Project Report

Data Interpretation:

A. Visualizations in Matplotlib & Plotly

1. Distribution of Infant Mortality Rates Across Countries (2021):

The Infant Mortality Rate in the histogram presents an uneven distribution with over 40 countries facing a lower mortality rate of less than 5 in 2021.

2. Top 10 High-Risk Countries for Under-five Mortality Rate in 2021:

This graph shows the top ten (10) countries with a high rate of Under-five Mortality Rate in 2021. Niger recorded 115 deaths of children under-five whereas Benin recorded 84. The average value of the top 10 high-risk countries for Under-five Mortality Rate in 2021 is 102.9.

3. The Correlation between the Annual Rate of Reduction in Under-five Mortality Rate 2000-2021 and Under-five Mortality Rate in 2021:

The scattered plot shows no relationship between the annual rate of reduction in under-five mortality rate from the years 2000 to 2021 and under-five mortality rate in 2021. As one value increases, there is no tendency for the other value to change in a specific direction.

B. Visualizations in Tableau

1. Under-five mortality rate in the world using Symbol Maps:

This visual shows that the under-five mortality rate is highest in the central part of Africa while lower in Europe. Haiti in North America records a value of 117 which is very high as compared to its neighbors in the same region. In Asia, Pakistan has a high value of 127 whereas Yemen records 124 deaths.

2. Area chart:

An area chart was used to show the changes in mortality spanning from 1990 to 2021. This chart shows an interesting observation in the year 2000, where there was a steep decline worldwide. This was due to “lower respiratory infections, diarrhea, preterm birth complications, intrapartum-related events, malaria, and measles” according to Perin et al., 2022).

3. Tree maps of Under-five and Neonatal Mortality Rates per Country:

This map shows the viewer the distribution of Under-five and Neonatal Mortality Rates simultaneously of selected countries. It enables the viewer to see the main contributing factor to child mortality in a particular country. Most of the countries depict a higher value for under-five mortality rate as compared to neonatal mortality rate, hence emphasizing where more attention, changes in policies and resources will be needed.

4. Box-and-whisker-plots:

Overall, this plot shows that infant mortality rate has the highest median of 47.5 whereas under-five mortality rate in females has a median of 13.0. Additionally, the under-five mortality rate besides having a high interquartile (IQ) range of 91, presents a lot of outliers as it has a tall list of countries above the upper hinge/whisker.
Lastly, under-five mortality rates in females show a lower median of 13.0 as compared to that of males (16.0) for all the countries and have more or less the same outliers.

Reference:

Perin, J., Mulick, A., Yeung, D., Villavicencio, F., Lopez, G., Strong, K. L., ... & Liu, L. (2022). Global, regional, and national causes of under-5 mortality in 2000–19: an updated systematic analysis with implications for the Sustainable Development Goals. *The Lancet Child & Adolescent Health*, *6*(2), 106-115.