Sardar Patel Institute of Technology

SEM VII:ADVANCE DATA VISUALIZATION.

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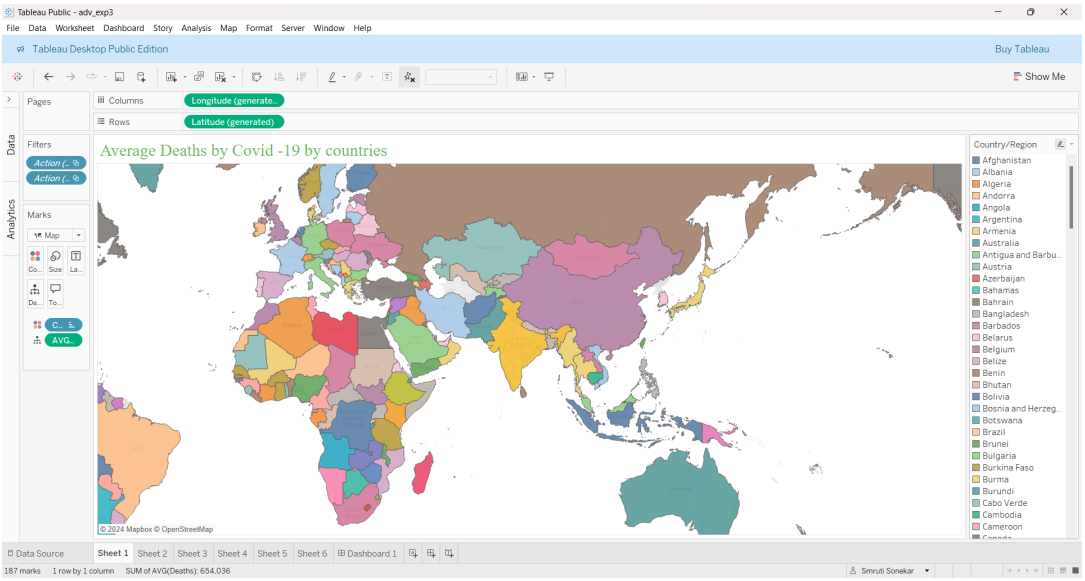
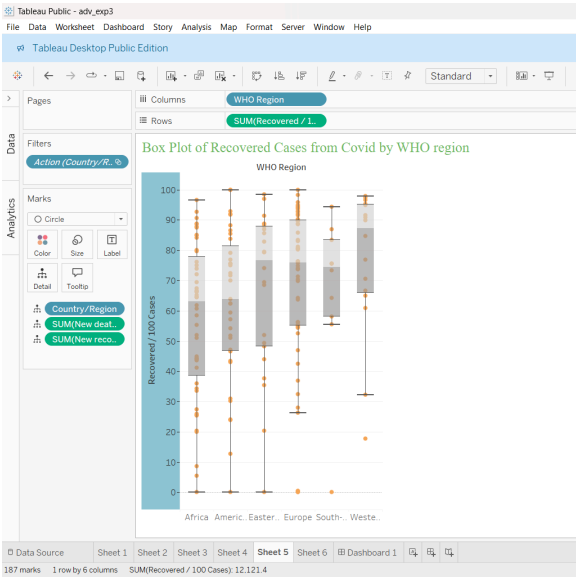
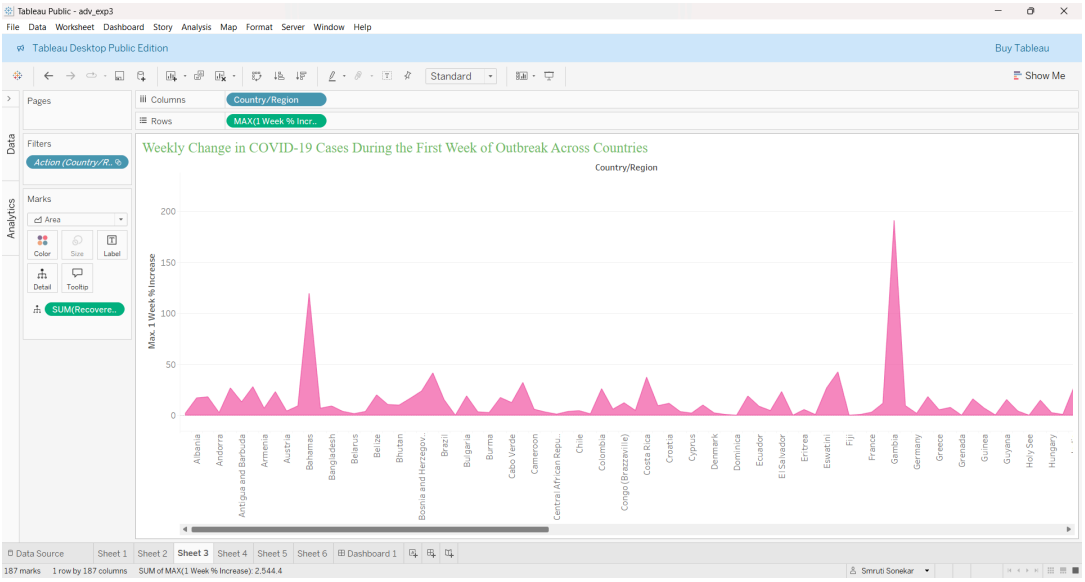
Branch	BE CSE DS (BATCH B)
Experiment no.	3

Topic:	**COVID-19 tracking sample for US state and local governments**
Theory:	Design Interactive Dashboards and Storytelling using Tableau / Power BI / R (Shiny) / Python (Streamlit/Flask) / D3.js to be performed on the dataset - Disease spread / Healthcare • Create interactive dashboard - Write observations from each chart given below • (Advanced - Word chart, Box and whisker plot, Violin plot, Regression plot (linear and nonlinear), 3D chart, Jitter, Line, Area, Waterfall, Donut, Treemap, Funnel • Basic - Bar chart, Pie chart, Histogram, Timeline chart, Scatter plot, Bubble plot) Dataset: https://www.kaggle.com/datasets/imdevskp/corona-virus-report

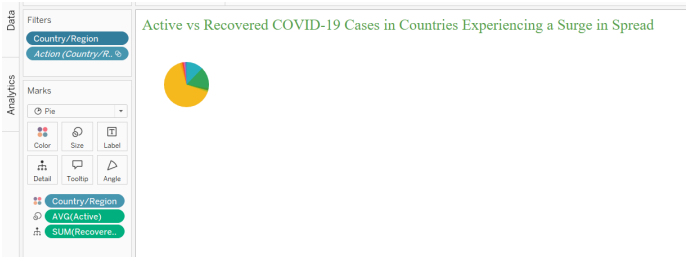
Program:	In this Data Set there were no null or missing values , only duplicate rows were dropped. **Map Chart:Average Deaths by Covid -19 by countries:**This map chart visually displays the geographical distribution of COVID-19 death averages across different countries. Each country is color-coded based on the severity of the death toll, allowing viewers to quickly identify regions that were hardest hit by the virus. Countries with higher average deaths will stand out, highlighting areas with greater impact, while those with lower death rates will help showcase regions where COVID-19 was better contained or managed.  **Box Plot:Box Plot of Recovered Cases from Covid by WHO region**:This box plot illustrates the distribution of recovered COVID-19 cases across different WHO regions, showing the spread, central tendency, and outliers. The median, quartiles, and any extreme values (outliers) provide insight into regional differences in recovery rates. For instance, some regions may show a higher median number of recoveries, indicating stronger healthcare response or lower initial infection rates. Outliers could represent extraordinary recoveries in specific areas or time periods.

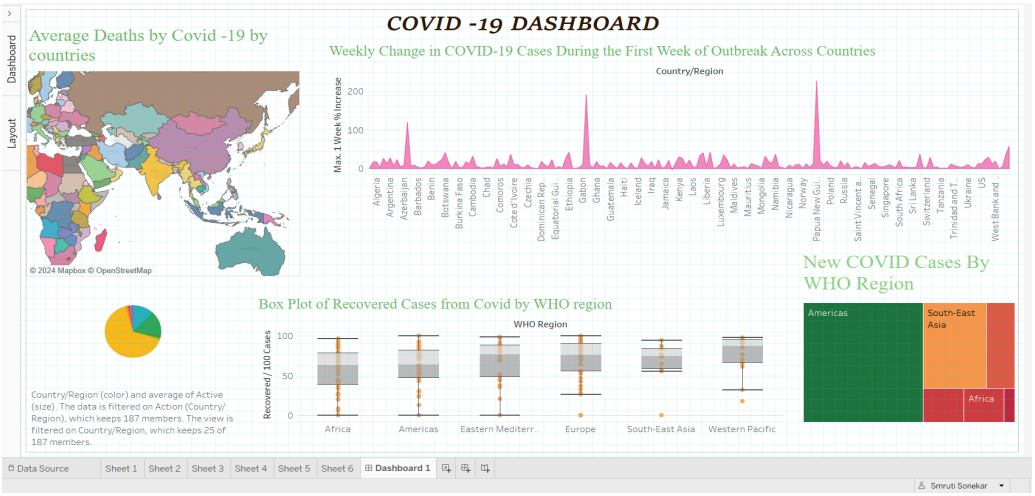


Area Chart:Weekly Change in COVID-19 Cases During the First Week of Outbreak Across Countries: The area chart demonstrates the dynamic rise in COVID-19 cases during the critical first week of the outbreak across different countries. The chart tracks the rate of spread, with the area under each curve representing the cumulative number of new cases. Countries with larger areas show more rapid increases in cases, while flatter curves suggest a slower spread. This chart is particularly helpful for comparing the pace of outbreak across multiple regions.



Treemap:New COVID Cases By WHO Region: This treemap provides a proportional representation of new COVID-19 cases across WHO regions. Each box represents a region, and the size of the box corresponds to the number of new cases.

	Larger boxes indicate regions with higher case counts, while smaller ones reflect regions with fewer cases. The treemap efficiently visualizes which regions have been most affected by new cases, making it easier to compare regions on the same scale.  **Pie chart:Active vs Recovered COVID-19 Cases in Countries Experiencing a Surge in Spread:**This pie chart highlights the current status of COVID-19 cases in countries experiencing a surge in spread. It breaks down the proportion of active cases versus recovered cases, providing an overview of how well those countries are managing the virus. If the majority of the chart is occupied by active cases, it signals that these countries are still struggling to contain the outbreak. Conversely, a larger share of recovered cases indicates successful recovery efforts. 
Result:	For the final dashboard, I combined all the individual charts into a single, cohesive dashboard in Tableau. To enhance interactivity, I made the dashboard dynamically responsive by utilizing the "Use as Filter" option on both the map plot and pie chart.

	
Conclusion:	The combination of these charts helps answer key questions about the spread, impact, and response to the COVID-19 pandemic across different regions and countries. From understanding death rates globally, recovery trends regionally, and the growth of new cases during outbreaks, these visualizations paint a comprehensive picture of how the virus has affected various parts of the world. The pie chart and box plot focus on recovery, showing both the positive aspects of containment and areas still struggling with active cases. The area and map charts provide critical insights into the initial outbreak and overall impact, while the treemap allows for an easy comparison of new cases across regions. Collectively, they contribute to a detailed understanding of the COVID-19 pandemic's effects on a global and regional scale. Here is the link to tableau: https://public.tableau.com/views/adv_exp3/Dashboard1?:language=en-US&publish=yes&:sid=&:redirect=auth&:display_count=n&:origin=viz_share_link