PREDICTING LIFE EXPECTANCY USING MACHINE LEARNING

PROJECT SUMMARY

Machine learning is an application of Artificial Intelligence that provides systems the ability to automatically learn and improve from experience without being explicitly programmed.Machine learning focuses on the development of computer programs that can access data and use it learn for themselves.

In this project the main objective is to build a User interface(UI) which contains a form that takes attributes as input and predicts the target variable(life expectancy).This UI is built using node-red which is a service provided by IBM cloud.Here,we use multiple IBM cloud services such as Watson studio,Watson Machine learning service and Node-red.

To get started with the project,we need to create IBM cloud account in order to create required service instances.Firstly,we need to create and configure a node-red instance which helps us create an UI.Then,we need to create a machine learning instance which runs our model.Next in order to build our model we need to create a Watson studio instance.All the code work and deployments are done in Watson studio.We need to add assets such as data sets,notebook,auto AI using Watson studio .First,we need to download the data set from the reference link given,then we need to add a notebook to our project and import the data set here.Next,we need to build our code in notebook.After building the model we need to create a scoring endpoint in order to create

a link between our model and node-red.

Now we need to create front-end UI with the help of node-red instance which we have created earlier.Node-red is a flow-based development tool for visual programming developed by IBM.Node provides a web browser based flow editor,which can be used to create java script function.The run time is built on Node.js the flow created in node-red are stored using JSON.

PROJECT REQUIREMENTS

This project requires a cloud platform to deploy the machine learning model.In this project,we use IBM cloud services such as Node-red,Watson studio,Watson Machine Learning in order to build our model and deploy that model.In this project we use WHO's data set which contains 22 columns i.e, 22 source attributes.

USER REQUIREMENTS

An end user requires a browser in order to access the UI where the nationality of the user is provided and the predicted value is been displayed.

FUNCTIONAL REQUIREMENTS

The functionality that must be provided by the UI is to predict the life expectancy based upon the user data provided.

TECHNICAL REQUIREMENTS

We will be using Machine Learning which is a part of Artificial Intelligence,which uses statistical methods in order to perform predictions . AI is playing a crucial role in current industry. In a nut shell AI is being used everywhere in current trends. In the current project we are going to use Watson studio to build the prediction model . Also we need **python programming** to complete this project.

Desired output of the project is to build a prediction model with maximum accuracy.The model is build using python language .Since,the model and the application are being deployed on cloud,they are platform independent and can be accessed using any operating system.

SOFTWARE REQUIREMENTS

We use the following IBM cloud services to build,deploy model and for creating an UI(User Interface)for the end user

a. <u>IBM Watson Studio</u>-used to prepare the data and build the model in the cloud environment.

b. <u>IBM Watson Machine learning</u>-This service of machine learning model is used to run and deploy the machine learning models in the cloud environment.

c. <u>Node-red Starter Kit</u>-This service is used to create an application i.e, User interface which internally uses Cloudant database and this application is deployed in cloud foundry.

PROJECT DELIVERABLES

Project Title: Predicting life expectancy using Machine Learning

Project id:SPS_PRO_215

S.No	Title	Deliverable	Description	Status
1.	Project Planning & Kickoff	1.project scope,team, schedule& Deliverables 2.Setup the development environment	<table><tr><td>1.</td><td>To prepare project scope documents with following headings</td></tr><tr><td>2.</td><td>TocreateGitHub,Slack account.Andworkingwith Document writer</td></tr></table>	Started,to be verified

2.	ExploreIBM Cloud Platform	1. Create IBM Account 2. Create a Node-RED starter application			Started,to be verified
			1.	Signing up for IBM account and getting started with IBM cloud	
			2.	Getting started with Node-RED and creating simple web page	

3.	ExploreIBM Watson Services	1.Explore IBM Watson usecases 2.Explore IBM Watson Machine learning	<table><tr><td>1</td><td>Watson products and services performance of Watson.</td></tr><tr><td>2.</td><td>Introduction to machine learning About IBM Watson machine learning</td></tr></table>	Started,to be verified
4.	Introduction to Watson studio	1.Build your own ML model in IBM Watson Studio 2.Automate your ML model	<table><tr><td>1.</td><td>Build your own ML model in IBM Watson Studio Using machine learning service</td></tr><tr><td>2.</td><td>Getting started with auto AI services</td></tr></table>	Started,to be verified

5.	Predicting life expectancy with python	1.collecting data set for the project 2.creating necessary IBM cloud services create a Watson studio project Configure Watson studio Create machine learning service Create a jupyter Notebook in IBM Watson and import data Build a machine learning model and create endpoints for node red integration 8.Build node red flow to integrate ml services	1.collecting data set for the project 2.creating necessary IBM cloud services 3.create a Watson studio project 4.Configure Watson studio 5.Create machine learning service 6.Create a jupyter Notebook in IBM Watson and import data 7.Build a machine learning model and create endpoints for node red integration 8.Build node red flow to integrate ml services	Started,to be verified

| 6. | Predicting life expectancy without python | 1.collecting data set for the project
2.creating necessary IBM cloud services
3.create a Watson studio project
4.Configure Watson studio
5.Create machine learning service
6.import data set and create auto ai experiment
7.Build node red flow to integrate with auto ai | 1.collecting data set for the project
2.creating necessary IBM cloud services
3.create a Watson studio project
4.Configure Watson studio
5.Create machine learning service
6.import data set and create auto ai experiment
7.Build node red flow to integrate with auto ai | Started,to be verified |

PROJECT TEAM

This project is done individually.

PROJECT SCHEDULE

This project is scheduled for 30 days,which means we need to build a node-red web application with integration to all the services & deploy all the services on IBM Cloud Platform within 30 days of span.