

# COVID-19: BEHIND THE NUMBERS

Data Mining and Machine Learning Project

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## 1 Introduction

**Decemebr 31, 2019:** *Wuhan Municipal Health Commission, China, reported a cluster of cases of pneumonia in Wuhan, Hubei Province. A novel coronavirus was eventually identified.*

**January 1, 2020:** *World Health Organization (WHO) had set up the Incident Management Support Team across the three levels of the organization: headquarters, regional headquarters and country level, putting the organization on an emergency footing for dealing with the outbreak.*

**January 5, 2020:** *WHO published the first Disease Outbreak News on the new virus. This was a flagship technical publication to the scientific and public health community as well as global media.*

**January 12, 2020:** *China publicly shared the genetic sequence of COVID-19.*

At the beginning of 2020, a new virus started spreading around China. As it turned out, this was the start of a world-changing event with overwhelming extent. After the first wave of the virus has passed over the entire world, the aim of this work is to address the following questions:

- Which countries have been affected the most by COVID-19?
- Which governments have taken the right actions to stop the spreading of the virus?

- Is it possible to build personalized predictive models for symptomatic COVID-19 patients based on basic preconditions?

In order to fully answer these questions, first of all a reliable and big enough dataset was needed. Second, Data Mining and Machine Learning techniques were applied in order to obtain statistically significant results that could help address the proposed questions. In the following pages the described work and the resulting Python software is presented. The software architecture is presented in the very last section in order to focus primarily on the dataset retrieval and preprocessing, and on the analysis techniques and results.

## 2 Dataset

## 3 Analysis

## 4 Conclusion

## 5 Software Architecture

## References

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