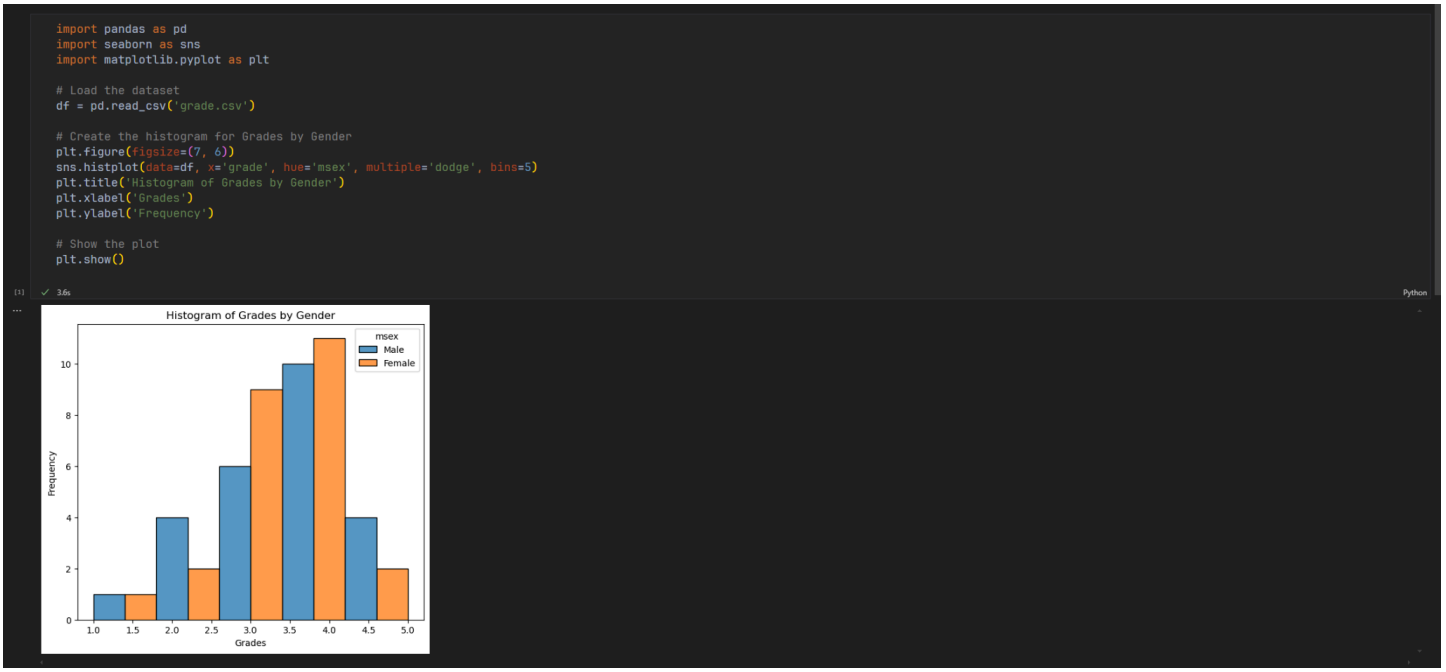
Assignment#3

1.Draw histograms for “Grades” by “Gender (Male and Female)” with title, xlabel, and ylabel. (5 pts)



Plot Initialization: plt.figure(figsize=(7, 6)) sets the size of the figure (width, height) to ensure the plot is visually clear.

Histogram Plot:

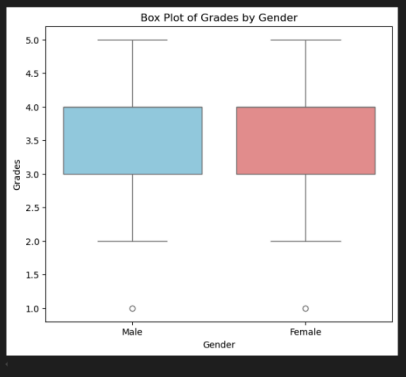
sns.histplot() creates the histogram where x='grade' specifies that the grades are plotted on the x-axis.
hue='msex' ensures that the plot is divided by gender (male and female), with different colors representing each gender.
multiple='dodge' ensures that the bars for each gender are displayed side by side for each grade, instead of being stacked.
bins=5 specifies that the range of grades is divided into 5 bins for clarity.
Labels and Title:

plt.title('Histogram of Grades by Gender') sets the title of the plot.
plt.xlabel('Grades') and plt.ylabel('Frequency') label the x-axis (Grades) and y-axis (Frequency), respectively.
Display Plot: plt.show() renders and displays the plot.

2.Draw a box plot of Grades by Gender (Male and Female) on the same figure with title, xlabel, and ylabel included. (5 pts)

```
import pandas as pd
import seaborn as sns
import matplotlib.pyplot as plt

# Load the dataset
df = pd.read_csv('grade.csv')

# Create the box plot with different colors for male and female
plt.figure(figsize=(7, 6))
sns.boxplot(data=df, x='msex', y='grade', palette={'Male': 'skyblue', 'Female': 'lightcoral'})
plt.title('Box Plot of Grades by Gender')
plt.xlabel('Gender')
plt.ylabel('Grades')

# Show the plot
plt.show()
```

```
C:\Users\Niranja Rao\AppData\Local\Temp\ipykernel_18620\899394167.py:10: FutureWarning:

Passing `palette` without assigning `hue` is deprecated and will be removed in v0.14.0. Assign the `x` variable to `hue` and set `legend=False` for the same effect.

  sns.boxplot(data=df, x='msex', y='grade', palette={'Male': 'skyblue', 'Female': 'lightcoral'})
```



Plot Initialization: Similar to the histogram, plt.figure(figsize=(7, 6)) defines the size of the plot.

Box Plot:

sns.boxplot() creates the box plot, with x='msex' mapping gender to the x-axis and y='grade' mapping grades to the y-axis.
palette={'Male': 'skyblue', 'Female': 'lightcoral'} assigns different colors to males and females in the plot (sky blue for males and light coral for females).
Labels and Title: Similar to the histogram, the title, x-label, and y-label are added to explain the plot.

Display Plot: plt.show() is used to render and display the box plot.