**Logistic Regression on Iris Dataset**

This project demonstrates the use of Logistic Regression to classify the Iris dataset into its three classes: `setosa`, `versicolor`, and `virginica`. The project includes data preprocessing, model training, evaluation, and visualization of performance metrics.

**Overview**

The Iris dataset contains 150 samples with 4 features (sepal length, sepal width, petal length, and petal width). The target variable represents three classes of iris flowers:

-Setosa

- Versicolor

- Virginica

This project uses Logistic Regression to classify the data and evaluates its performance using various metrics.

**Features**

- Model Training: Logistic Regression classifier.

- Metrics: Precision, Recall, Specificity, F1-Score, and Accuracy for each class.

- Visualization: Confusion matrix heatmap to analyze model predictions.

**Results**

- Accuracy: The accuracy of the model on the test set is displayed.

- Confusion Matrix: A matrix visualizing the correct and incorrect predictions.

- Class-wise Metrics:

- Precision, Recall, and Specificity for each class.

- Macro-average Precision, Recall, and F1-Score for overall performance.

**Visualization**

The confusion matrix heatmap highlights:

- Rows: Actual classes.

- Columns: Predicted classes.

- Diagonal: Correct predictions.

- Off-diagonal: Misclassifications.

**Prerequisites**

Make sure you have the following Python libraries installed:

- `numpy`

- `matplotlib`

- `seaborn`

- `scikit-learn`

Install the dependencies using pip:

```bash

pip install numpy matplotlib seaborn scikit-learn