

CORONAVIRUS PANDEMIC IN BERLIN: WHEN SHOULD THE LOCKDOWN END?

April 28, 2020

INTRODUCTION

- The coronavirus is spreading rapidly in many countries and the number of deaths is still climbing, also in Berlin.
- Government must balance saving lives today with long-term damage to society. The risk of lifting the lockdown too soon, is another explosive outbreak.
- Where, when and which restrictions to lift, are big decisions for governments to make.

DATA ACQUISITION

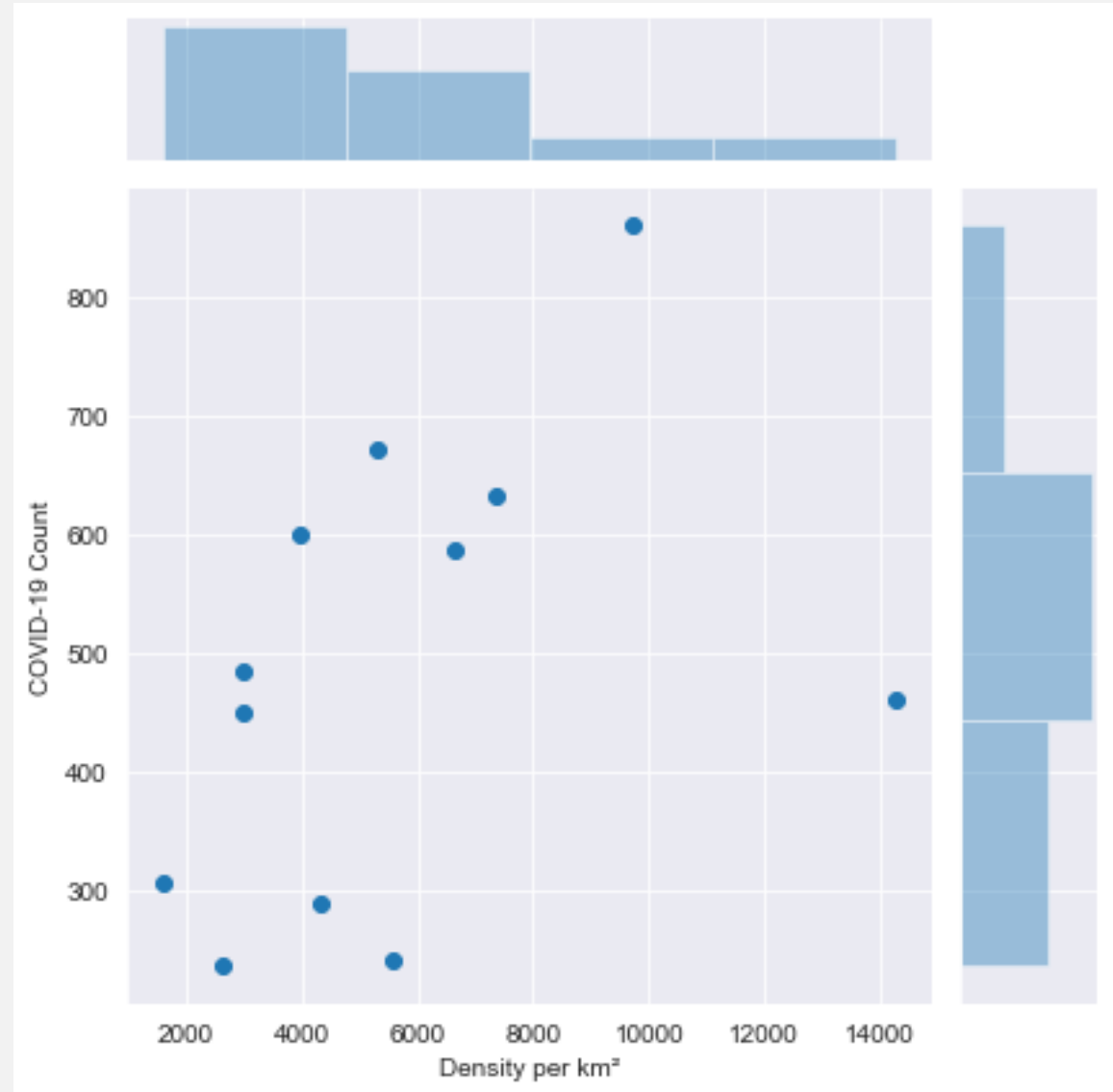
- The official [website](#) of Berlin to get the actual confirmed coronavirus cases in the different boroughs.
- Wikipedia [page](#) for Berlin boroughs data (including Density per km²).
- [Foursquare](#) API to get the location data for recommended venues and top picks in Berlin.

CREATING A DATASET

	Borough	Density per km ²	COVID-19 Count
0	Mitte	9733.0	861.0
1	Friedrichshain-Kreuzberg	14246.0	460.0
2	Pankow	3956.0	600.0
3	Charlottenburg-Wilmersdorf	5289.0	672.0
4	Spandau	2656.0	236.0
5	Steglitz-Zehlendorf	3010.0	485.0
6	Tempelhof-Schöneberg	6622.0	587.0
7	Neukölln	7338.0	632.0
8	Treptow-Köpenick	1610.0	307.0
9	Marzahn-Hellersdorf	4347.0	289.0
10	Lichtenberg	5592.0	241.0
11	Reinickendorf	2970.0	451.0

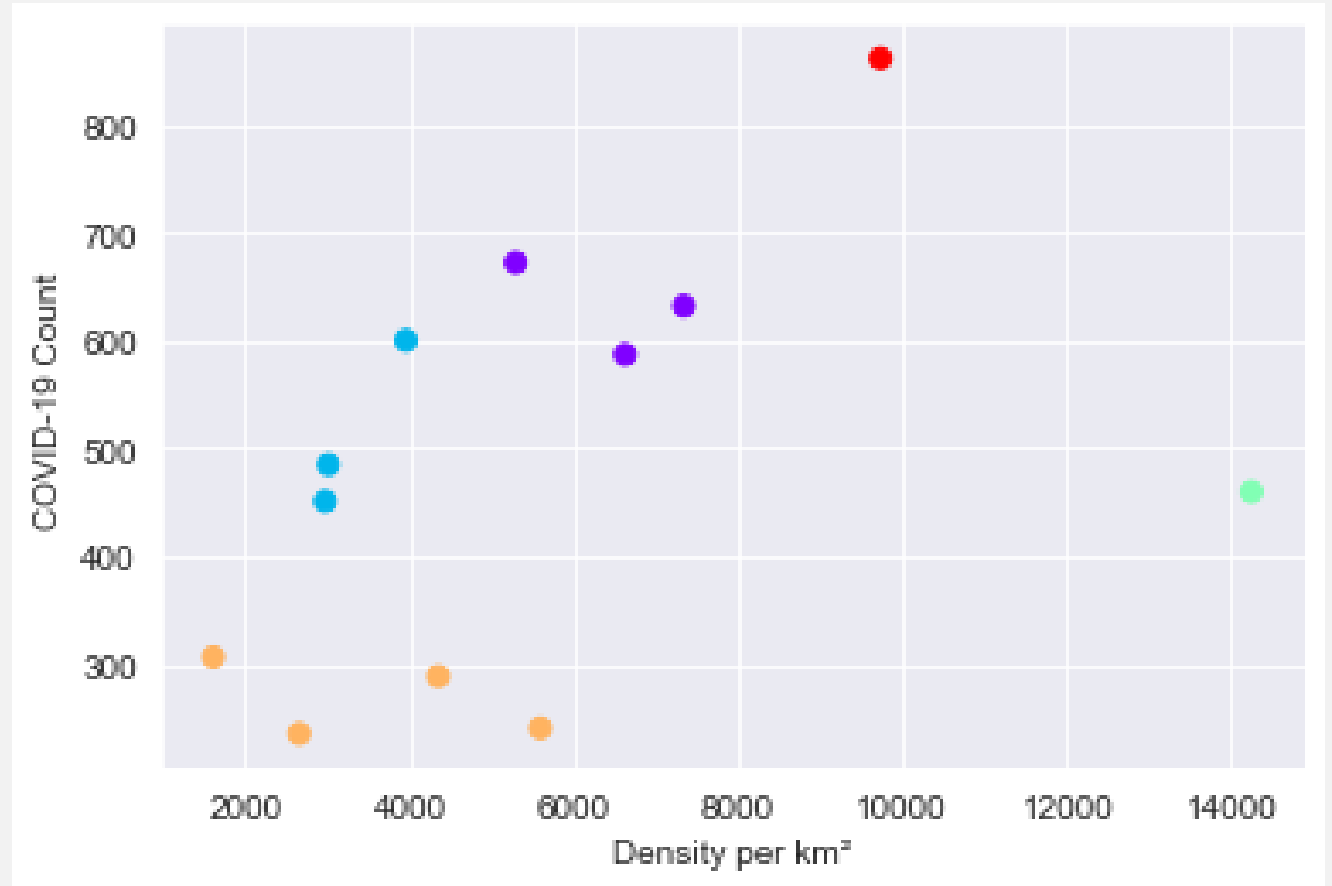
SCATTER PLOT

- No clear relationship between Density per km² and COVID-19 Count.
- Pandas correlation (Pearson) calculation proves that we have no significant correlation (0.426).



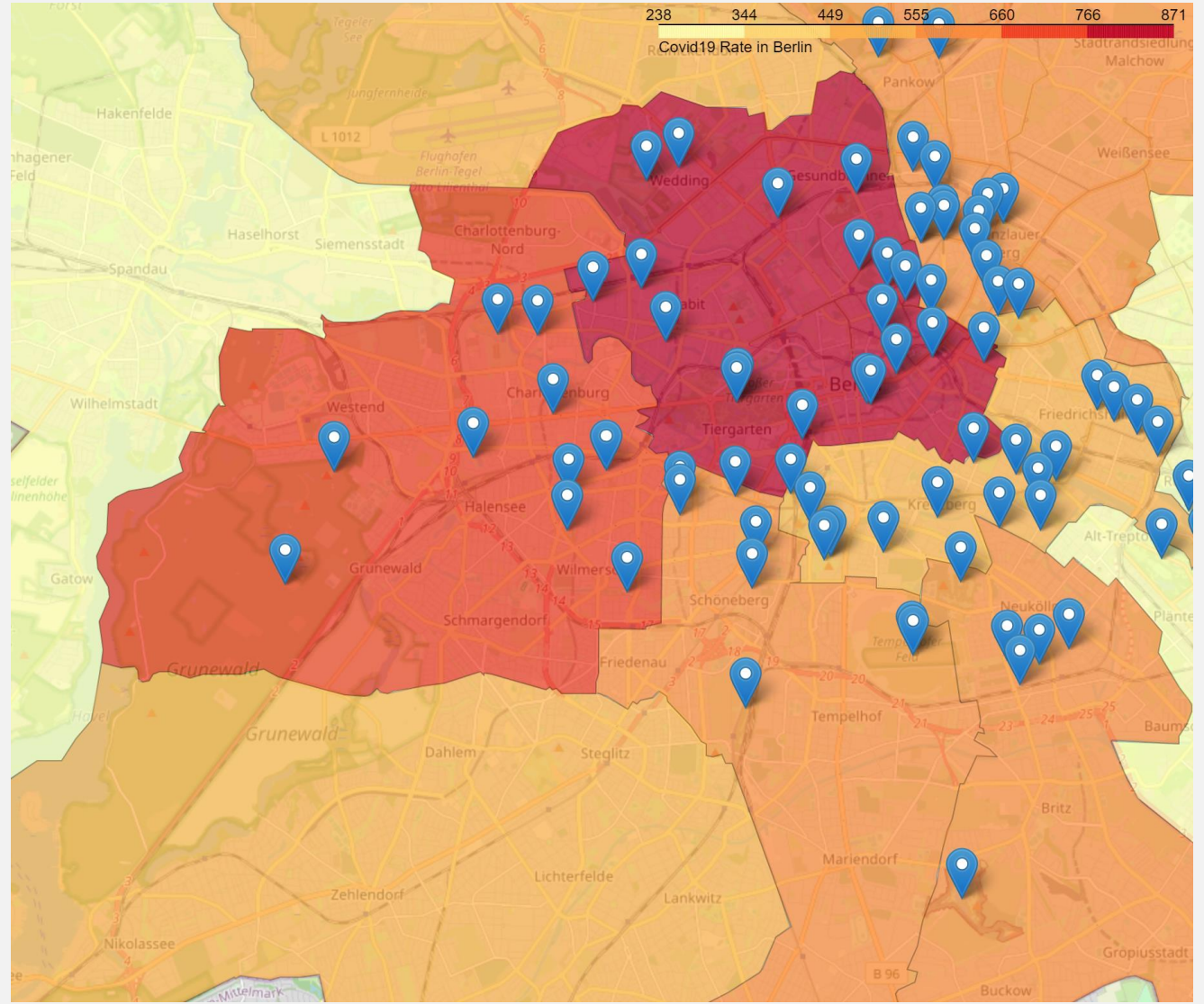
CLUSTERING

- Green cluster: Friedrichshain-Kreuzberg, highest population density, but moderate infections.
- Red cluster: Mitte, highest coronavirus cases.
- Orange cluster: Treptow-Köpenick, Marzahn-Hellersdorf, Lichtenberg, Spandau, low infections.
- Blue cluster: Pankow, Steglitz-Zehlendorf, Reinickendorf, moderate coronavirus cases.
- Purple cluster: Charlottenburg-Wilmersdorf, Tempelhof-Schöneberg, Neukölln.



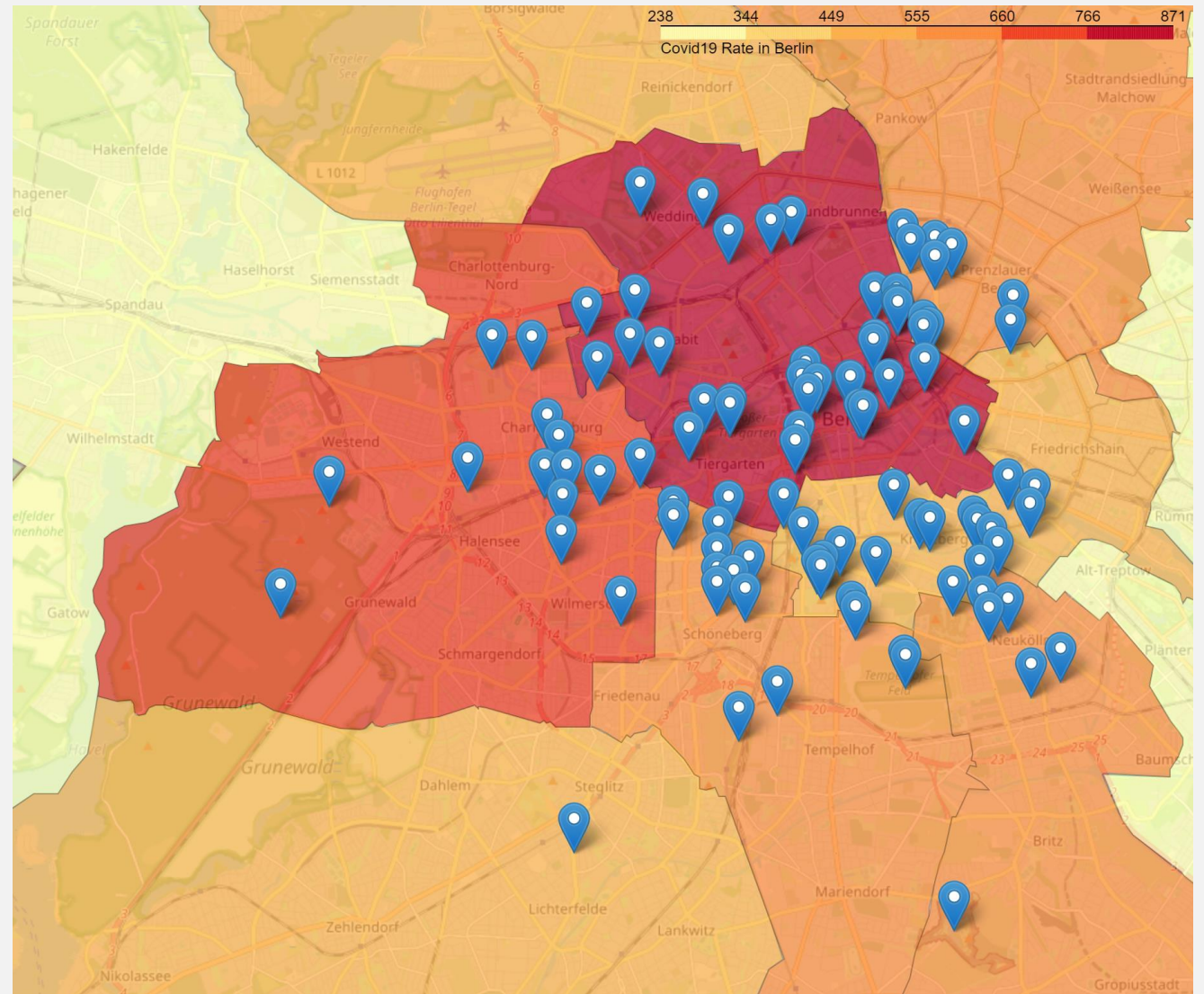
CHOROPLETH MAP WITH TOP PICKS MARKERS

- Using Foursquare API and the property topPicks (a mix of recommendations generated without a query from the user) for the markers.
- Broughts with many top picks does not implicate high spread of the coronavirus.



CHOROPLETH MAP WITH RECOMMENDED VENUES MARKERS

- Boroughs with many recommended venues does not implicate high spread of the coronavirus.
- For example, the borough Friedrichshain-Kreuzberg has moderate coronavirus cases although the borough is trendy, popular among tourists and Berliners and offers many recommended venues.



CONCLUSION

- Explanatory data analysis used to discover insight from Berlin borough data and location data.
- No clear relationship between population density in the different Berlin boroughs and confirmed coronavirus cases.
- Also, boroughs with many recommended venues does not implicate high coronavirus infections.
- Further and continuous analysis with more data (e.g. demographics, more tested people) is necessary to discover better insight and as a result better decision.
- Strategy of our government, bringing cases down quickly and making every two weeks decisions regarding the restrictions, is a good plan.