

# Shweta\_Shinde\_Math\_Assignment\_2

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MSDA, SJSU , Data 220- Math Method for DA

**Assignment 2-1** Run the python code below and explain why and what happens from line 5 until line 8.

```
[13]: #Display a bar chat
numbers=[19,3,15,7,11]

print('\nCreating bar chat from numbers:')
print(f'Index{"Value":>8}    Bar')

for index, value in enumerate(numbers):
    print(f'{index:>5}{value:>8}    {"*" * value}')
```

Creating bar chat from numbers:

Index	Value	Bar
0	19	*****
1	3	***
2	15	*****
3	7	*****
4	11	*****

**Explanation:** This code creates a table where each row shows a number and a bar of asterisks equal to that number. The table is neatly aligned, making it easy to see the values and their visual representation. Each row displays an index, the value and the asterisks equal to the value.

**print(f'Index{"Value":>8} Bar')** f'...': This is an f-string, which print the actual value stored in the variable embeded in it.

Index: This is the label for the first column, which will show the index of each number.

{“Value”:>8}: This part prints the word Value, right-aligned in a space that’s 8 characters wide. This means there will be extra space on the left of the word if it is shorter than 8 characters till it matches 8 i.e *\*\*Value here,*=space it adds 3 spaces extra to make the size 8

Bar: This is the label for the third column, which will show the bar made of asterisks. We add extra space to align it as per the asterisks.

**for index, value in enumerate(numbers):** This loop goes through each item in the list called numbers. For each item, it gets both the position (index) and the value (number) at that position.

```
print(f'{index:>5}{value:>8} {" " value}')
```

This line prints each number in a specific way:

index:>5 means the index (position in the list) will be right-aligned in a field that's 5 spaces wide.

value:>8 means the number will be right-aligned in a field that's 8 spaces wide.

Same as like explained above for **\*\*\*Value**

**{" " value}** prints a series of asterisks (\*). The number of asterisks is equal to the value of the number.

**Assignment 2-2** 1. Use Matplotlib to draw histograms for 'Python' and 'Sql' together from the data, including a title, xlabel, and ylabel. (4 pts)

```
[48]: import matplotlib.pyplot as plt
import pandas as pd

#Load the file
score = pd.read_csv(r'F:\scores-2.csv')

# Create histograms
plt.figure(figsize=(10, 6))

# Plot histogram for Python data
plt.hist(score['Python'], bins=10, alpha=0.8, label='Python',
         color='blue', edgecolor='black')

# Plot histogram for SQL data
plt.hist(score['Sql'], bins=10, alpha=0.8, label='SQL',
         color='salmon', edgecolor='black')

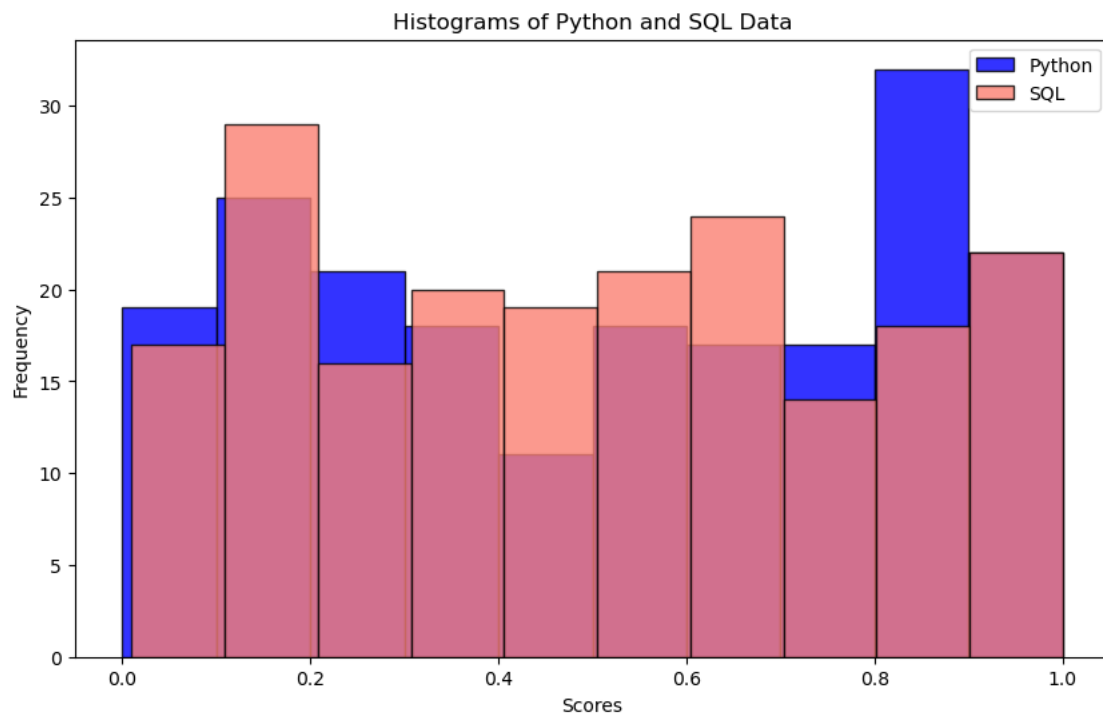
# Add a title and labels
plt.title('Histograms of Python and SQL Data')
plt.xlabel('Scores')
plt.ylabel('Frequency')

# Add a legend
plt.legend()

# Show the plot
plt.show()

#bins=10: Divides the data into 5 intervals.
```

*#alpha=0.8: Makes the bars semi-transparent so overlapping data can be seen  
→ more clearly.*



2. Use seaborn to draw Histograms (within a single graph) for all the data ('Python', 'Sql', 'ML', 'Tableau', 'Excel') together with title, xlabel, and ylabel. (4 pts)

```
[2]: import seaborn as sns
import matplotlib.pyplot as plt
import pandas as pd

#Load the file
score = pd.read_csv(r'F:\scores-2.csv')

# Create a single plot for all histograms
plt.figure(figsize=(16, 8))

# Define the columns to plot (excluding 'Student Placed')
columns_to_plot = [col for col in score.columns if col != 'Student Placed']

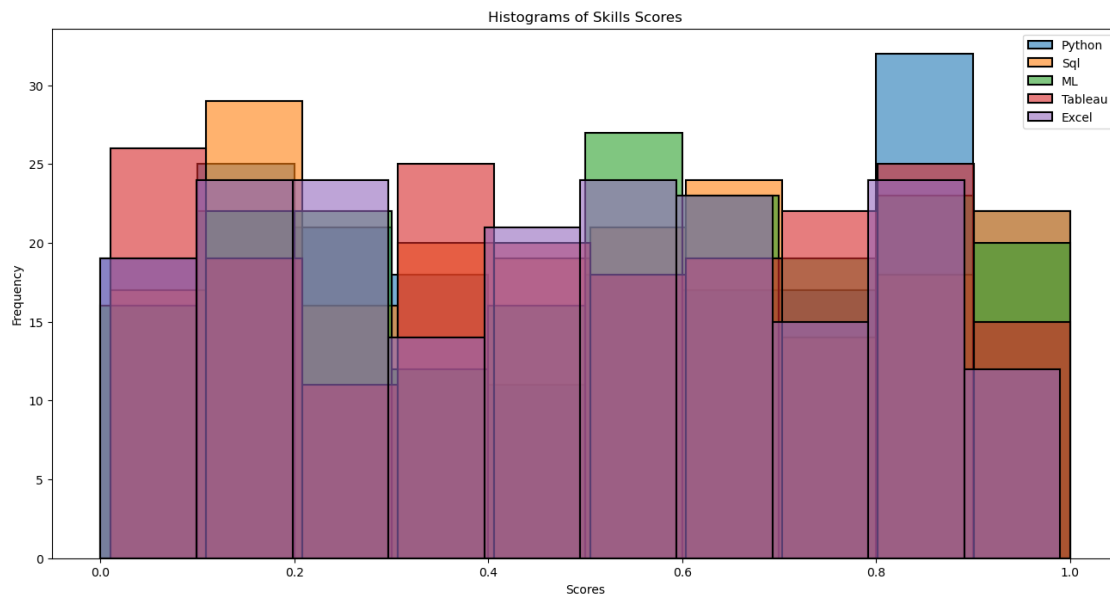
# Plot histograms for each column in the DataFrame
for column in columns_to_plot:
    sns.histplot(score[column], bins=10, label=column, alpha=0.6, linewidth=1.5)

# Add a title and labels
```

```
plt.title('Histograms of Skills Scores')
plt.xlabel('Scores')
plt.ylabel('Frequency')

# Add a legend
plt.legend()

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



[ ]: