**Perform linear regression using scikit-learn**

**Learn the fundamentals of IBM Watson studio, and step through the process of training and evaluating the models to perform logistic regression**

In this tutorial, learn how to create a Jupyter Notebook that contains Python code for defining linear regression, then use scikit learn library to implement it. The Notebook runs on IBM Cloud Pak® for Data as a Service on IBM Cloud®. The IBM Cloud Pak for Data platform provides additional support, such as integration with multiple data sources, built-in analytics, Jupyter Notebooks, and machine learning. It also offers scalability by distributing processes across multiple computing resources. You can choose to create assets in Python, Scala, and R, and use open-source frameworks (such as TensorFlow) that are already installed on the IBM Cloud Pak for Data as a Service platform

## Prerequisites

The following prerequisites are required to follow the tutorial:

* [IBM Cloud account](https://cloud.ibm.com/registration?cm_sp=ibmdev-_-developer-tutorials-_-cloudreg)
* [IBM Watson® Studio](https://www.ibm.com/cloud/watson-studio)
* [IBM Watson Machine Learning Service](https://www.ibm.com/cloud/machine-learning)

## Steps

1. [Create your IBM Cloud Account and access the IBM Cloud Pak for Data as a Service.](https://developer.ibm.com/tutorials/build-a-logistic-regression-neural-network-using-tensorflow/?mhsrc=ibmsearch_a&mhq=tutorials#create-ibm-cloud-account)
2. [Create a new project.](https://developer.ibm.com/tutorials/build-a-logistic-regression-neural-network-using-tensorflow/?mhsrc=ibmsearch_a&mhq=tutorials#create-a-new-project)
3. [Associate the Watson Machine Learning Service with the project.](https://developer.ibm.com/tutorials/build-a-logistic-regression-neural-network-using-tensorflow/?mhsrc=ibmsearch_a&mhq=tutorials#Associate-the-watson-machine-learning-service-with-the-project)
4. Create an Environment and [Add a Notebook to your project.](https://developer.ibm.com/tutorials/build-a-logistic-regression-neural-network-using-tensorflow/?mhsrc=ibmsearch_a&mhq=tutorials#add-notebook-to-project)
5. [Run the Notebook.](https://developer.ibm.com/tutorials/build-a-logistic-regression-neural-network-using-tensorflow/?mhsrc=ibmsearch_a&mhq=tutorials#run-the-notebook)

### Step 1. Create IBM Cloud account

1. Sign in to your [IBM Cloud account](https://cloud.ibm.com/registration?cm_sp=ibmdev-_-developer-tutorials-_-cloudreg).
2. Search for Watson Studio.
3. Create the service by selecting a region and pricing plan and terms of agreement

4.Click on Lunch in IBM Cloud Park as Data

### Step 2. Create a new project

1. **Get started** the Watson Studio service.
2. Click on **a New Project**, and then click on **NEXT**
3. **Name** your project, add a **storage** service and then click on **create**
4. After Click on **Create**. After your project is created, you are directed to a project dashboard, and click on the **Manage tab** it will display the below

### Step 3. Associate the Watson Machine Learning Service with the project

1.Scroll down to click on  **Services&Integrations**  then click on **Associate Services**

2. After clicking on **Associate services** and then appears new tap click on Waston Machine learning tick mark and then click on **Associate**

3.After completing of above things click on **New Services**

4.After clicking new services then appear **new dashboard of services** then click on **AI/Machine learning** and select the **Waston Machine learning**

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1. After clicking on **Waston Machine Learning** next appear the new dashboard for then **click on Create** of Waston Machine learning

### Step 4. Create an Environment and Add Notebook to project

1. After that click the **“Environment tab”** then click on **“New template”**
2. After clicking on **NEW Template,** it appears **“New Environment box “** create the environment name then **click** **Create**

3.After the creation of a new environment, we click the right side 3dots of the environment, the appear small box consists of new notebook, promote to space, edit , delete out of this we select new notebook

4. After that appears **New Notebook Dialogue box**, In that we select **Notebook from the URL** and next we **create the notebook name** and we paste the below link in the URL box and click create  [https://github.com/Sardaruzma/EDA/blob/main/EDAUpdated.ipynb](https://github.com/IBM/dl-learning-path-assets/tree/main/fundamentals-of-deeplearning/notebooks/Logistic_Regression_with_TensorFlow.ipynb)

### Step 5. Run the Notebook

1.After the notebook is loaded, click **Cell**, then select **Run All** to run the Notebook.

**GitHub link for all the files**

https://github.com/Sardaruzma/EDA/tree/main

## Summary

In this tutorial, you learned the basics of linear regression and how scikit learn is used to implement machine learning algorithms. You learned how to run a Jupyter Notebook using Watson Studio on IBM Cloud Pak for Data as a Service, and how to use open source frameworks in the IBM Cloud Pak for Data as a Service platform.