**Perform Logistic 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 logistic regression, then use TensorFlow (tf.keras) or sk-learn 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 Cloud Pak for Data](https://www.ibm.com/products/cloud-pak-for-data) or [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/IBM/dl-learning-path-assets/tree/, in/fundamentals-of-deeplearning/notebooks/Logistic\_Regression\_with\_TensorFlow.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.

2. Now it can visible the Jupiter notebook after run of all cells

#### Read through the Notebook

The Notebook contains all of the details. Spend some time looking through the sections of the Notebook to get an overview of the Notebook. The Notebook is composed of text (markdown or heading) cells and code cells. The markdown cells provide comments on what the code is designed to do.

You run cells individually by highlighting each cell, then either click **Run** at the top of the Notebook or use the keyboard shortcut to run the cell (**Shift + Enter**, but this can vary based on the platform). While the cell is running, an asterisk ([\*]) appears to the left of the cell. When that cell has finished running, a sequential number appears The Notebook provides a simple example of a logistic function to help you understand the basic mechanism behind TensorFlow.

## Summary

In this tutorial, you learned the basics of logistic regression and how TensorFlow 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.