# Research Method:

1. **Data:** Collected from WHO website on life expectancy, also found on Kaggle. That specific website for data authenticity purposes.
2. **Participants:**
3. **Procedures:** Data was collected as a part of WHO yearly surveys, all participants were qualified as a part of the survey.
4. **Measures:**

There are multiple scenarios to be measured w.r.t the data,

Dependant variable: Life Expectancy

Independent variables: Adult Mortality, Infant Deaths, Alcohol, Percentage Expenditure, Hepatitis B, Measles, BMI, Polio, Diphtheria, HIV/AIDS, Thinness 1-19, Thinness under 5

Dependant variable: GDP

Independent variables: Income Composition of Resources, Population, Total Expenditure, Percentage expenditure

Dependant variable: Developing/Developed Status

Independent variables: Schooling, GDP, Income Composition of Resources, Total Expenditure, Percentage Expenditure, Infant Deaths, Polio, Adult Mortality

1. Technical Analysis methods:

The main method for our research is Sullivan’s method, The **Sullivan method** or **Sullivan's method** is a very simple method to compute [health expectancies](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:Life_expectancy). It combines data issued from a regular period of life table on the one hand and from cross-sectional survey providing prevalence of given health dimension on the other hand, for instance disability. The age-specific prevalence is directly applied to the person-year of the life table: it provides the total number of years spent with disability, the total number of years lived without disability, and summing both, the total number of years lived.

The main advantage of the Sullivan's method lies in the separate collection of [mortality](https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:Mortality) and disability data and in the ready availability of the data necessary for the calculation. Basic cross-sectional surveys are sufficient to collect the observed prevalence of disability within the population. However, the problem with this method lies in approximating the period prevalence by the observed prevalence of disability.

The Sullivan health expectancy reflects the current health of a real population adjusted for mortality levels and independent of age structure. Health expectancy calculated by Sullivan’s method is the number of remaining years, at a particular age, which an individual can expect to live in a healthy state (however health may be defined).

For Technical Analysis,

1. Linear Regression
2. Hypothesis Testing
3. Cross-Tabulation method: If multiple datasets are used for Sullivan’s Method, Cross-Tabulation draws inferences for data that is mutually exclusive or have some connection with each other.
4. Random Forest Regressor
5. SVR
6. XGBoost