Data Challenge v2: COVID-19

Course name: Artificial Intelligence in Data Science
Neptun ID: BMETE15MF75

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Introduction

Data is thought to be the oil of the 21st century. Predicting correlations and future numbers are crutial in most areas of our economy. The aim of the Data Challenge is to provide hands-on experience in data prediction.

Data

European data is available at `https://www.ecdc.europa.eu/`. More specifically:

- Daily reported cases: `https://www.ecdc.europa.eu/en/publications-data/download-todays-data-geographic-distribution-covid-19-cases-worldwide`,
- Policies: `https://www.ecdc.europa.eu/en/publications-data/download-data-response-measures-covid-19`
- Vaccination: `https://www.ecdc.europa.eu/en/publications-data/data-covid-19-vaccination-eu-eea`
- Data page: `https://www.ecdc.europa.eu/en/covid-19/data`

Task

Your task is to build an algorithm which predicts the efficiency of the different government measures and vaccination against the spreding of the virus. Try to predict future curves for at least 5 countries for two weeks ahead. Save them into data files which later one can compare to data.

More specifically:

1. Clean the data
2. The number of cases needs to be rescaled especially if the positiv test rate is above 5%
3. Categorize the government measures, keep only ones you find relevant
4. Build model which predicts future number of cases based on the past and government measures
5. Other parameters you may need to include:
   (a) Season, or month. It seems that at least in Europe the virus has a strong seasonality
   (b) Variant. This I would include as a number not as a category, as it is known that β variant is more viral than α, by at least a factor two, and δ has an other factor two over β
6. We ask you to submit a short documentation (max. 2 A/4 pages), in which you tell
   - why have you chosen the given methods
   - what kind of difficulties and problems have you encountered and how you solved them, this can be used to describe why you were not successful
   - how have you reached your final result
7. When copying code from a website, you need to cite the source (at least as a comment in the code or in the documentation).