Visual Analytics of COVID-19 Immunization Data

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Motivation

Figure 1: Vaccination

- Globally, COVID has a lot of negative effects, and it is continuing to be dangerous. We can all agree that prevention is better than cure, thus the WHO has developed vaccines to fend off covid and lessen its effects should someone contract it.
- Higher immunization dosages and better vaccinations, however, can help prevent the severity regardless of the circumstances. Hence, we would like to portray the covid data in this project in the form of visualization dashboards on the density of covid instances and vaccines using Kaggle datasets and WHO datasets that may be used by the WHO officials or other authorities who take decisions on vaccinations.
- We have made use of John Hopkins real time dataset.

Figure.2. Johns Hopkins Data set.

Related Work

- Over the previous two years, a huge number of dashboards and visualizers for the COVID-19 epidemic have been created. These dashboards primarily tracked the number of cases, fatalities, positive rate, and rate of global COVID-19 spread.
- Moreover, we have come across some symbol maps, bar charts and map projections which we felt that they are not that informative and does not contain much information about vaccinations.
- So, we have mainly focused on immunization data which we think is more helpful for the Heath Organizations to take preventive measures to reduce the effects of the dangerous virus.

Visualizations

Our immunization dashboard Includes:
- Covid Vaccination rate as of October 2022
- Countries by percentage population Fully Vaccinated
- Cardiovascular Death Rate
- Cases vs Vaccinations
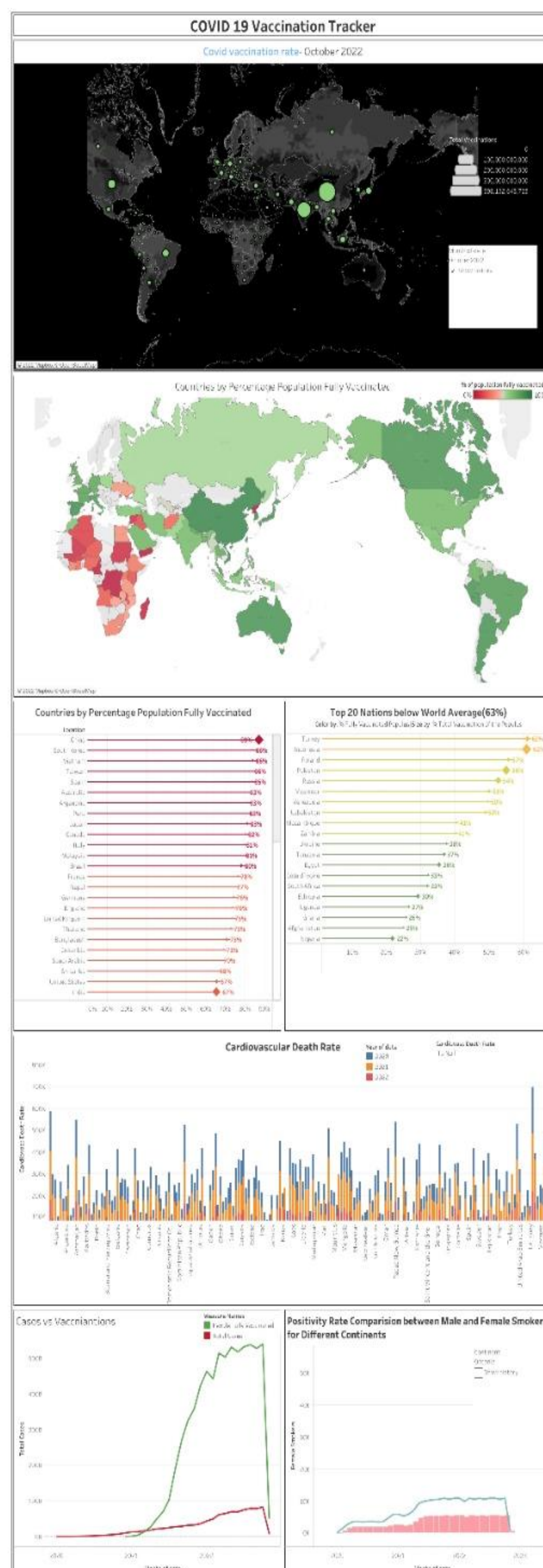- Positivity Rate Comparison between Male and Female Smokers for Different Continents

Figure.3. Visualization Dashboard

Summary

- The dashboard contains vaccination details giving the information on the top countries with highest vaccination rate.
- The visualizations are interactive and dynamic enabling the users to hover on the visualizations to get the details of a particular countries
- The maps make use of the size and color hue.
- The lollipop charts and the maps are dynamic and changes according to the population given in the search option.
- The cardiovascular deathrate stacked bar graph along the years 2020,2021,2022.
- The cases vs vaccination graph contains two line graphs which contains one red line graph and one green line graph corresponding to cases and vaccination respectively.
- The positivity rate of the male and female smokers is shown in the form of bar graph and line graph in the same visualization.

Tools used

Figure.4. Tools

- Tableau is used to represent the visualizations.
- Tableau provides tableau public which is an open source visualization tool which can be used to publish the tableau sheet publicly.
- Python language is used for data cleaning where the functions bfill() and ffill() is used.
- Jupyter notebook is used as an environment to write the python code.

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