CodSoft: Data Science Internship

IRIS FLOWER CLASSIFICATION

Description: The Iris Flower Classification project involves building a machine learning model to classify iris flowers into one of three species: *Setosa*, *Versicolor*, or *Virginica*, based on the measurements of their petals and sepals. This project typically uses the well-known Iris dataset, which contains 150 samples with four features: sepal length, sepal width, petal length, and petal width.

Dataset : [Iris Flower Dataset]

Key Features:

- **Data Exploration and Visualization:** Understanding the distribution of data through visualizations, such as pair plots and histograms, to identify patterns and relationships between features.
- **Data Preprocessing:** Handling missing values, normalizing data, and splitting the dataset into training and testing sets.
- **Model Selection:** Choosing and training a classification model, such as Logistic Regression, Decision Tree, or k-Nearest Neighbors (k-NN). Here we choose k-Nearest Neighbors algorithm.
- **Model Evaluation:** Assessing the model's performance using metrics like accuracy, precision, recall, and F1 score. Cross-validation may be employed to ensure the

model's robustness.

- **Visualization of Results:** Plotting decision boundaries and confusion matrices to visualize the model's performance and the distribution of predicted classes.
- **Deployment:** Implementing the trained model for predictions on new data, making it practical for real-world applications, such as in gardening or botanical studies.