Project ID: SPS_PRO_215

Predicting Life Expectancy Using Machine Learning - SB45865

Karan Desai
3rd Year B-Tech Computer Science Engineering,
MPSTME,NMIMS

Introduction

- ## Overview:

  A machine learning model learns from historical data and develops its own patterns from the previous data to predict futuristic data. In this project, we have to build a machine learning model which predicts the life expectancy of individuals of a certain country/region based on various features. The life expectancy of a person depends on various factors not only related to health but the economical condition of the country as well, in this project we will be using various factors such as BMI, GDP of a country, thinness, total expenditure, infant deaths, etc. to predict the life expectancy of people of a particular country.

- ## Purpose:

  Life Expectancy assumes a significant role when choices about the last period of life need to be made. Great anticipation for instance assists with deciding the course of treatment, what's more, assists with foreseeing the procurement of health care services, or more comprehensively: encourages Advance Care Planning.

  Basically before a person reaches a certain age they should be well equipped and comfortable to face situations that lie ahead, because being mentally prepared plays an important role in this phase of life.

Literature Survey

- ## Existing Problem:

  A lot of people lose their life or deteriorate to the worst health conditions due to lack of resources on that given time which is because of improper planning of health related insurances and procurement of health services at the right time, which can be prevented by using the following correct measures.

- ## Proposed Solution:

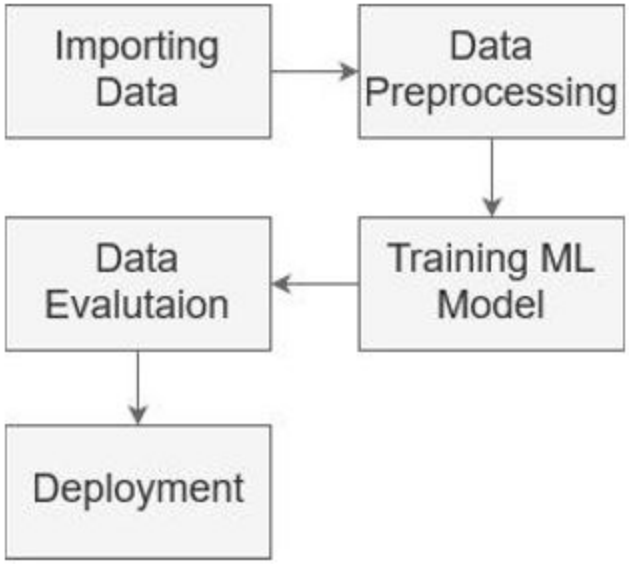
  Design a Machine Learning Model to predict Life Expectancy by using various factors in any country. This will help foresee people an average age at which a person should be well equipped and prepared for tougher times with respect to their health.

  Stepwise Model Building:

  1. Collect the 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.

Theoretical Analysis

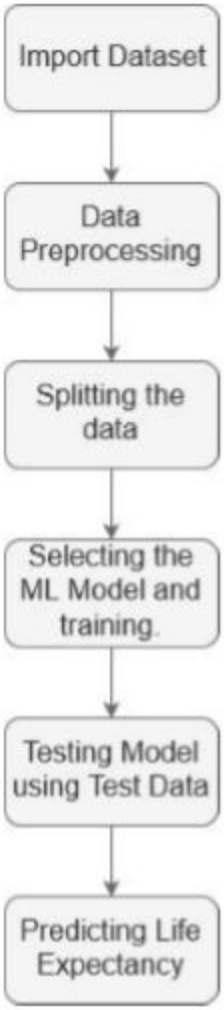
- **Block Diagram:**



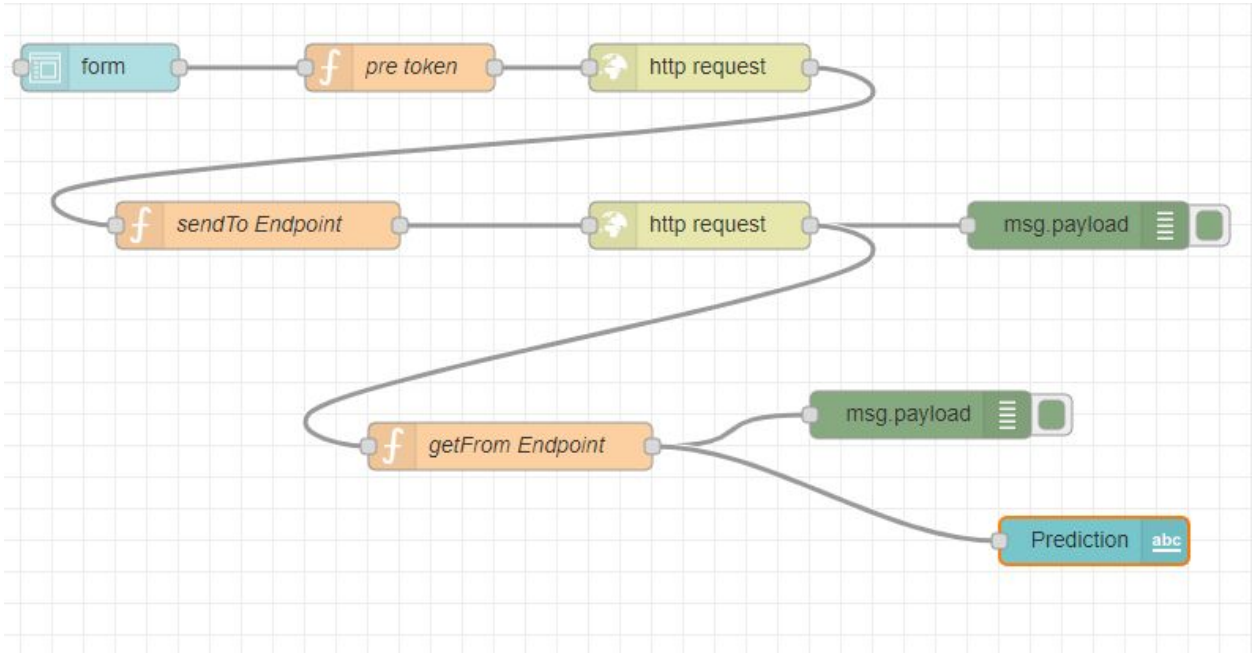
- **Hardware/Software Used:**

▪ Hardware: Laptop, Stable and High-Speed Internet Connection.
▪ Software: IBM Cloud Services, IBM Watson Studio, Node-Red App, SmartInternz Student Workspace.

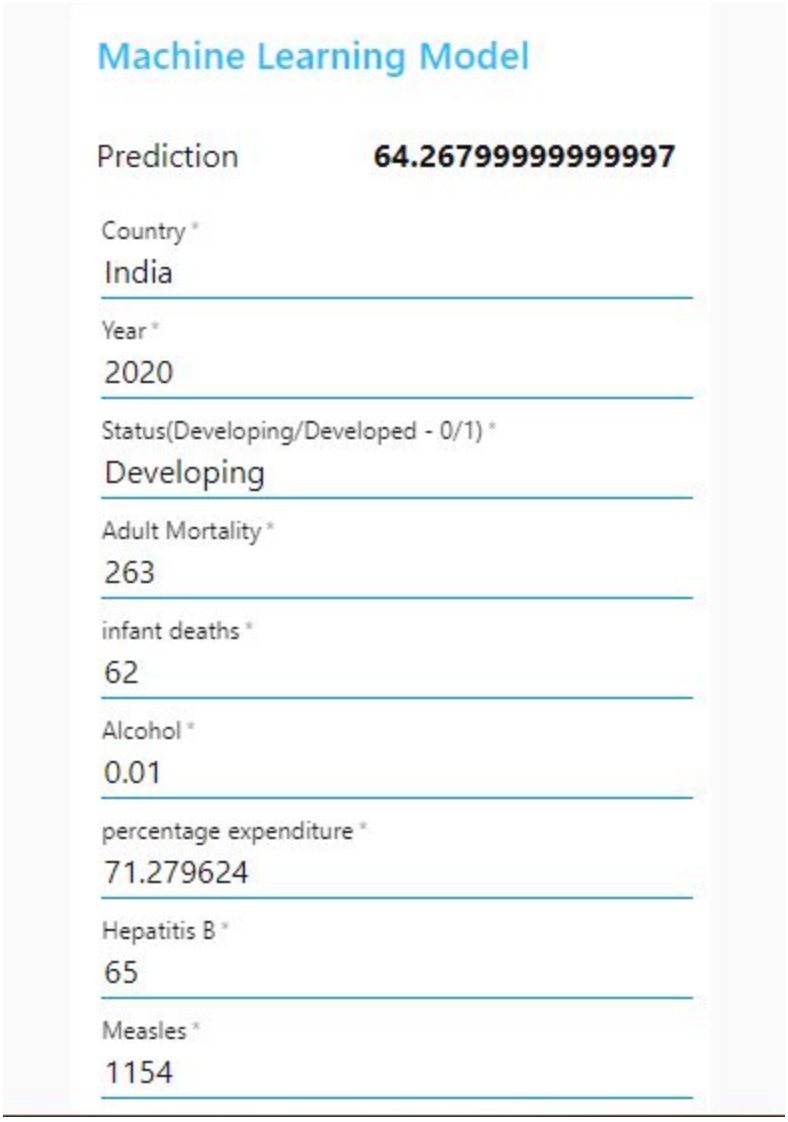
Flowchart:


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

Node-Red FlowChart:



Result:


Machine Learning Model
Prediction
64.26799999999997
Country *
India
Year *
2020
Status(Developing/Developed - 0/1) *
Developing
Adult Mortality *
263
infant deaths *
62
Alcohol *
0.01
percentage expenditure *
71.279624
Hepatitis B *
65
Measles *
1154

Application:

Life Expectancy is the fundamental factor in choosing an individual's hazard factor and the likelihood they will present a defense. Protection organizations consider age, lifestyle choices, and barely any various parts while choosing premium rates for particular life inclusion methodologies. It might be used by authorities to make significant asks about out of it and thus, acknowledge something that will help increase the expectation considering the impact of a specific factor on the typical future of people in a specific country.

Conclusion:

Thus, we have developed a model that will anticipate the Life Expectancy of people and foresee its future of a particular country dependent on given imperatives. Unique factors fundamentally influence the future, such as the economic conditions of the country and how much they spend on the healthcare sector as well as factors like alcohol consumption and infant deaths and many others. The customer can associate with the structure through a direct UI which is a structure with input spaces that the customer needs to fill the data into.

Future Scope:

When we deploy this model, it will come in contact with further real-time data which may help the model to learn and grow from the data it’s being fed in the form of input. Thus, providing the model with further accuracy in future.