**Project 1: Iris Dataset Basic Analysis**

1. **Exploratory Data Analysis (EDA) with Python :**

Firstly load the Dataset: Import necessary libraries such as pandas, numpy etc… and then load the iris dataset from a source such as abcd.datasets or a CSV file.

Now, understand the structure of the data. Check the dimensions of the dataset by using ‘shape’ function and inspect the column names using ‘columns’ column.

Calculate the basic statistics like mean, median, min, max, and standard deviation by using ‘describe’ function and check for any missing values by using ‘isnull’ function.

For Data Visualization use Histograms, Boxplots, Pairplot. Histograms are to visualize the distribution of numerical features. Boxplots are to identify outliers and understand the range and distribution of each feature. Pairplot is to explore relationships between pairs of features, colored by class.

Compute the correlation matrix using ‘corr’ function. Visualize correlations using a heatmap.

Insights: Based on visualizations and statistics, identify patters such as Distribution of each feature, Relationships between features, Correlation strengths and directions, Potential outliers.

1. **Data Visualization with Power BI or Tableau**

#### Visualization in Power BI or Tableau:

1. **Connect to Data Source:**
   * Import the Iris dataset into Power BI or Tableau.
2. **Create Visualizations:**
   * **Bar Charts, Histograms:** Show distributions of features.
   * **Scatter Plots:** Explore relationships between features.
   * **Box Plots:** Highlight differences across different species.
   * **Heatmaps:** Display correlations between features.
   * **Summary Statistics:** Include mean, median, and other relevant statistics.
3. **Dashboard Creation:**
   * Combine visualizations into a cohesive dashboard.
   * Ensure interactive elements (e.g., filters, tooltips) for better exploration.

**3. Documentation**

**Approach and Methodologies:**

1. **Methodology:**
   * Describe the tools used (Python libraries, Power BI, or Tableau).
   * Outline the steps followed in EDA (data loading, summary statistics, visualization techniques).
2. **Explanation of Patterns:**
   * Document the patterns identified:
     + Explanation of feature distributions.
     + Insights into feature relationships and correlations.
     + Any anomalies or outliers observed.

**Conclusion:**

* Summarize the findings from the analysis.
* Discuss any implications or further steps that could be taken.