📌 Project Title

Level 1 – Task 3 : Exploratory Data Analysis (EDA) – Iris Dataset

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📖 Project Overview

This project focuses on performing Exploratory Data Analysis (EDA) on the cleaned Iris dataset understand its structure, patterns, and relationships between features.

EDA helps uncover trends, detect anomalies, and prepare data for machine learning modeling.

🛠️ Tools Used

- Python
- Pandas
- NumPy
- Matplotlib
- Seaborn

🔍 Step-by-Step EDA Process

1️⃣ Data Overview

- Loaded the cleaned dataset
- Reviewed dataset structure using `.info()`
- Generated summary statistics using `.describe()`

2️⃣ Univariate Analysis

- Plotted histograms to understand feature distributions
- Used boxplots to detect spread and potential outliers

3️⃣ Bivariate Analysis

- Created scatter plots to explore relationships between numerical variables
- Compared feature distributions across species

4️⃣ Correlation Analysis

- Computed correlation matrix
- Visualized relationships using a heatmap

📊 Key Insights

- Petal length and petal width show strong positive correlation.
- Sepal features show weaker correlation compared to petal features.
- Species classes are more separable using petal measurements.

🎯 Learning Outcomes

- Understanding feature distributions
- Interpreting visualizations
- Identifying relationships between variables
- Extracting meaningful insights from structured datasets

📁 Output

A detailed EDA notebook with visualizations and summarized insights ready for modeling and fu
analysis.