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Department of Software Technology

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In partial fulfillment of the course

of Data Visualization (DATA101 S12)

Interactivity Techniques & Justification

Group 5

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Submitted to:

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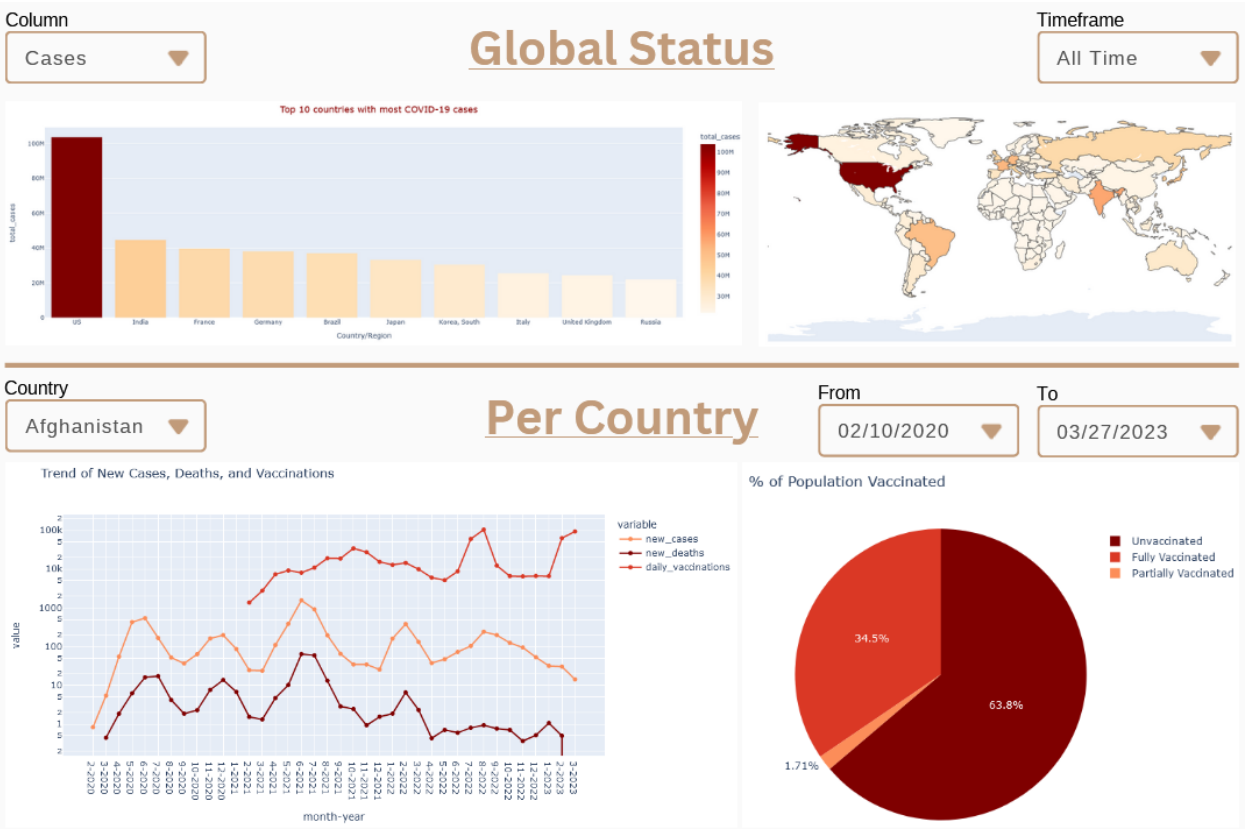
Prototype Design

Metrics

The dashboard would like to help its users answer the question “Are people getting vaccinated with the COVID-19 vaccine?” and to be able to explore its implications in the context of the COVID-19 pandemic. Given this, the group will use the following metrics:

1. No. of Vaccinations
2. No. of Cases
3. No. of Deaths
4. No. of New Vaccinations
5. No. of New Cases
6. No. of New Deaths
7. No. of Vaccinated People
8. No. of Unvaccinated People

Overall Layout



Visualization Choices

Choropleth Map

Idiom	Choropleth map (by Country)
Data	Data will be aggregated by country, column, and timeframe.

	For column filter, 1 of the following column can be selected: ● Cases ● Deaths ● Vaccinations ● New Cases ● New Deaths ● New Vaccinations For time frame: ● All Time ● Past Year ● Past Month ● Past Week
Channels	To differentiate the magnitude of the values, the OrRd palette from Plotly Express will be utilized. It is a diverging palette from Orange to Red:  This is to distinguish values from country to country based on their values from: ● peach **[#fff7ec]** (minimum value); ● to light orange **[#fdcd97]**; ● to orange **[#fc8d59]** (middle value); ● to light red **[#da3825]**; ● to dark red **[#7f0000]** (maximum value)
Task	Summarize Features Main task and goal is to provide a visualization of the information for the audience. That way, it'll be easier for them to understand the data and gain insights from it.

Bar Chart

Idiom	Top 10 countries with most X column
Data	Data will be aggregated by country, column, and timeframe. For column filter, 1 of the following column can be selected: ● Cases ● Deaths ● Vaccinations ● New Cases ● New Deaths ● New Vaccinations For time frame: ● All Time ● Past Year

	• Past Month • Past Week
Channels	To differentiate the magnitude of the values, the OrRd palette from Plotly Express will be utilized. It is a diverging palette from Orange to Red:  This is to distinguish values from country to country based on their values from: • peach **[#fff7ec]** (minimum value); • to light orange **[#fdcd97]**; • to orange **[#fc8d59]** (middle value); • to light red **[#da3825]**; • to dark red **[#7f0000]** (maximum value)
Task	Discover Features Main task and goal is to provide a supplementary visualization of the dataset for the audience. That way, it'll be easier for them to understand the data and gain insights from it.

New Cases vs New Vaccinations

Idiom	Line Graph (trend via timeline per country)
Data	Data will be displayed per country using the new_cases, and new_vaccinations columns and then aggregated based on 2 filters: 'country' and 'timeframe'. The selections for 'country' include all of the featured countries in our datasets. The selections for 'timeframe' are as follows: - All time (Month + Year) - Past year (Month) - Past month (Weeks)
Channels	The x and y axis are labeled as follows: • x-axis - Date • y-axis - Number of New Cases / New Deaths / New Vaccinations There are only three variables. The following will be colored in the following to distinguish the New Cases and New Vaccinations: • orange **[#fc8d59]** - New Cases • light red **[#da3825]** - New Deaths • dark red **[#7f0000] -** New Vaccinations
Task	Compare Trends

	The graph's primary task is to inform the viewer of the trends in new confirmed cases and confirmed deaths relative to new vaccinations – to visually and connotatively express the supposed 'inverse' relationship between the two (the more people are vaccinated, the less cases supposedly happen). This will inform people of the effect of vaccination and convince them to get vaccinated.

Ratio of Vaccinated and Unvaccinated per Country

Idiom	Pie Graph
Data	The selection per country will utilize all the countries featured in the Dataset. The ratio of vaccinated and unvaccinated people will be displayed per country as the values for the Pie Chart. The columns `people_vaccinated_per_hundred`, `people_fully_vaccinated_per_hundred`, and `population` will be utilized in order to achieve the visualization.
Channels	There are only three variables. The following will be colored in the following to distinguish the New Cases and New Vaccinations: ● orange **[#fc8d59]** - Partially Vaccinated ● light red **[#da3825]** - Fully Vaccinated ● dark red **[#7f0000] -** Unvaccinated
Task	Compare Distribution The pie chart's goal is to show the ratio of vaccinated and unvaccinated people per country. The ratio of the two variables are of interest as they can point out to users of the dashboard which countries have a high rate of vaccination.

Interactivity Techniques and Justification

Visualization	Interactivity	Rationale
Choropleth Map (utilizing multiple columns) + Bar Chart that shows the top 10 countries with highest values	● Clicking/hovering the country shows its country name, and value ● Dropdown to filter the column to use as the "value" to be shown	While the choropleth map highlights spatial patterns and trends in the data, a secondary bar graph provides a more precise quantitative representation of the data, allowing viewers to see the actual numbers of cases.

given a column.	• Dropdown to select the timeframe	
Line Chart of New Cases vs. New Vaccinations vs. New Deaths + Pie Chart of % of Fully Vaccinated, Partially Vaccinated and Unvaccinated per Country	• Dropdown to select the “country” to be shown • Select “from date” and “to date” to determine the “timeframe” to be shown	By selecting a timeframe, users can adjust the historical extent of the visualization to focus on a particular period of interest. Similarly, by choosing a specific country, users can focus on the data from a particular location, providing a more granular view of the situation.

Visualization Choices (update)

Based on the comments from the previous submission, we removed the aggregation from the Choropleth Map. Then a new bar chart was added as a supplementary visualization to the choropleth map. Furthermore, the Line Chart and Pie Chart were connected based on the current country selected and then the channels were updated to follow the overall theme. Finally, the full view of how the charts would look like all together was added to the Prototype Design.