

# Iris Flower Classification by Rahul Wagh

## Introduction

The Iris dataset is a well-known dataset in the field of machine learning, containing information about iris flowers. This dataset comprises 150 samples from three different species of iris, namely Iris setosa, Iris virginica, and Iris versicolor. For each flower, the dataset provides four features, including Sepal Length (cm), Sepal Width (cm), Petal Length (cm), and Petal Width (cm). Each feature is a numeric measurement in centimeters and is utilized to classify iris flowers into one of the three species based on these feature values. The dataset also includes a target variable that represents the species of the iris, making it a supervised classification problem.

## Methodology

The methodology used in this study involved the utilization of Python and Jupyter Notebook to conduct exploratory data analysis (EDA) and build a machine-learning model for the classification of iris flowers. The dataset was pre-processed, and exploratory data analysis was conducted to better understand the data. Outliers were identified and handled, and the dataset was split into training and testing sets. A logistic regression classifier was created, trained, and deployed to make predictions on the test data. The model's performance was assessed using an accuracy score, confusion matrix, and classification report. Finally, the model was saved and loaded for future use.

## Results

The machine learning model's performance on the dataset was exceptional, with an accuracy score of 1.0, indicating that it correctly classified all data points. The confusion matrix further supports this, showing that there were no misclassifications among the three classes. The classification report reaffirms the model's precision, recall, and F1 score, all of which are perfect for each class, demonstrating the model's ability to accurately classify the data. In summary, the model achieved a flawless classification on the provided dataset, and the results suggest that it is highly effective in accurately categorizing the data into its respective classes.

## Conclusion

This study effectively used Python and Jupyter Notebook to analyze the Iris dataset and build a machine-learning model for accurately classifying iris flowers. The model achieved a 100% accuracy score with perfect precision, recall, and F1 scores for each class, demonstrating its effectiveness. This study highlights the significance of data preprocessing and exploratory data analysis in model development.