**Research Proposal on Life Expectancy Determinants**

**Link:** [<https://www.kaggle.com/datasets/kumarajarshi/life-expectancy-who>](https://www.kaggle.com/datasets/kumarajarshi/life-expectancy-who)

**Research Questions:**

1. What are the primary health indicators and socio-economic factors that significantly influence life expectancy across different countries?
2. How does the level of education impact life expectancy when controlling economic status and health indicators?

**Introduction:**

Our project uncovers the determinants of life expectancy by analyzing global health data from 2000-2015. Through rigorous data analysis using R, we aim to understand how factors such as health indicators, economic status, and education levels impact life expectancy.

**Hypotheses:**

1. Health indicators (such as immunization rates and HIV/AIDS prevalence) and socio-economic factors (such as GDP per capita and unemployment rates) are significant predictors of life expectancy.
2. Higher education levels are associated with increased life expectancy, independent of economic status and health indicators.

**Data and Methods:**

The WHO dataset contains metrics for 193 countries, which will be cleaned and explored using R packages like `dplyr` and visualized with `ggplot2`. Summary statistics will outline distributions and central tendencies, while the `cor()` function will assess relationships between variables. A linear regression model will be built to identify significant predictors of life expectancy, evaluated for fit and diagnostics using `lm()`, `summary()`, and diagnostic plots.

**Visualizations:**

* Histograms and box plots explore the distribution of life expectancy and predictor variables.
* Scatter plots and correlation matrices to visualize relationships between life expectancy and potential predictors.
* Diagnostic plots for regression model evaluation, including residual plots and Q-Q plots.

**Expected Outcomes:**

We aim to identify key determinants of life expectancy to develop targeted health policies and interventions globally. Our study will also explore the role of education in life expectancy, providing insights for policy development in the education sector.