✅ Task 2 – Exploratory Data Analysis (EDA)

🔍 Objective:

To explore the cleaned Iris dataset by using statistical summaries and visualizations to identify patterns, trends, and relationships between features.

🧾 Dataset Used:

- **Name:** `cleaned_iris.csv`
- **Description:** This is the cleaned version of the original Iris dataset, with no missing or duplicate values.

📊 Steps Performed:

1. **Summary Statistics:**
    - Calculated **mean**, **median**, **mode**, and **standard deviation** for all numeric columns using `pandas`.
    - Helped understand the central tendency and spread of data.
2. **Correlation Analysis:**
    - Used `.corr()` function to compute correlation matrix between numeric features.
    - Found that **petal length and petal width** are highly correlated (~0.96).
    - Visualized this using a **heatmap** (`seaborn.heatmap()`).
3. **Visualizations:**
    - **Histogram**: For understanding distribution of `sepal_length`.
    - **Boxplot**: To identify outliers and compare value ranges across all features.
    - **Scatter Plot**: Plotted `sepal_length` vs `petal_length`, colored by species to detect class separations.

🛠️ Tools & Libraries Used:

- **Language:** Python
- **Libraries:** `pandas`, `matplotlib`, `seaborn`