Predicting Life Expectancy using Machine Learning

SB42048

Nishant Saxena

3rd Year Computer Science Engineering NMIMS

Introduction

Overview

Machine Learning project leverage historical data to predict insights into the future. In this project by the problem statement, we have to predict the Life Expectancy of individuals based on various features. Life Expectancy is a statistical measure of the average time a human being is expected to survive. Life expectancy depends on various factors, in this problem we will predict the Life expectancy of people living in a country when factors like the year, GDP, Measles, Alcohol, Thinness, etc. are given.

Purpose

Life expectancy plays an important role when decisions about the final phase of life need to be made. Good prognostication for example helps to determine the course of treatment and helps to anticipate the procurement of health care services and facilities, or more broadly: facilitates Advance Care Planning.

Literature Survey

Existing Problem

This problem statement gives an approach to foresee the normal future of individuals living in a nation when different factors, for example, year, GDP, liquor admission of individuals in the nation, and some particular infection-related death that occurred in the nation are given.

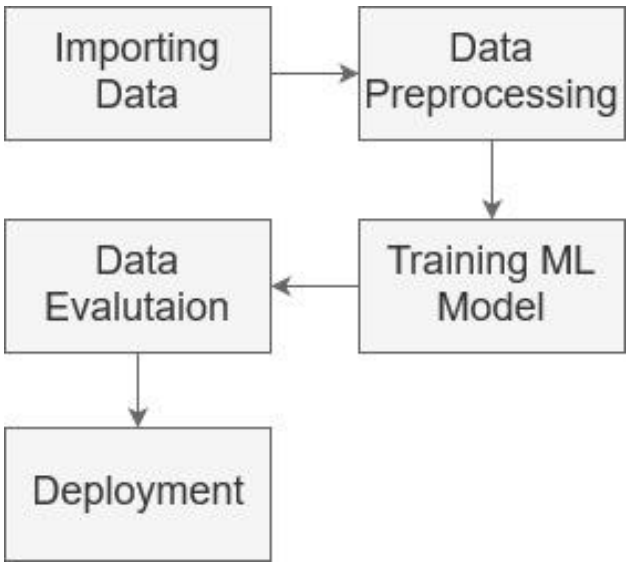
Life expectancy is a statistical measure of the average time a human being is expected to live, Life expectancy depends on various factors.

Proposed Solution

Design a Machine Learning Model to predict Life Expectancy using the features given in any country.

Theoretical Analysis

Block Diagram



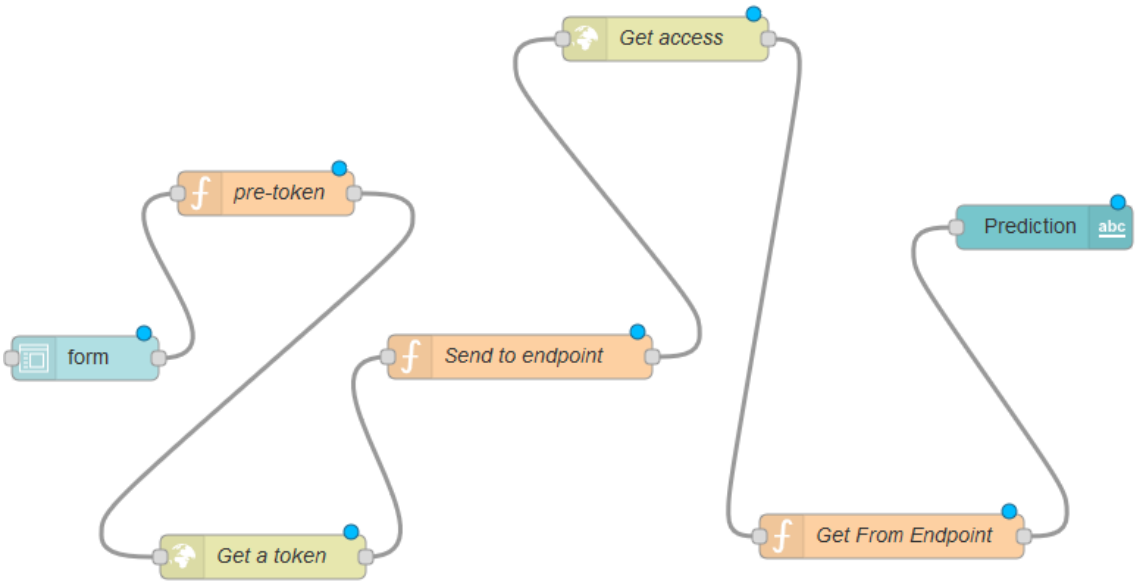
Hardware / Software Designing

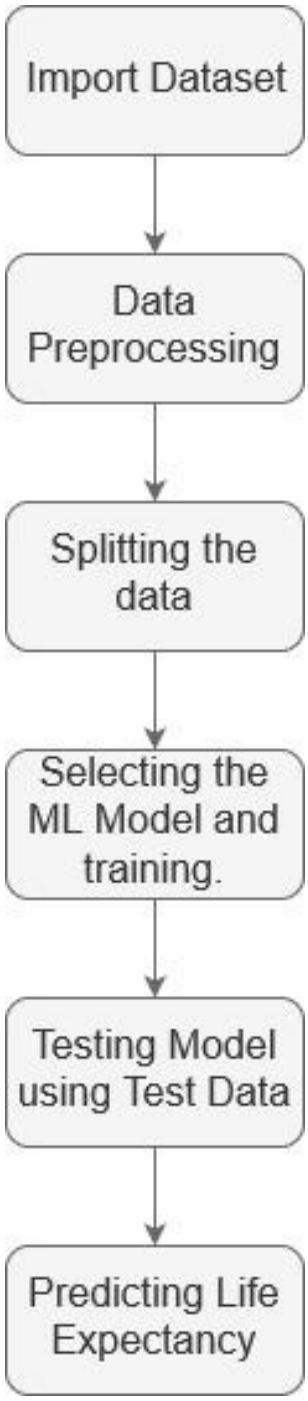
- **Hardware**: Desktop / Laptop, Internet Connection.
- **Software**: IBM Cloud Account, IBM Watson Studio, Node-Red App.

Literature Survey

1. Collecting Dataset from https://www.kaggle.com/kumarajarshi/life-expectancy-who
2. Study the data and create a hypothesis on how can we predict the life expectancy of a person.
3. Predict Life Expectancy using different machine learning models and select the model that gives results with maximum accuracy.
4. Hence we will be able to predict the life expectancy of a person with maximum accuracy.

Flowchart




Import Dataset
Data Preprocessing
Splitting the data
Selecting the ML Model and training.
Testing Model using Test Data
Predicting Life Expectancy

Result


Default
Prediction
72.66600000000011
Country *
Samoa
Year *
2010
Status *
Developing
Adult Mortality *
144
infant deaths *
1
Alcohol *
3.01
percentage expenditure *
434.7940679
Hepatitis B *
57
Measles *
8
BMI *
72.5
under-five deaths *
4
Polio *
57
Total expenditure *
5.7
Diphtheria *
62
HIV/AIDS *
0.1
GDP *
3453.487434
Population *
18625
thinness 10-19 years *
0.2
thinness 5-9 years *
0.2
Income composition of resources *
0.69
Schooling *
12.9
SUBMIT
CANCEL

Advantages and Disadvantages

Advantages

- IBM Watson offers many advance tools to construct Machine learning model
- With Node-Red we can easily make UI.
- IBM Cloud is easy to use Platform.
- Don’t require external storage

Disadvantages

- Requires Internet Connection
- With the Lite plan, you can only deploy one app at once.

Application

Life Expectancy is the essential factor in deciding a person's risk factor and the probability they will make a case. Insurance agencies think about age, way of life decisions, and a few different components while deciding premium rates for singular life coverage strategies. It very well may be utilized by specialists to make important inquires about out of it and along these lines, realize something that will help increment the hope think about the effect of a particular factor on the normal life expectancy of individuals in a particular nation.

Conclusion

Consequently, we have built up a model that will foresee the future of individuals and predict its Life Expectancy of a specific demographic region based on provided constraints. Different variables significantly affect life expectancy, for example, Adult Mortality, Population, Under 5 Deaths, Thinness 1-5 Years, Alcohol, HIV, Hepatitis B, GDP, Percentage Expenditure, and some more. The client can connect with the framework through a straightforward UI which is a form with input spaces that the client needs to fill the contributions to.

Future Scope

By deploying it we can store the data of individuals filling the form to determine the variation of values of different variables to improve the model and to make it better.