2-1

The reason why the code outputs what it does is because the list of numbers declared at the top of the then goes into the for loop and using the enumerated method will loop through both the number and the index. Then the output of the loop at each iteration shows that the stars because of the star multiplied by the value in the enumerated output.

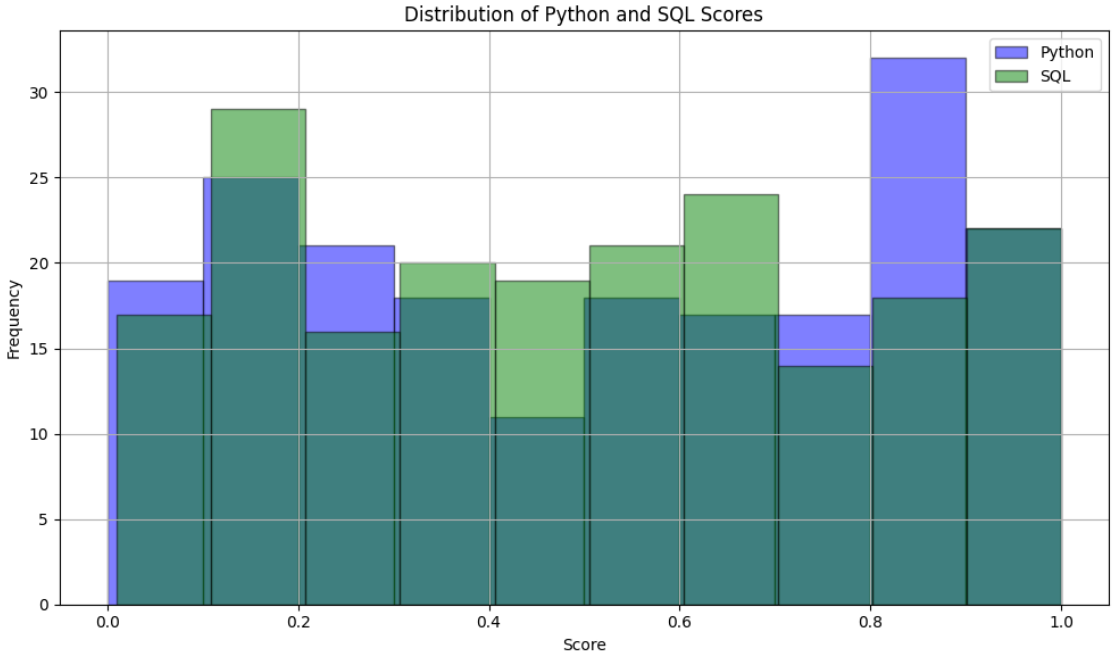
MannanNaeem_HW2

September 12, 2025

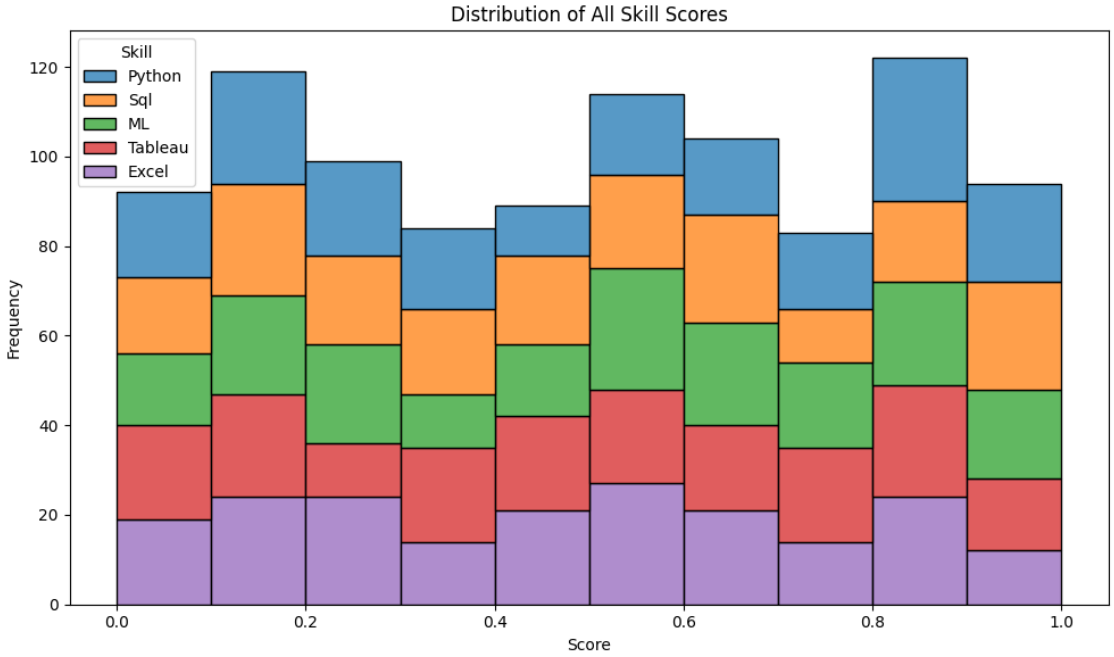
[5]:
```
numbers = [19, 3, 15, 7, 11]

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

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

```
Creating a bar chart from numbers
Index   Value Bar
    0      19  *******************
    1       3  ***
    2      15  ***************
    3       7  *******
    4      11  ***********
```

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

df = pd.read_csv('scores.csv')

plt.figure(figsize=(10, 6))
plt.hist(df['Python'], bins=10, alpha=0.5, label='Python', color='blue',␣
 ↪edgecolor='black')
plt.hist(df['Sql'], bins=10, alpha=0.5, label='SQL', color='green',␣
 ↪edgecolor='black')
plt.title('Distribution of Python and SQL Scores')
plt.xlabel('Score')
plt.ylabel('Frequency')
plt.legend()
plt.grid(True)
plt.tight_layout()
plt.show()
```



[9]:
```
df_melted = df.melt(value_vars=['Python', 'Sql', 'ML', 'Tableau', 'Excel'],
                    var_name='Skill',
                    value_name='Score')

plt.figure(figsize=(10, 6))
sns.histplot(data=df_melted, x='Score', hue='Skill', multiple='stack', bins=10)
plt.title('Distribution of All Skill Scores')
plt.xlabel('Score')
plt.ylabel('Frequency')
plt.tight_layout()
plt.show()
```


Distribution of All Skill Scores
Skill
Python
Sql
ML
Tableau
Excel
Frequency
Score
0
20
40
60
80
100
120
0.0
0.2
0.4
0.6
0.8
1.0

[ ]: