01-09-2025

Expt No: 6 - Experiment to understand EDA - Quantitative and Qualitative analysis.

Description: Understand the importance of EDA - Qualitative and Quantitative analysis.

Soln: Aim:

To understand the importance of EDA Exploratory Data Analysis through quantitative and qualitative analysis using visualization

Algorithm

1. Import necessary libraries (seaborn, pandas, numpy, matplotlib).
2. Load the dataset from seaborn.
3. Perform initial inspection.
4. Plot distributions.
5. Visualize correlations using heatmap.
6. Use box plot to detect outliers.
7. Perform categorical analysis.
8. Interpret quantitative (numerical) and qualitative (categorical) insights.

Program:

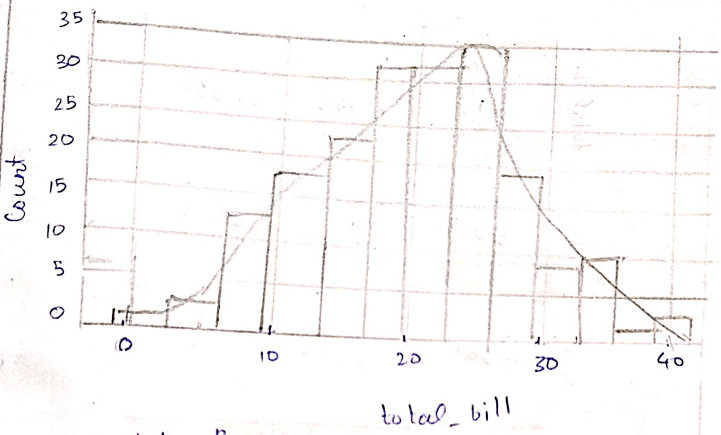
```
import seaborn as sns
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt.
tips = sns.load_dataset ('tips')
print (tips.head())
sns.displot (tips.total_bill, kde = True)
sns.displot (tips.total_bill, kde = False)
sns.jointplot (x = tips.tip, y = tips.total_bill)
sns.jointplot (x = tips.tip, y = tips.total_bill, kind="
sns.jointplot (x = tips.tip, y = tips.total_bill, kind = "he
sns.pairplot (tips)
sns.pairplot (tips, hue = 'time')
sns.pairplot (tips, hue = 'day')
sns.heatmap (tips.corr (numeric_only = True), annot = Tru
sns.boxplot (x = tips.total_bill)
sns.boxplot (x = tips.tip)
sns.countplot (x = "day", data = tips)
sns.countplot (x = "sex", data = tips)
sns.countplot (x = "day", data = tips [tips['time'] == 'Dinner'])
tips.sex.value_counts().plot (kind = "pie")
tips.sex.value_counts().plot (kind = 'bar')
plt.show()
```

~~Visualization~~ :

Visualization:

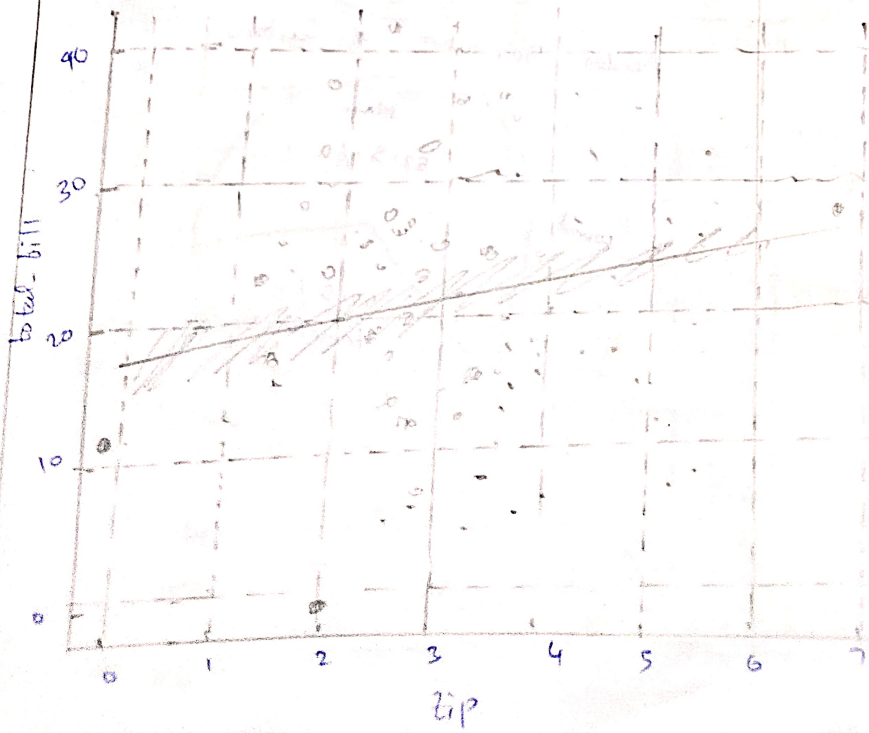
Distribution Plot

Distribution of Total Bill with KDE



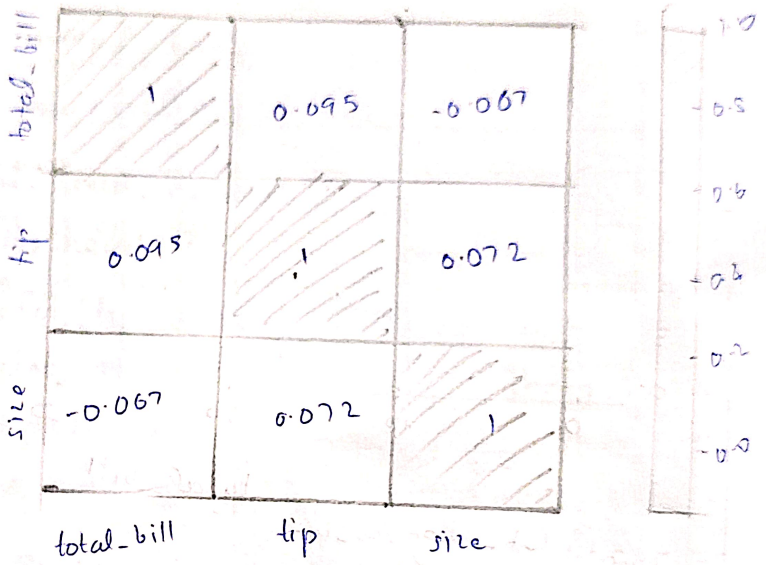

Joint Plot - Regression:

Relationship between Tip and Total Bill

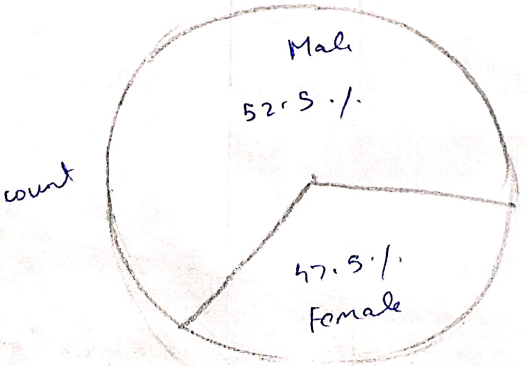


Pairplot - day.

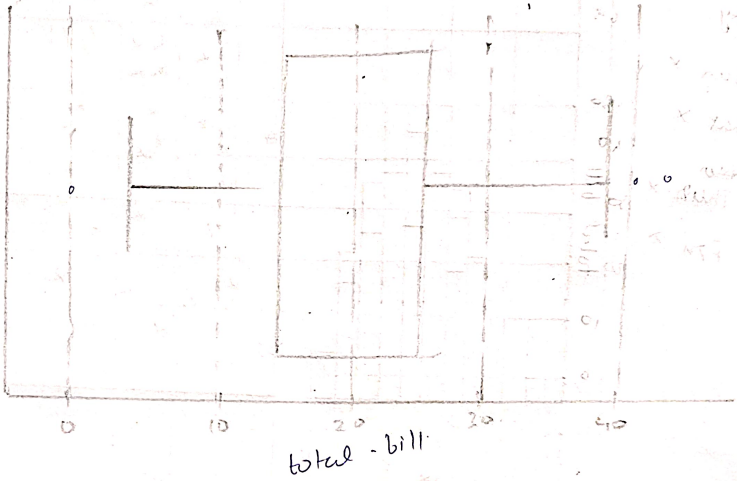
Correlation Heatmap of Numerical Features



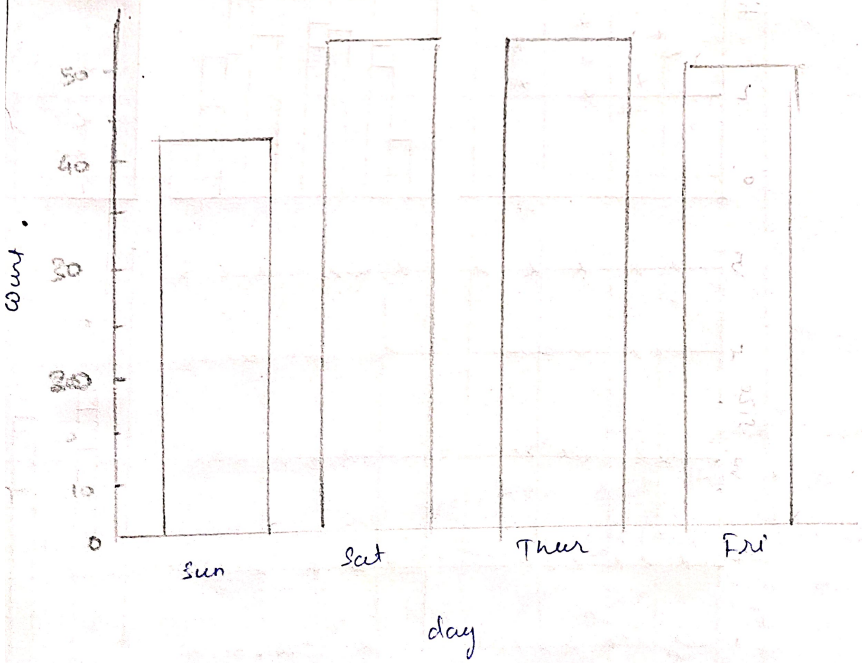

Gender Distribution of Customers.



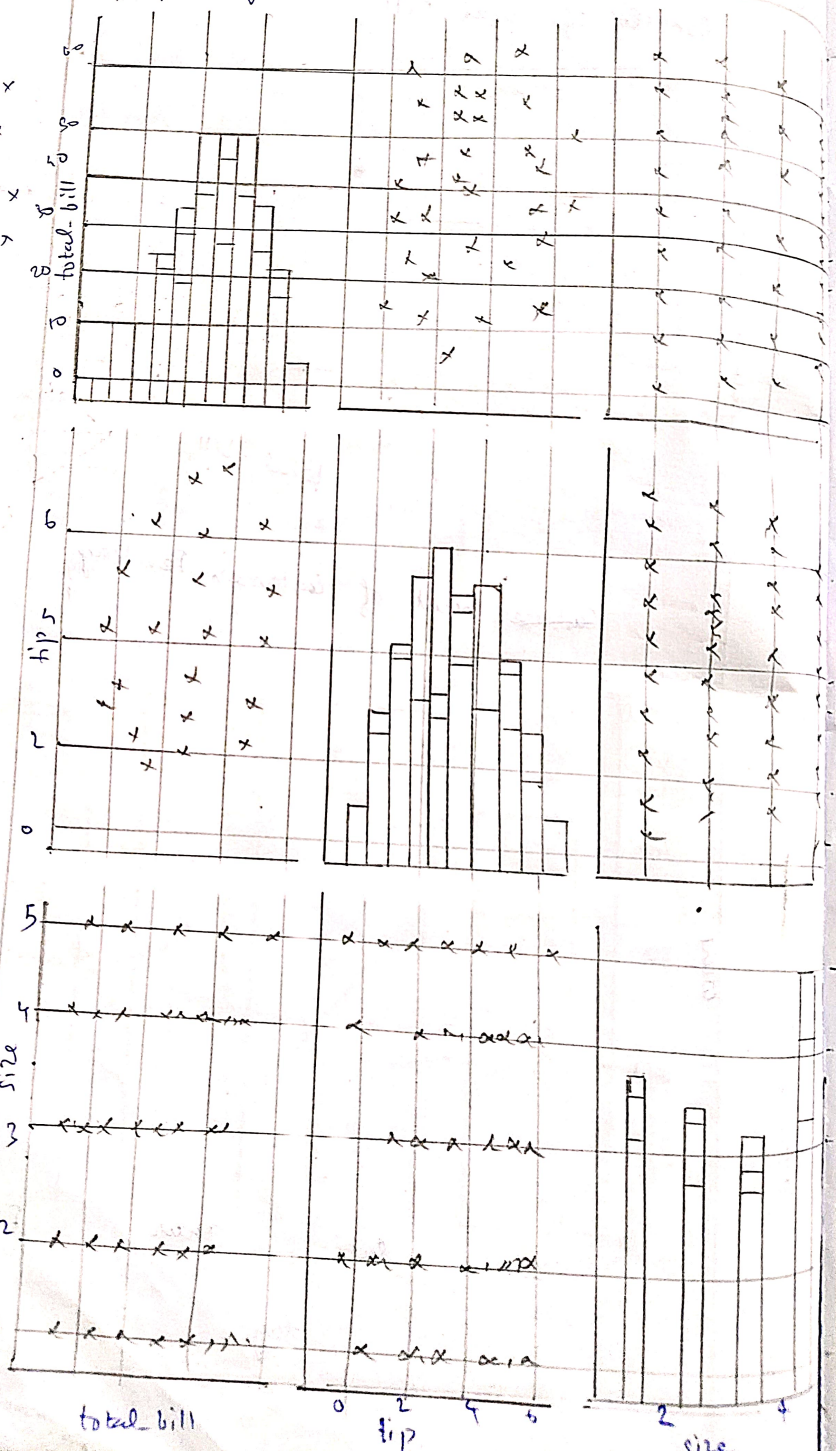
Box Plot of Total Bill




~~Customer~~ Count of customers Per Day



pairplot_day



Result: The characteristics of EDA were successfully studied and verified, and the dataset is visualized using visualization tools such as pair plot, bar graph, pie graph, etc.