**Task 1: Violin Plot Exploration**

**Objective:** Understand the distribution of data using violin plots.

* **Dataset:** Use the tips dataset from seaborn.
* **Task:** Plot a violin plot that shows the distribution of total bills across different days of the week.
  + **Variation:** Include a hue parameter to distinguish between sex (Male/Female).
  + **Styling:** Change the color palette of the violin plot to coolwarm.
  + **Challenge:** Use the split=True parameter and observe the differences.

**Task 2: Pair Plot Analysis**

**Objective:** Explore relationships between variables in a dataset using pair plots.

* **Dataset:** Use the iris dataset from seaborn.
* **Task:** Create a pair plot showing the relationships between sepal\_length, sepal\_width, petal\_length, and petal\_width with different species.
  + **Variation:** Add the hue parameter to separate data points by species.
  + **Styling:** Customize the pair plot by using a different style context like sns.set\_context("talk").
  + **Challenge:** Set diagonal plots to be kde plots instead of histograms.

**Task 3: Heatmap Creation**

**Objective:** Visualize correlations or aggregated data using heatmaps.

* **Dataset:** Use the flights dataset from seaborn.
* **Task:** Create a heatmap to show the number of passengers per month and year.
  + **Styling:** Change the color palette to YlGnBu and add annotations to show the number of passengers in each cell.
  + **Frame Customization:** Customize the heatmap by drawing a frame around it with thicker lines and dotted/dashed styles.

**Task 4: Violin Plot with Customized Split and Inner Style**

**Objective:** Understand different inner representations in violin plots.

* **Dataset:** Use the tips dataset.
* **Task:** Create a violin plot to visualize the distribution of tips across different times (lunch and dinner) and further split by gender.
  + **Styling:** Use inner="quartile" to visualize quartiles inside the violin plot.( adds lines inside the violin to show the quartiles of the distribution.)
  + **Variation:** Try using inner="stick" and observe the difference.( places lines (sticks) inside the violin plot that represent individual data points.)

**Task 5: Combining Pair Plot with Heatmap**

**Objective:** Deepen understanding by combining visualizations.

* **Dataset:** Use the iris dataset.
* **Task:** First, create a pair plot for the iris dataset. Then calculate the correlation matrix for the dataset and visualize it using a heatmap.
  + **Styling:** Use a diverging color palette for the heatmap, such as RdBu.
  + **Challenge:** Annotate the heatmap with the correlation values and adjust the cmap center around 0 to highlight positive and negative correlations differently.