Lab 2: Advanced Data Visualization with Seaborn

Objective:
In this lab, you will enhance your data visualization skills by using the Seaborn library to create three meaningful visualizations from a real-world dataset. Unlike Lab 1, where you could choose any visualization methods, this assignment requires you to use Seaborn exclusively. Your visualizations should be distinct and offer new insights compared to those in Lab 1.

Instructions:

Data Set Selection and Overview:
Select one dataset from the UCI Machine Learning Repository (https://archive.ics.uci.edu/datasets), ensuring you do not choose the Iris dataset or same with your Lab1. Start by providing a brief explanation of your selected dataset, including its origin, purpose, and key features. Use Python (for example, the head() function) to display a portion of the raw data, giving an initial insight into the dataset's structure. Include this explanation and data preview in Markdown cells (or as comments if you are using a script).

Seaborn Visualizations:
Generate **five** **meaningful and unique** visualizations using **Seaborn**. These visualizations should be thoughtfully chosen to explore different aspects of the data and should differ from the ones you produced in Lab 1. For each visualization, include clear cell text or Markdown annotations that explain:

1. **The Purpose and Rationale:**
    - What specific aspect or feature of the data does this visualization address?
2. **Insights and Interpretations:**
    - What trends, patterns, or relationships do you expect to uncover?
    - How do the visual elements (such as **Expressiveness** and **Effectiveness** – you may review lecture 3.1-3.2) contribute to understanding the data?

You may choose from various Seaborn visualization types such as count plots, box plots, violin plots, heatmaps, or pair plots. Be creative in selecting visualizations that complement one another and provide a holistic view of the dataset.

Saving Visualizations:
Save each visualization as an image file. Name each image using the format: <YourName+Title>.png (for example, if your name is JaneDoe and the first visualization is about "CustomerSegmentation," the file should be named JaneDoe_CustomerSegmentation.png). This naming convention will help keep your submissions organized.

- **Submission:**
  Upload all your deliverables—including your Python script or Jupyter Notebook with the Seaborn visualizations and the saved image files—to a well-organized **GitHub** repository.
- Finally, submit the GitHub repository link through **Canvas**.

- By focusing on five distinct and meaningful visualizations using Seaborn, you will further develop your ability to analyze and communicate data insights effectively. Good luck!