MINI PROJECT-DAP

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Global Health, Mortality & Disease Trends Since 2000 — Brief Analytical Report.

1. Introduction.

This report summarizes the findings of a data-driven study on global health, mortality patterns, and major disease trends from the year 2000 onward. The analysis explores how demographic, economic and health-related indicators have evolved over time. The dataset includes mortality rate, life expectancy, GDP per capita, population growth and disease-specific trends for various countries.

2. Project Objective and Scope.

The primary objective is to evaluate global health progress over the last two decades using exploratory data analysis (EDA) and predictive modeling. Key areas of focus include:

• Mortality rate fluctuations

• Life expectancy trends

• Impact of major diseases such as HIV/AIDS, tuberculosis, and cardiovascular disorders

• Health distribution among different income groups • Forecasting future outcomes using machine learning

3. Data Processing and Methodology.

Python libraries such as NumPy, Pandas, Matplotlib, Seaborn, and Scikit-learn were used. After cleaning the dataset, EDA was conducted to analyze correlations, mortality trends, disease burden, and regional differences. Heatmaps, scatter plots, and bar charts supported visual understanding.

4. Key Findings

4.1 **Mortality and Life Expectancy.**

Mortality rates show a steady decline since 2000, driven by better healthcare access and rising GDP per capita. Life expectancy increased across most regions, with strong improvements in East Asia and Latin America.

4.2 **Disease Trends.**

• HIV/AIDS: Significant decline due to improved treatments.

• Tuberculosis: Slow reduction but remains common in low-income regions.

• Cardiovascular diseases: Still the leading global killer.

• Non-communicable diseases: Increasing due to lifestyle changes.

4.3 **Socioeconomic Inequalities.**

High-income countries show high life expectancy and low preventable deaths. Low-income countries continue to face high infant mortality and infectious diseases.

4.4 **Predictive Modeling.**

A linear regression model was used to forecast future trends. The model performed well with strong R^2 and low RMSE values. Projections indicate continued improvement in life expectancy worldwide.

5. **Conclusion**

Global health outcomes have improved significantly since 2000 due to better healthcare, economic development, and successful disease control programs. However, gaps remain between income groups and the rise of noncommunicable diseases poses new challenges. This study demonstrates how data analytics can support global health policy and decision-making.