**About Project**

**Introduction:**

Life expectancy refers to the number of years a person is expected to live. In mathematical terms, life expectancy refers to the expected number of years remaining for an individual at any given age.

The life expectancy for a particular person or population group depends on several variables such as their lifestyle, access to healthcare, diet, economic status and the relevant mortality and morbidity data. However, as life expectancy is calculated based on averages, a person may live for many years more or less than expected.

In order to predict life expectancy rate of a given country, we will be using Machine Learning algorithms to draw inferences from the given dataset and give an output. For better usability by the customer, we are also going to be creating a UI for the user to interact with using Node-Red.

**Purpose of the project:**

1. **Economic growth**

Predicting life expectancy would play a vital role in judging the growth and development of the economy.

Across countries, high life expectancy is associated with high income per capita. Increase in life expectancy also leads to an increase in the “manpower” of a country. The knowledge asset of a country increases with the number of individuals in a country.

1. **Population Growth**

Helps the government bodies take appropriate measures to control the population growth and also direct the utilization of the increase in human resources and skillset acquired by people over many years.

1. **Personal growth**

This project would also help an individual assess his/her lifestyle choices and alter them accordingly to lead a longer and healthier life. It would make them more aware of their general health and its improvement or deterioration over time.

1. **Growth in Health Sector**

Based on the factors used to calculate life expectancy of an individual and the outcome, health care will be able to fund and provide better services to those with greater need.

1. **Insurance Companies**

Insurance sector will be able to provide individualized services to people based on the life expectancy outcomes and factors.

**Project Requirements:**

1. Dataset based on the previous life expectancy rates of the countries along with the factors affecting
2. Knowledge on Machine Learning Algorithms and parameter tuning.
3. IBM Cloud
4. User interface for the user to interact with the deployed model
5. Sufficient memory to deploy and run the model

**Functional Requirements:**

1. User needs to register in order to use the functionalities
2. User picks the country for which he/she wishes to see the life expectancy rate of
3. Website takes input factors from the user via the UI
4. The deployed Machine Learning model trains on the previously given dataset
5. The model processes the input and outputs the life expectancy rate
6. UI displays the output to the user

**Technical Requirements**

1. Uses Python language for the machine learning model and backend
2. Creating the User Interface in Node-red using HTML, CSS and JavaScript
3. Runs on Windows, Linux and Mac OS
4. Runs on any web browser
5. Response time should be short
6. Machine learning model provides desirable accuracy

**Software requirements:**

1. Proposed software should have the following modules: Login, Input Entry, Output display
2. 24x7 availability of the website
3. Flexible service-based architecture will be highly desirable for future extension
4. Secure access of user’s data
5. Smooth data exchange between the User Interface and the deployed
6. User-friendly Graphical User Interface

**Project Deliverables**

1. Project plans
2. Fully trained and deployed machine learning model
3. Website for the user to interact with

**Project Team**

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