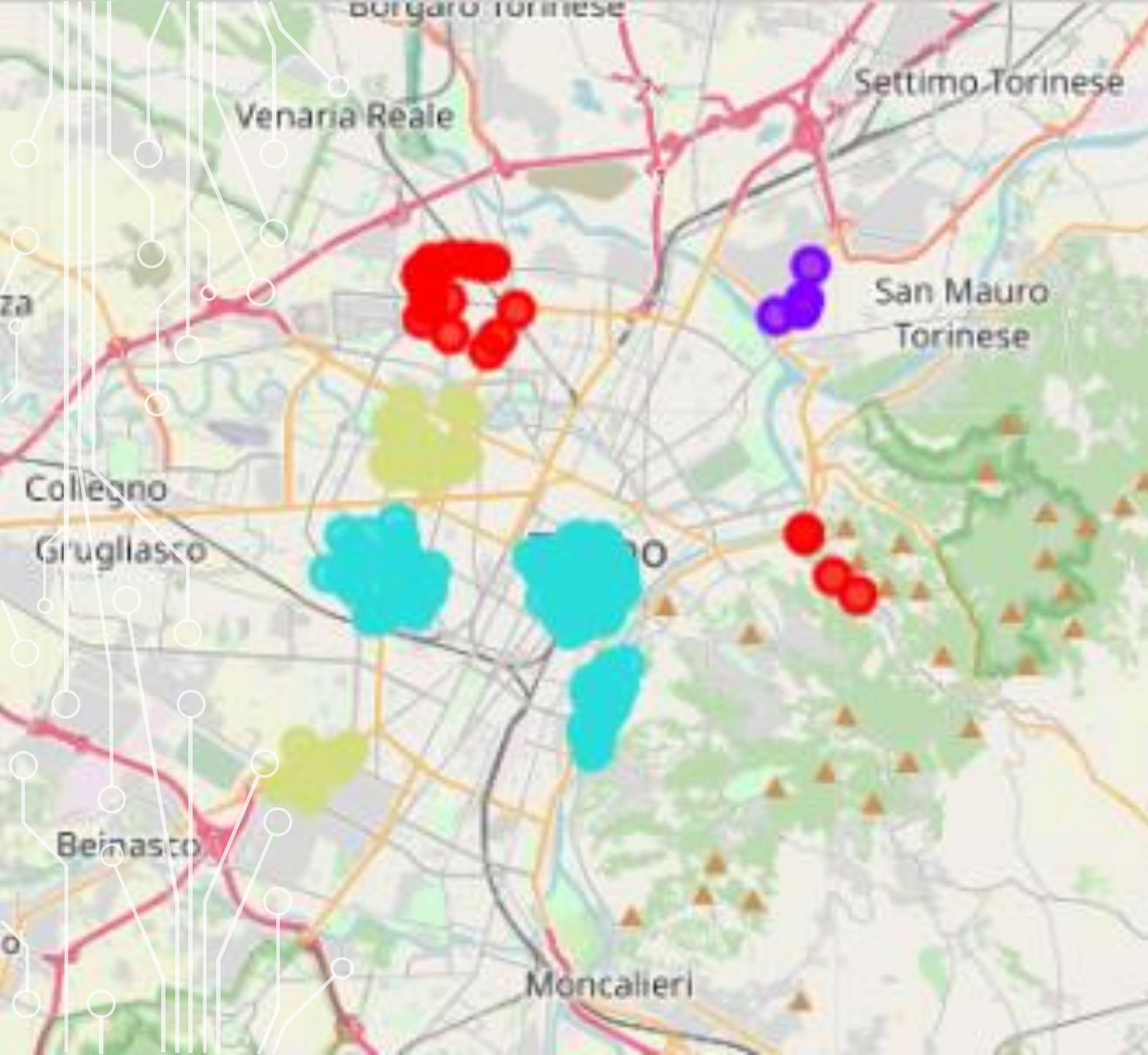
For determining the number of clusters to be used, it has been considered the Sum of Squared Error (SSE) distribution on the left and it has been decided to rely on a **four clusters** design, following the so-known “Elbow rule”.

A LOOK AT THE CITY

In the map on the left it has been reported in a different colour all the clusters identified by the algorithm.

But a question here raises, which Cluster (City Area) is most able to meet the “Tourist expectations” ?

In order to reply to this question some basic data analyses are needed.



A TOURIST STANDPOINT

```
Cluster_Turin_City=pd.merge(Cluster_Quartieri, rslt, on='Cluster', how='inner')
Cluster_Turin_City
```

	Cluster	Circoscrizione	top1	top2	top3	top4	top5
0	0	5, 7	Italian Restaurant	Austrian Restaurant	Bus Station	Clothing Store	Coffee Shop
1	1	6	Café	Pizza Place	Supermarket	Argentinian Restaurant	Art Museum
2	2	1, 3, 8	Pizza Place	Café	Plaza	Hotel	Italian Restaurant
3	3	2, 4	Café	Pizza Place	Chinese Restaurant	Italian Restaurant	Park

According to the table above as a Foreign Tourist the areas of Turin that fall within the **Cluster 2**, depicted in blue in the map, seem to be the most enjoyable ones. This Cluster is characterized by the presence of an high number of places where to go to get some typical Italian food (Pizza Place and Italian Restaurant) or simply to enjoy a Coffee and having a walk on the most central city squares, such as *Piazza Vittorio Veneto*. Among the underlying districts composing this cluster it is possible to found the *City Center*, *Cit Turin*, *San Salvario* and *Borgo Po* which can, of course, provide a really nice stay.

REFERENCES

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THANKS FOR YOUR ATTENTION