Project ID   :   SPS_PRO_215
Project Title :   Predicting Life Expectancy using Machine Learning

- **Project Summary:**

　　　　Life expectancy is a statistical measure of the average time a human being is expected to live , Life expectancy depends on various factors: Regional variations, Economic Circumstances, Sex Differences, Mental Illnesses, Physical Illnesses, Education, Year of their birth and other demographic factors. The project tries to create a model based on data provided by the World Health Organization (WHO) to evaluate the life expectancy for different countries in years. The data offers a timeframe from 2000 to 2015. The data originates from here: https://www.kaggle.com/kumarajarshi/life-expectancy-who/data.

This project provides a way to predict average life expectancy of people living in a country when various factors such as year, GDP, education, alcohol intake of people in the country, expenditure on healthcare system and some specific disease related deaths that happened in the country are given.

- **Project Requirements (SCOPE)**

These project can be used by hospitals and the doctors to predict the life expectancy of a patient with the underlying disease or a new born baby. It can be used by government to predict the life expactancy of the economic backward people due to poverty.With the help of this project it will be easy for governments of the countries with less life expectancies to improve their medical and healthcare services. This Project will give overall prediction about the life expectancy of people living in various countries who have various diseases like Diptheria, HIV, Hepatites, Polio, Measles and also people taking alcohol based on Body Mass Index(BMI), GDP, Population, Mortality Rate of a particular country.

- **This Project Requires**
1. Good Knowledge Of Machine Learning Algorithms Like Regression, Decision Tree.
2. Knowledge of Various Libraries Like Scikit Learn , Numpy , Seaborn , scipy.
3. Knowledge about Watson Studio and Node-Red.

- **Functional Requirements**
1. IBM Watson Studio And Jupyter Notebook will be used to write the code.

2. Various Machine Learning Libraries like Scikit Learn, Numpy, Scipy, SeaBorn will be used to train , test and plot the data.
3. Various algorithms such as Regression , Decision Trees , Random Forests will be used to view the accuracy and predict the result.
4. Node Red- Application in IBM Studio will be used to show the flow of project.

- **Technical Requirements**
  Technical Requirements Includes Various Steps
  Step 1: Loading packages
  Step 2: Reading The Data
  Step 3: Perform Exploratory Data Analysis
  Step 4: Perform Preprocessing Of The Data
  Step 5: Apply Various Algorithms and Predict the output.

- **Software Requirements**
1. Windows 7 and Above
2. IBM Watson Studio
3. IBM Cloud
4. Github
5. Slack
6. Python
7. Jupyter Lab
8. Various Services On IBM Watson Studio

- **Project Deliverables**
1. Best Parameters For Prediction Data
2. R Square on the test data with good prediction percentage.
3. Mean Absolute Error and Root Mean Squared Data (MAE and MSE) on data.
4. Prediction od Fata Using Various Regression and Classification Techniques.

- **Project Team(only one member)**
  1. Omkar Ananda Powar

- **Project Schedule:**
  1. weekly 5 days

2. Each day 2-3 hours

3. At the end of the day report to mentor for your task completion

4. Every week discussion with mentor about project