

Visualizing the impact of government measures regarding COVID-19

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COM-480 Data Visualization Project

Introduction

The goal of this project is to offer a tool allowing the user to quickly and intuitively see the impact of the COVID-19 virus and the measures taken by the government to counter it. It will not only show what measures were more effective, but also how the general public reacted and adapted to those measures, how it affected our everyday life and the economy in general.

We aim to provide a global tool with data from all around the world. The first reason for that is to allow the user to get information from whatever country is of interest to him. The second reason, and the most important one, is to give an easy-to-use tool to compare statistics of different countries, how they reacted to the crisis and how well they managed it.

Data

For the vast majority of the project, we will use data from the Kaggle dataset [UNCOVER COVID-19 Challenge](#), provided by the Roche Data Science Coalition (RDSC). This dataset is composed of a curated collection of over 200 publicly available COVID-19 related datasets from trusted sources. It includes data on a wide variety of potentially powerful statistics and indicators, like local and national infection rates, global social distancing policies, geospatial data on movement of people, and more.

More precisely, we plan on using data from four different sources:

- Johns Hopkins University : Data on the number of cases, deaths and recoveries for all countries.
- University of Oxford : Data on the number of COVID-19 tests performed for all countries.
- ACAPS: Data on government measures for all countries along with the date of implementation.
- Google “COVID-19 Community Mobility Reports”: Data on the change in mobility of the population in all countries.

Outline

The project will be divided into three parts, each containing a visualization of some different data. All of those parts will be linked to each other with respect to the countries chosen in the first part, providing the user with a full overview of the data available for those countries and showing some intuitive comparisons.

1. A general view of COVID-19:

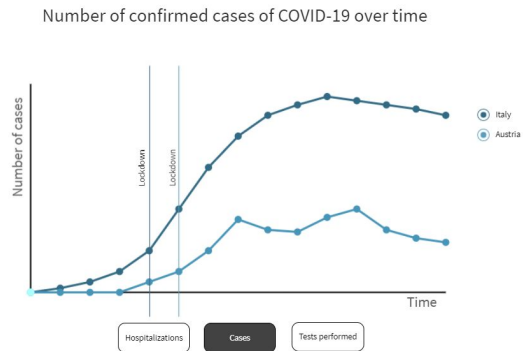
The goal for this part is to give an idea of the impact of COVID-19 for different countries. The main visualisation in this part will be a choropleth of the world. The data shown can be selected with deaths, cases available. Hospitalisations and over-mortality may be added later. The map will be dynamic and evolve with time. For further inspection of a country or groups of countries, it will be possible to make selections that will affect the next visualizations.



The image on the left illustrates what the landing page will look like: an interactive globe with a choropleth applied on top will be used to plot different quantities: the number of deaths, active cases, number of tests or also types of measures chosen by countries (lockdown, school closure). The purpose of the globe is to show some basic information about the countries to incite the user to compare them in more detail.

2. The impact of government measures

Linked to the first visual with respect to the countries selected, this second visual aims to show the evolution of number of cases and tests performed along with information on measures taken by these countries. The goal of this visualization is to allow the user to get an idea of the impact of the different measures taken by the government.



3. The evolution of mobility in light of COVID-19



Linked to the country selection again, this visual aims to show the evolution of the population's mobility. This evolution is divided in five different categories: retail, grocery & pharmacy, parks, transit stations, workplaces and residential.

Tools

The tool we will use for this project is mainly d3.js with particularly map, choropleth, time-series and linked plot visualisations. We will use the brush tool for the time selection. The corresponding chapters of the course are chapters 4, 5, 7 and 8.

Extra ideas

The dataset we are working with is very large and has a lot more data that we do not really plan on using as far as our minimal viable product goes, yet remain very interesting. For example, we have data on the exact location (longitude, latitude) that people were tested for the virus, and could use this data to increase the precision of our choropleth. If time allows, we would use this surplus of data to improve or add more visualisation that stays within our main goal.

Project prototype

You can find a prototype for the current progress [here](#). The maps are to be adapted to the new dataset and the map visualisation will be transformed to a globe.