PROJECT REOPORT

INTRODUCTION-

1.) Overview:- This project is based on the Machine Learning in which I have to predict the Life Expectancy based on the serval factors which has historical data. Life Expectancy is a statistical measure of the average (see below) time an organism is expected to live, based on the year of its birth, its current age and other demographic factors including gender. The most commonly used measure is life expectancy at birth (LEB). Life Expectancy is depends on various factors like Regional variations, Economic Circumstances, Sex Differences, Mental Illnesses, Physical Illnesses, Education, Year of their birth and other demographic factors. This problem statement 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. Now, this project is helps to automate the process of calculating the Life Expectancy. This helps to known Average value of Life in Region.

2.) Purpose:- An important point to bear in mind when interpreting life expectancy estimates is that very few people will die at precisely the age indicated by life expectancy, even if mortality patterns stay constant. For example, very few of the infants born in South Africa in 2009 will die at 52.2 years of age, as per the figures in the map above. Most will die much earlier or much later, since the risk of death is not uniform across the lifetime. Life expectancy is the average. In societies with high infant mortality rates many people die in the first few years of life; but once they survive childhood, people often live much longer. Indeed, this is a common source of confusion in the interpretation of life expectancy figures: It is perfectly possible that a given population has a low life expectancy at birth, and yet has a large proportion of old people. So, the purpose behind finding Life Expectancy is that everyone should knows Life Expectancy very easily.

LITERATURE SURVEY:-

1.) Existing System:- In practical terms, estimating life expectancy entails predicting

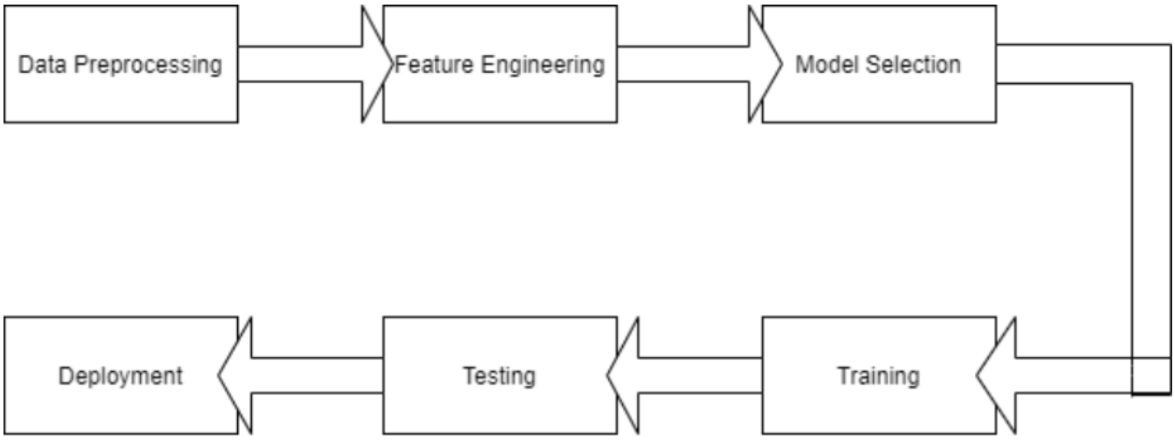
the probability of surviving successive years of life, based on observed age-specific mortality rates. Age-specific mortality rates are usually estimated by counting (or projecting) the number of age-specific deaths in a time interval (e.g. the number of people aged 10-15 who died in the year 2005), and dividing by the total observed (or projected) population alive at a given point within that interval (e.g. the number of people aged 10-15 alive on 1 July 2015). To ensure that the resulting estimates of the probabilities of death within each age interval are smooth across the lifetime, it is common to use mathematical formulas, to model how the force of mortality changes within and across age intervals. Specifically, it is often assumed that the proportion of people dying in an age interval starting in year and ending in year corresponds to , where is the age-specific mortality rate as measured in the middle of that interval (a term often referred to as the 'central death rate' for the age interval). Once we have estimates of the fraction of people dying across age intervals, it is simple to calculate a 'life table' showing the evolving probabilities of survival and the corresponding life expectancies by age. Period life expectancy figures can be obtained from 'period life tables' (i.e. life tables that rely on age-specific mortality rates observed from deaths among individuals of different age groups at a fixed point in time). And similarly, cohort life expectancy figures can be obtained from 'cohort life tables' (i.e. life tables that rely on age-specific mortality rates observed from tracking and forecasting the death and survival of a group of people as they become older). For some countries and for some time intervals, it is only possible to reconstruct life tables from either period or cohort mortality data. As a consequence, in some instances—for example in obtaining historical estimates of life expectancy across world regions—it is necessary to combine period and cohort data. In these cases, the resulting life expectancy estimates cannot be simply classified into the 'period' or 'cohort' categories.

2.) Proposed System:- In, proposed system first make this whole process of calculating the Life Expectancy easier so any one can calculating the Life Expectancy without any domain knowledge. So, for calculating Life Expectancy we consider some attributes like Regional variations, Economic Circumstances, Sex Differences, Mental Illnesses, Physical Illnesses, Education, Year of their birth and other demographic factors etc. But here our proposed system makes this calculation automated and make predicting tool which can predict the Life Expectancy from various attributes value. So, using machine learning technique we suppose to predict the value of Life Expectancy based on some common attributes like 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 etc. Any one can find this data and get the Life Expectancy value based on the their Country and Year.

THEORITICAL ANALYSIS:-

1.) Block Diagram:-



2.) Hardware and Software Requirements:-

Hardware Requirements:-

o User Side Requirements:-

Any device like Smart Phone, Desktop, Laptop and Tablet or Similar kind of device.

Internet Connectivity.

o Development Side Requirements:-

Computer with minimum 4GB RAM with High Performance Processor.

Internet Connectivity.

Software Requirements:-

o User Side Requirements:-

Any Web Browser which is compatible for our App.

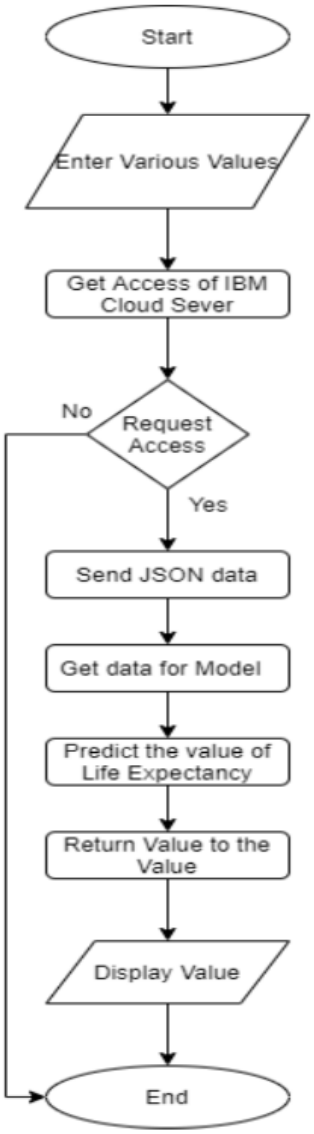
Any Operating System with compatible Web Browser.

o Development Side Requirements:-

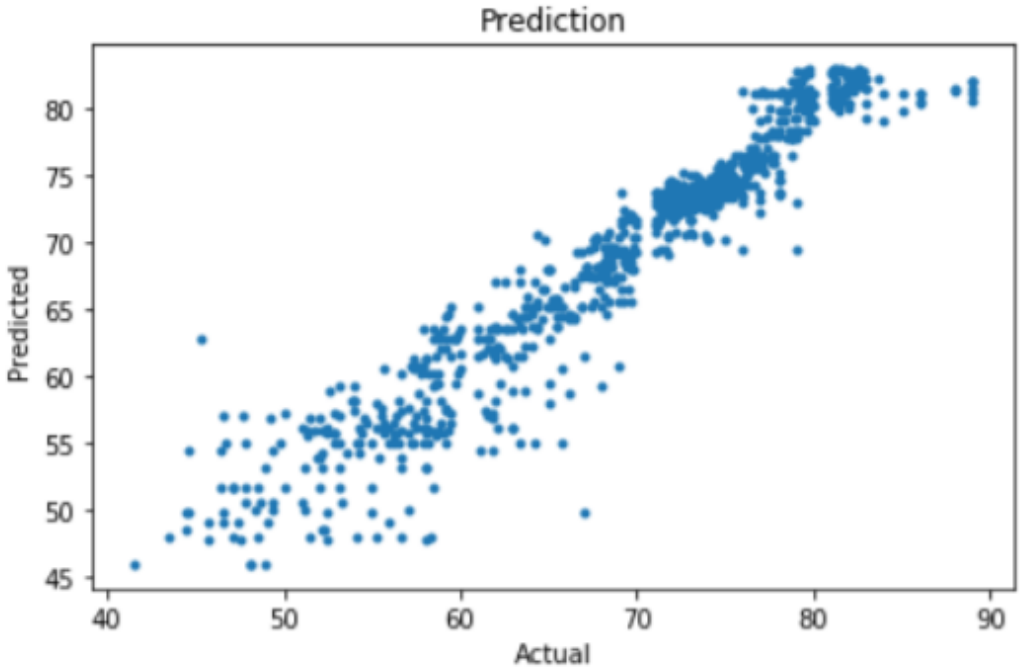
Any Web Browser which is compatible for our App.

Any Operating System with compatible Web Browser.
IBM Cloud.
Node Red.
Watson Studio.

FLOW CHART:-



RESULTS



We getting Mean square error of 4.039577971871102. Above graph is between actual and predicted value of Life Expectancy. This high accuracy is getting after some manipulation. Using Feature Engineering Technique we used only some features for trained our model. So, that we can achieve more accurate result. Also using concept of pipeline for make deployment of model with application script will be easy.

TOOLS AND TECHNOLOGY:-

Tools:-

IBM Cloud
Watson Studio
Node Red

Technology:-

Python
Scikit Learn
Numpy
Pandas
JSON
Node.js
Cloud Computing

FUTURE SCOPE:-

Increase model accuracy.
Integrate data visualization dashboard which shows Life Expectancy as per the Country and Year.
Gives suggestion on how to increase Life Expectancy.

CONCLUSION:-

The advantages of longer life span outweigh its disadvantages. It is obvious that though longer life expectancy puts burden on the society and environment, the problems caused can be tackled with the joint efforts made by people and it is urgent for human beings to do the best to save the environment and find out solution to the difficulties caused by the larger and larger population on the planet. On the other hand, the benefits both people and the world can get from the phenomenon of people living longer are irreplaceable and undeniable. It is the truth that life expectancy is a symbol of civilization and better life.