PRESENTATION ABOUT SEABORN

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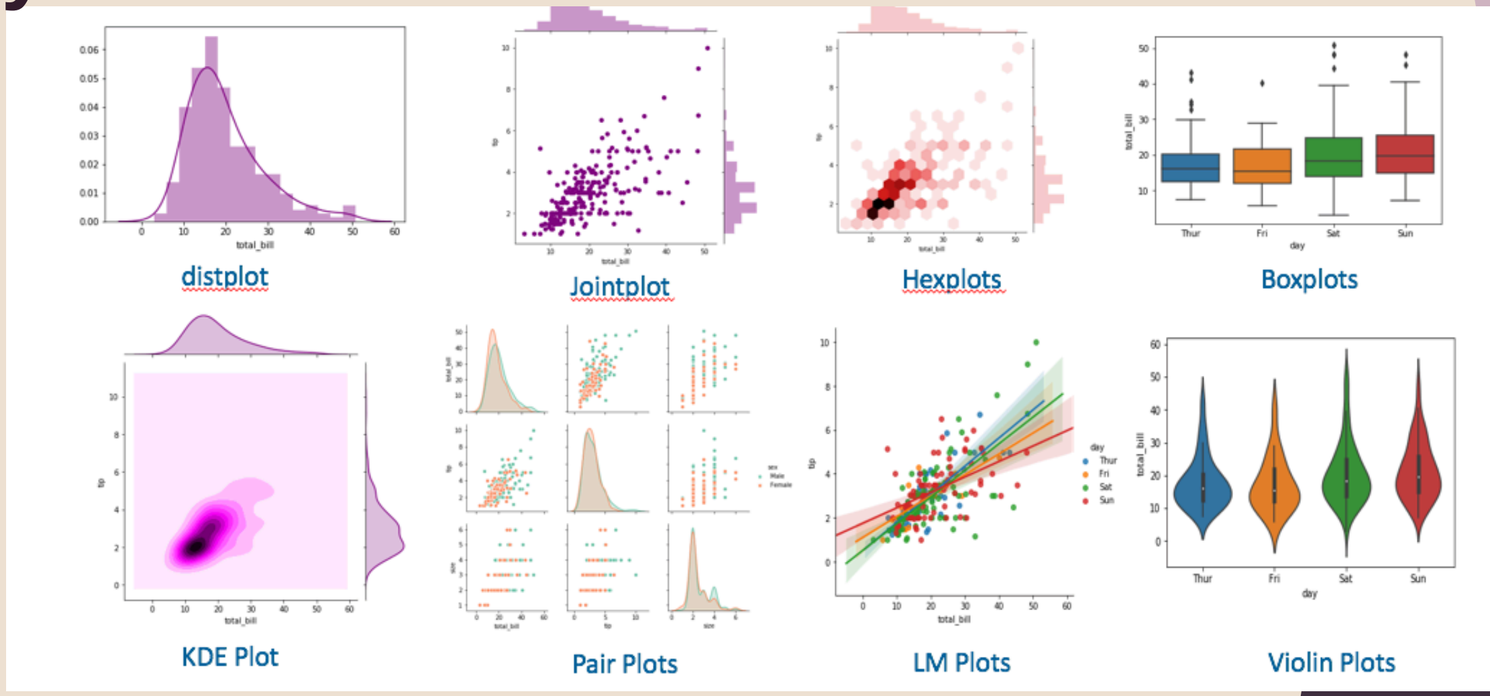
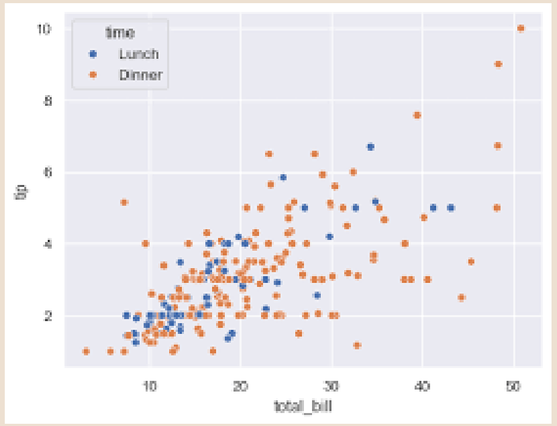
INTRODUCTION

- Seaborn is a Python library for creating attractive and informative statistical graphs
- It is a wrapper around Matplotlib and makes it easier to create complex graphs

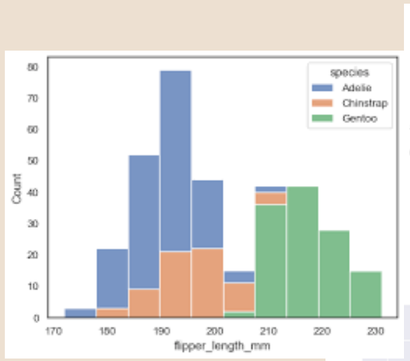


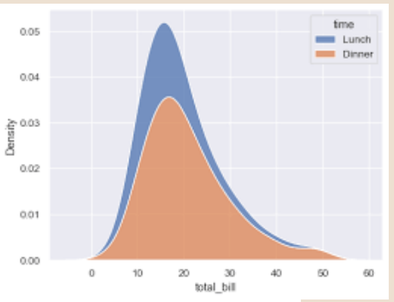
SCATTER PLOT & HISTOGRAM

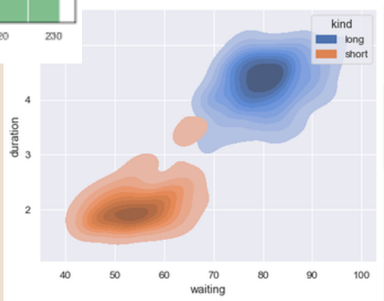
- **Scatter Plot**
  - Create a simple scatter plot using sns.scatterplot() with x and y values
  - Add hue to the plot to represent categorical values
  - Change the color palette and size of data points



- **Histogram and Distribution Plots**
  - Create a histogram using sns.histplot() with a kde (kernel density estimate) line
  - Adjust the number of bins and customize the plot

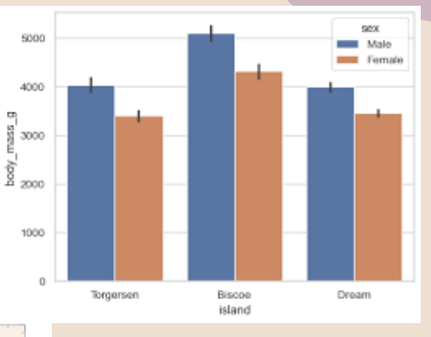




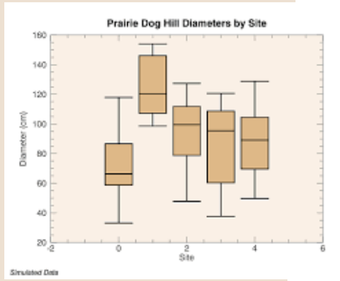


BAR & BOX & STRIP & JOINT PLOTS

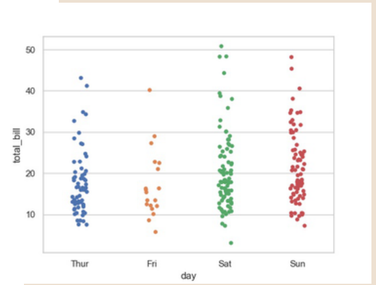
- **Bar Plot**
  - Create a bar plot using sns.barplot() with x and y values
  - Customize the color palette and add a title



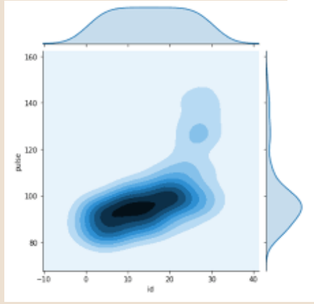
- **Box Plot**
  - Create a box plot using sns.boxplot() with x and y values
  - Customize the color palette and add a title



- **Strip Plot**
  - Create a strip plot using sns.stripplot() with x and y values
  - Customize the color palette and add a title



- **Joint Plot**
  - Create a joint plot using sns.jointplot() with x and y
  - Customize the kind of plot (e.g., regression, kde, hex)



NOTE ABOUT JOINT PLOT AND HEATMAP

- Using the heatmap method from seaborn directly is not typically suited for visualizing the relationship between two continuous variables.
- The heatmap method is generally used for visualizing matrix-like data where you have a grid of values.
- For visualizing the relationship between two continuous variables, such as engine size (displ) and CO2 emissions (co2), we can use other methods like jointplot with kind='hex' or scatterplot with a regression line.
- if you specifically want to use heatmap, it can be done by creating a 2D histogram or a pivot table, but this is less common.
- to Create a Heatmap with a 2D Histogram
- Create a 2D histogram: Bin the data into a grid.
  - heatmap_data, xedges, yedges = np.histogram2d(x, y, bins=(10, 10))
- Convert to a DataFrame: Prepare the data for the heatmap method.
  - heatmap_df = pd.DataFrame(heatmap_data, index=xedges[:-1], columns=yedges[:-1])
- Create the heatmap.
  - sns.heatmap(heatmap_df, cmap='Blues', cbar=True)

PAIR PLOT & HEATMAP & CLUSTER MAP

- **Pair Plot**
  - Create a pair plot using sns.pairplot() with a dataset
  - Customize the color palette and add a title
- **Heatmap**
  - Create a heatmap using sns.heatmap() with a correlation matrix
  - Customize the color palette and add annotations
- **Cluster Map**
  - Create a cluster map using sns.clustermap() with a dataset
  - Customize the color palette and add a title