**Project Topic: Coronavirus Vaccination Dashboard**

**1.0 Project Aim:**

The aim of this project is to develop an interactive coronavirus vaccination data dashboard that provides a visualisation of public health metrics. The primary goal is to facilitate the understanding of complex health data and to present this data in an easy to comprehend format for researchers, policymakers, and the public.

* 1. **Research Questions**

The following research questions are developed to guide the realisation of this project.

* Is there a correlation between the rate of vaccinations and the decrease in new cases and deaths overtime?
* How do the total cases and deaths correlate with GDP per capita across various locations?
* How do other health factors corelate with total cases and deaths?
* Is there a correlation between the number of cases and stringency measure?
* How many vaccines have been administered in the last 24 months?
* How does age correlate with vaccine administration in various locations?
* Is there a correlation between the vaccine type and total death?

**We need to pick specific measurable aspects ( 1st does, 2nd does, booster etc, health factors in different countries look at the prevalence in those countries vs covid cases vs vaccinations etc). we should justify why we have chosen those aspects to analyse and observe the trends between them?**

1. \_id
2. iso\_code
3. continent
4. location / country
5. date
6. new\_deaths
7. total\_cases\_per\_million
8. median\_age
9. aged\_65\_older
10. gdp\_per\_capita

1. handwashing\_facilities
2. new\_tests\_smoothed
3. total\_vaccinations
5. people\_vaccinated
6. people\_fully\_vaccinated (2nd doses)
7. total\_boosters (3rd vaccination)
8. extreme\_poverty
9. female\_smokers
10. male\_smokers
11. hosp\_patients\_per\_million
12. excess\_mortality\_cumulative\_absolute
13. weekly\_icu\_admissions\_per\_million

# Story ?

# How was it spreading in countries that were not washing their hands properly compared to developed countries?

# First of all, Which countries have more hand washing facilities? Can we display a graph showing the countries and the data on hand washing facilities.

# As we know that when we are not properly sanitising our hands there is an increase in likelihood of contamination or spread of covid-19?

# In those particular counties is there a rise in deaths.

# In countries with more hand washing facilities is there more vaccinated people etc?

# In more vaccinated countries is there less covid cases?

# In populations that there are the selected health factors is there more cases of covid?

# Do vaccinations peak when there was a lockdown?

# Gdp vs total\_cases\_per\_million

# Is there a correlation between total covid cases and stringency index?

# Stringency index – government policies, numerical measure of how strict.

# Possible questions:

* How many vaccine doses have been administered in the last 12 months?

*Compare that to the beginning of the data set first 6 months and observe this in a selection of countries.*

# What share of the population has received at least one dose, and completed the initial vaccination protocol?

*Observe this in a selection of countries and the compare that to the number of covid cases in those countries.*

*(The following chart shows the total number of people that have completed the initial vaccination protocol. If a person receives the first dose of a 2-dose vaccine, this metric stays the same. If they receive the second dose, the metric goes up by 1.)*

* How many vaccine booster doses have been administered?

Look at a selection of countries and compare to 1st dose. Could also see if there is a trend with the number of covid cases.

*(The following charts show the number of****booster doses****administered. Booster doses are doses administered beyond those prescribed by the original vaccination protocol — for example, a third dose of Pfizer/BioNTech vaccine, or a second dose of Johnson & Johnson vaccine.)*

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***In addition to the research questions, we aim to tell a visual and interactive story of how COVID and vaccinations have increased over time in a map format.***

* 1. **Data source**

The dataset for this project would be collected from ourworldindata.org. The rationale for choosing this dataset stems from the idea that the dataset uses the most recent official numbers from government and health ministries worldwide. See the reference for link to the dataset.

* 1. **Roles and responsibility**
* Yasar Sabir – Project proposal document/ Develop interactive visualisations utilising Plotly and Leaflet
* Savina Boateng – Flask App
* Zeeshan Karim – Data cleaning
* Ifa Nira – Set up SQLite database using SQLAlchemy
* Beauty Ojimah – Develop interactive visualisations utilising Plotly and Leaflet

**Reference**

Edouard Mathieu, Hannah Ritchie, Lucas Rodés-Guirao, Cameron Appel, Charlie Giattino, Joe Hasell, Bobbie Macdonald, Saloni Dattani, Diana Beltekian, Esteban Ortiz-Ospina and Max Roser (2020) - "Coronavirus Pandemic (COVID-19)". Published online at OurWorldInData.org. Retrieved from: 'https://ourworldindata.org/coronavirus' [Online Resource]

Schedule

Day 1: Project Initiation and Data Collection

* Yasar Sabir: Finalize project proposal document. Set up Github repo, whatsapp group and slack group.
* Savina: Collect and clean the COVID-19 vaccination dataset from [ourworldindata.org](http://ourworldindata.org/).
* Ifa: Find and append Geo location coordinates

Day 2: Flask App Development and Data Integration

* Savina Boateng: Develop the Flask app foundation with basic routes.
* Ifa Nira: Set up a SQLite database using SQLAlchemy.
* All Team Members: Review and provide feedback on Flask app development progress.

Day 3: Data Analysis and Visualization

* Savina Boateng, Zeeshan Karim, Beauty Ojimah: Begin developing interactive visualizations using Plotly and Leaﬂet.
* Ifa Nira: Implement database queries to retrieve data for visualizations.
* All Team Members: Review initial visualization concepts and provide feedback.

Day 4: Dashboard Design and User-Driven Interaction

* Savina Boateng: Design the user interface of the interactive dashboard with HTML/CSS.
* Ifa Nira: Implement user-driven interaction elements such as menus, dropdowns, and textboxes.
* Savina Boateng, Zeeshan Karim, Beauty Ojimah: Integrate interactive visualizations into the designed dashboard.
* All Team Members: Collaboratively test the dashboard for functionality and user interaction.

Day 5: Documentation and Reporting

* Yasar Sabir: Compile a concise project report summarizing methodology, data sources, analysis, findings, and conclusions.
* All Team Members: Prepare the project presentation, summarizing key findings and insights.
* Savina Boateng: Deploy the Flask app and dashboard on a web server for accessibility.