ISyE 6414 - Fall 2022

Project Proposal

What makes a country live longer?

Team 15:

Manvitha Kalicheti, 903838438

Nivedita Mahesh, 903833708

Shivam Pancholi, 903817197

Nasar Patel, 903821532

Priyank Shukla, 903821694

Problem Description:

We aim to understand which factors influence the life expectancy in a country. Broadly, these are immunization related, mortality, economic and social factors. These factors are expressed in terms of our predictor variables, which are listed in the table along with their descriptions and types.

The problem involves finding the best fit regression model to estimate life expectancy for different countries.

Data Requirements:

We consider for the year 2015, data for 183 countries. The data points are independent of time.
We will use 163 countries to build our linear model, and test the model on the remaining 20 countries.

Data source: [Kaggle](#)

Sample Size: ~183

Variables: 1 target (Life Expectancy), 1 non predictor (Country), 18 predictors (all others)

Detailed information on variables follows.

Variables and their descriptions:

No	Variable	Description	Category	Type
1	Life expectancy	Life Expectancy in age	Quantitative	Response
2	Country	Country	Qualitative	Non-Predictor
3	Status	Developed or Developing status	Qualitative	Predictor
4	Adult Mortality	Adult Mortality Rates of both sexes (probability of dying between 15 and 60 years per 1000 population)	Quantitative	Predictor
5	Infant deaths	Number of Infant Deaths per 1000 population	Quantitative	Predictor
6	Alcohol	Alcohol, recorded per capita (15+) consumption (in litres of pure alcohol)	Quantitative	Predictor
7	Percentage expenditure	Expenditure on health as a percentage of Gross Domestic Product per capita(%)	Quantitative	Predictor
8	Hepatitis B	Hepatitis B (HepB) immunization coverage among 1-year-olds (%)	Quantitative	Predictor
9	Measles	Measles - number of reported cases per 1000 population	Quantitative	Predictor
10	BMI	Average Body Mass Index of entire population	Quantitative	Predictor
11	Under-five deaths	Number of under-five deaths per 1000 population	Quantitative	Predictor
12	Polio	Polio (Pol3) immunization coverage among 1-year-olds (%)	Quantitative	Predictor
13	Total expenditure	General government expenditure on health as a percentage of total government expenditure (%)	Quantitative	Predictor
14	Diphtheria	Diphtheria tetanus toxoid and pertussis (DTP3) immunization coverage among 1-year-olds (%)	Quantitative	Predictor
15	HIV/AIDS	Deaths per 1 000 live births HIV/AIDS (0-4 years)	Quantitative	Predictor
16	GDP	Gross Domestic Product per capita (in USD)	Quantitative	Predictor
17	Population	Population of the country	Quantitative	Predictor
18	Thinness	Prevalence of thinness among children and adolescents (%)	Quantitative	Predictor
19	Income composition of resources	Human Development Index in terms of income composition of resources (index ranging from 0 to 1)	Quantitative	Predictor
20	Schooling	Number of years of Schooling (years)	Quantitative	Predictor