**Iris Flower Classification**

**Overview**

This project aims to classify **Iris flowers** into three species: **Setosa**, **Versicolor**, and **Virginica**, based on the dimensions of their sepals and petals. This is a classic problem in machine learning and data science, and it provides a great opportunity to apply and hone skills in data analysis, visualization, and modeling.

**Dataset**

The Iris dataset is a well-known dataset that consists of **150 observations** of iris flowers. Each observation includes four features:

* **Sepal Length**
* **Sepal Width**
* **Petal Length**
* **Petal Width**

The dataset is labeled, and the labels correspond to the three species of iris flowers:

* **Setosa**
* **Versicolor**
* **Virginica**

**Dataset Link**: [Iris Flower Dataset](https://www.kaggle.com/datasets/arshid/iris-flower-dataset)

**Project Objectives**

1. **Data Exploration and Visualization**: Perform exploratory data analysis (EDA) to understand the structure of the dataset and visualize relationships between variables.
2. **Data Preprocessing**: Clean and preprocess the data to prepare it for modeling.
3. **Model Building and Evaluation**: Develop and evaluate machine learning models to classify Iris flowers.
4. **Results Interpretation**: Interpret the results and validate the model’s performance.

**Technologies and Tools Used**

* **Python**: Programming language for data manipulation and analysis.
* **Pandas**: Library for data manipulation and analysis.
* **Matplotlib and Seaborn**: Libraries for data visualization.
* **Scikit-learn**: Machine learning library for model building and evaluation.

**Installation**

To get started with this project, you need to have **Python** installed on your system. You can install the required libraries using pip.

We use **Jupyter Notebook** for this project, but you can also use **Google Colab**, which is free and available online.