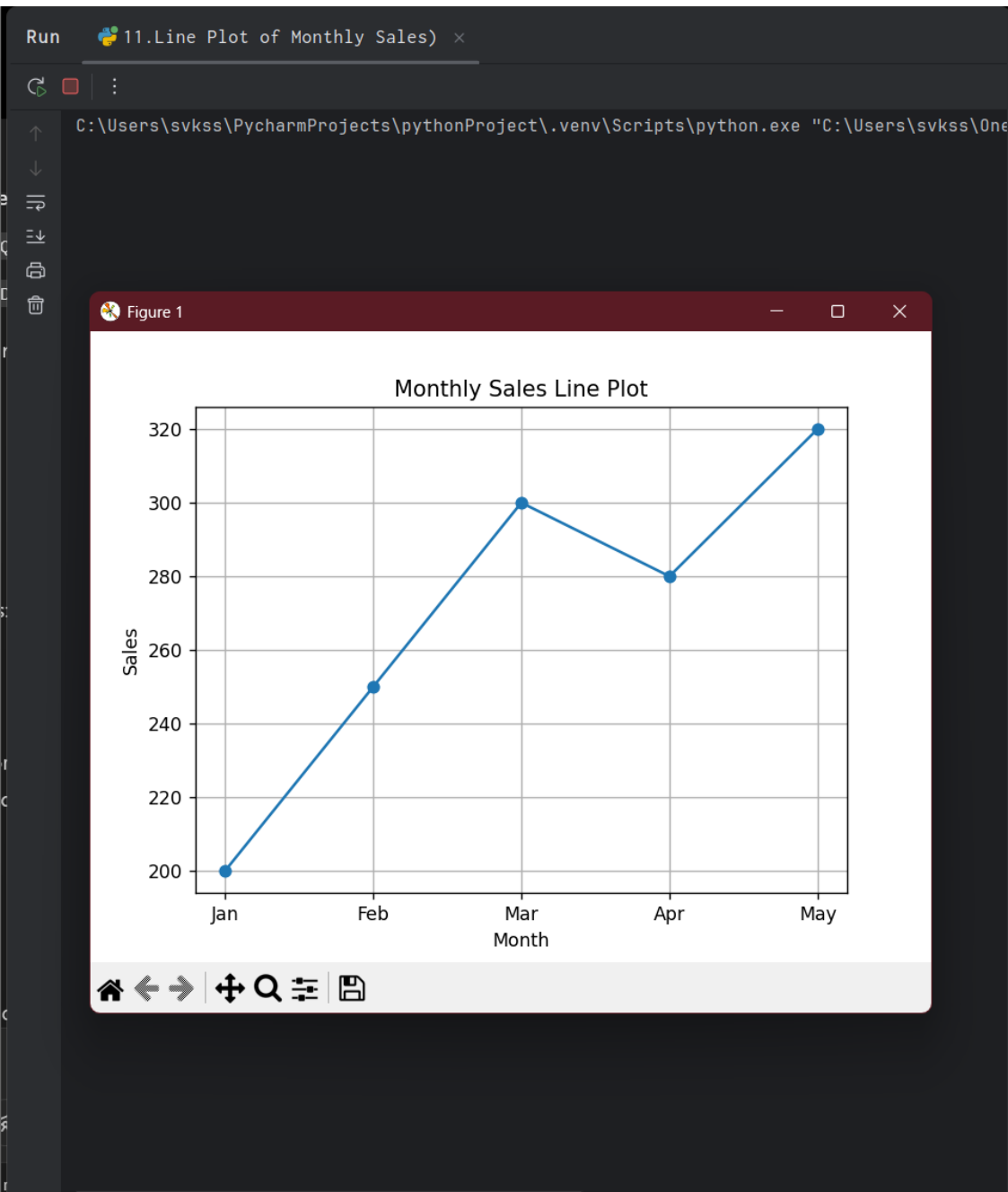


PyCharm IDE interface showing a Python project named "PythonProject". The file explorer on the left lists files including "11.2. Scatter", "11.3. Bar F", "11. Line Plc", "12. Temperat", "12. Temperat", "13. Frequenc", "14. Frequenc", "15. Frequenc", "16. Frequenc", "17. Text Ana", "18. Hospital", "19. Sales ar", "20. Custome", "CSV.py", "customer_da", "Data frame", "line plot a", "sales_data.", and "tes.py". The main editor displays the code for "11. Line Plot of Monthly Sales).py":

```
1 import matplotlib.pyplot as plt
2
3 months = ['Jan', 'Feb', 'Mar', 'Apr', 'May']
4 sales = [200, 250, 300, 280, 320]
5
6 plt.plot(*args: months, sales, marker='o')
7 plt.title('Monthly Sales Line Plot')
8 plt.xlabel('Month')
9 plt.ylabel('Sales')
10 plt.grid(True)
11 plt.show()
12
```

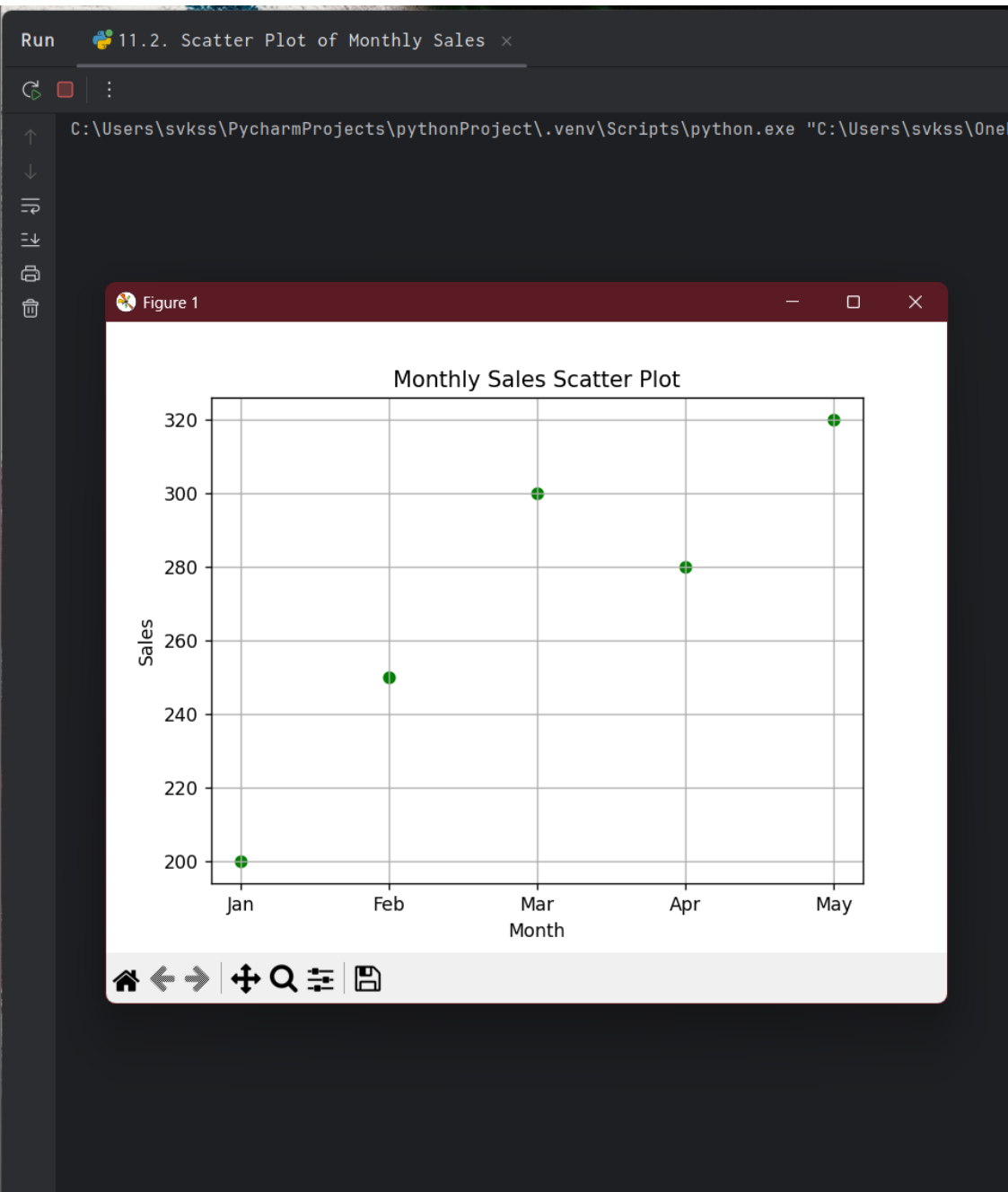
The status bar at the bottom indicates "12:1", "CRLF", "UTF-8", "4 spaces", "Python 3.12", and "virtualenv a...jects\pythonProject\.venv".



PyCharm IDE interface showing a Python project named "PythonProject". The file explorer on the left lists various files, including "11.2. Scatter Plot of Monthly Sales.py". The main editor displays the code for this file:

```
1 import matplotlib.pyplot as plt
2
3 months = ['Jan', 'Feb', 'Mar', 'Apr', 'May']
4 sales = [200, 250, 300, 280, 320]
5
6 plt.scatter(months, sales, color='green')
7 plt.title('Monthly Sales Scatter Plot')
8 plt.xlabel('Month')
9 plt.ylabel('Sales')
10 plt.grid(True)
11 plt.show()
```

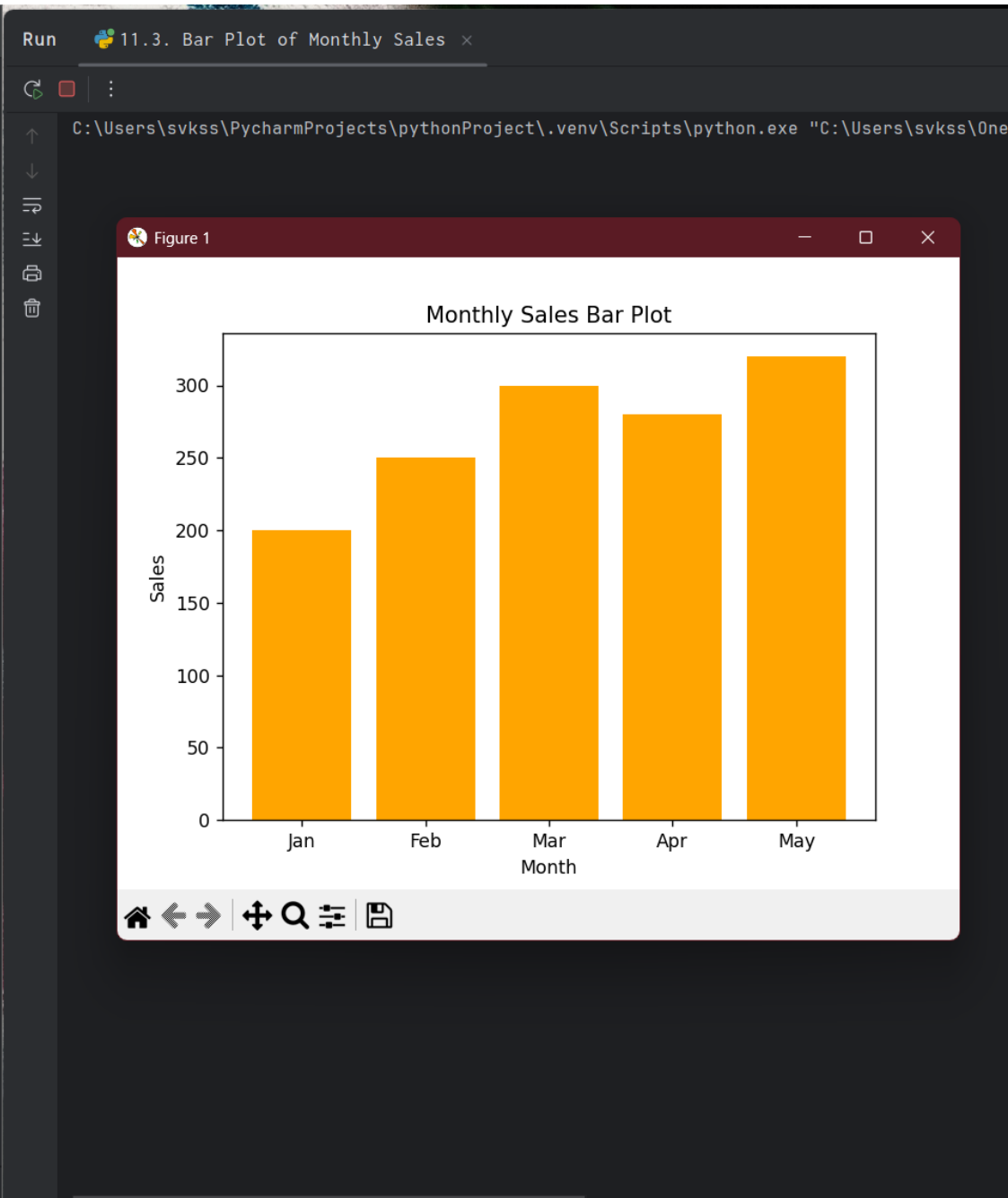
The status bar at the bottom indicates the current configuration: 4:34, CRLF, UTF-8, 4 spaces, Python 3.12 virtualenv, and the project path.



PyCharm IDE interface showing a Python project named "PythonProject". The file explorer on the left lists various files, including "11.3. Bar Plot of Monthly Sales.py". The code editor displays the following Python code:

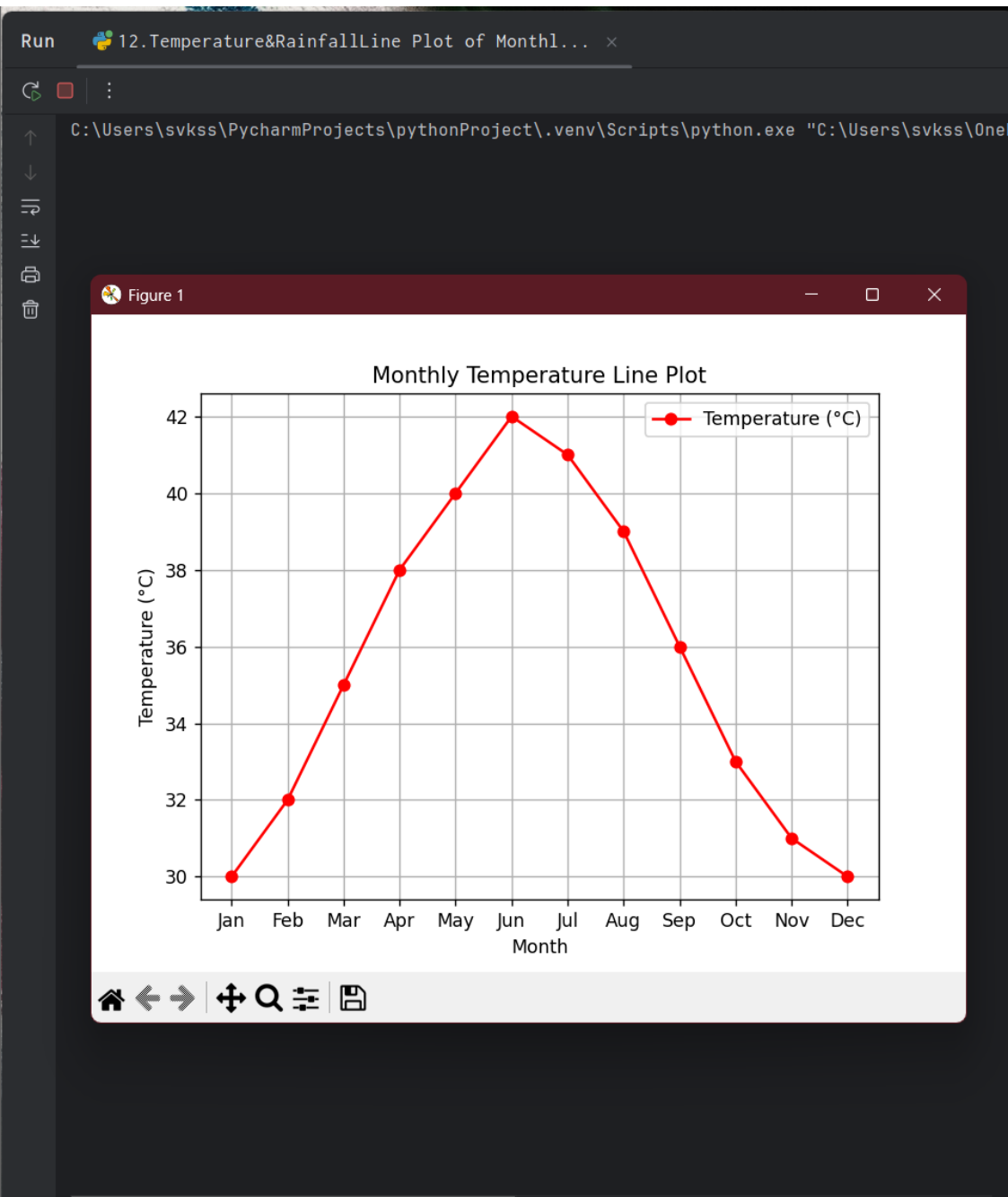
```
1 import matplotlib.pyplot as plt
2
3 months = ['Jan', 'Feb', 'Mar', 'Apr', 'May']
4 sales = [200, 250, 300, 280, 320]
5 plt.bar(months, sales, color='orange')
6 plt.title('Monthly Sales Bar Plot')
7 plt.xlabel('Month')
8 plt.ylabel('Sales')
9 plt.show()
10
```

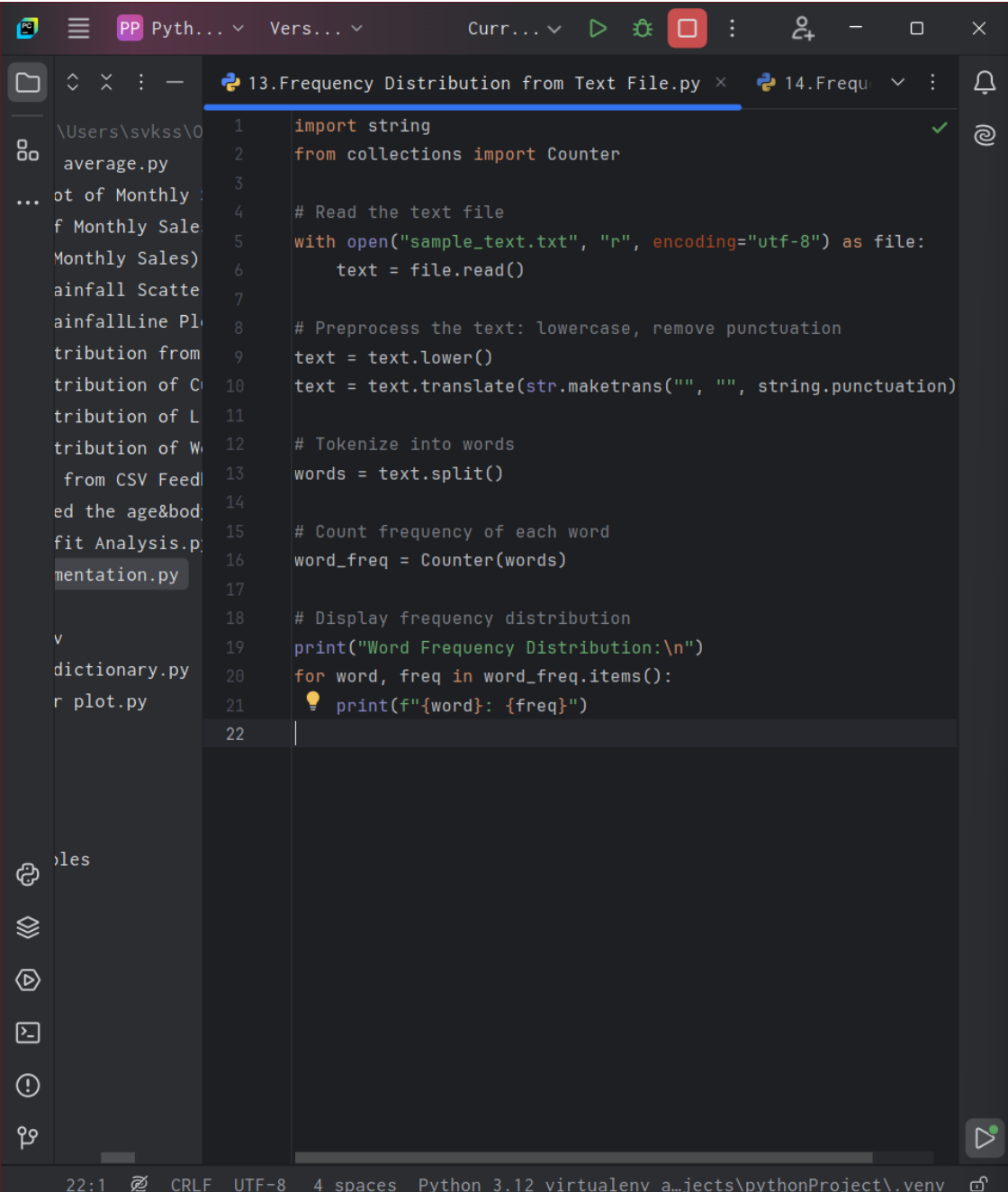
The status bar at the bottom indicates the current configuration: 10:1, CRLF, UTF-8, 4 spaces, Python 3.12 virtualenv a...jects\pythonProject\.venv.



```
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├── CSV.py
├── customer_da
├── Data frame
├── line plot a
├── sales_data.
├── tes.py
└── External Libr
    └── Scratches and

12.Temperature&RainfallLine Plot of Monthly Temperatu
1 import matplotlib.pyplot as plt
2
3 # Sample data
4 months = ['Jan', 'Feb', 'Mar', 'Apr', 'May', 'Jun',
5           'Jul', 'Aug', 'Sep', 'Oct', 'Nov', 'Dec']
6 temperature = [30, 32, 35, 38, 40, 42, 41, 39, 36, 33, 31
7 rainfall = [80, 60, 50, 30, 20, 10, 5, 10, 30, 60, 70, 90
8
9 # Line Plot for Temperature
10 plt.figure(figsize=(10, 5))
11 plt.plot(*args: months, temperature, marker='o', color='r'
12 plt.title('Monthly Temperature Line Plot')
13 plt.xlabel('Month')
14 plt.ylabel('Temperature (°C)')
15 plt.grid(True)
16 plt.legend()
17 plt.show()
```





```
Run 13.Frequency Distribution from Text File x
C:\Users\svkss\PycharmProjects\pythonProject\.venv\Scripts\python.exe "C:\Users\svkss\OneDrive\Documents\13.Frequency Distribution from Text File.py"
Word Frequency Distribution:

this: 2
is: 1
a: 1
sample: 2
text: 2
contains: 1
some: 3
words: 2
are: 2
repeated: 1
not: 1

Process finished with exit code 0
```

Pyth...
Vers...
Curr...
14. Frequency Distribution of Customer Ages.py

1
2
3
4
5
6
7
8
9

```
import pandas as pd

data = {'age': [25, 30, 25, 35, 30, 25, 40, 30]}
df = pd.DataFrame(data)

freq_dist = df['age'].value_counts()
print("Frequency Distribution of Customer Ages:")
print(freq_dist)
```

✓

Files

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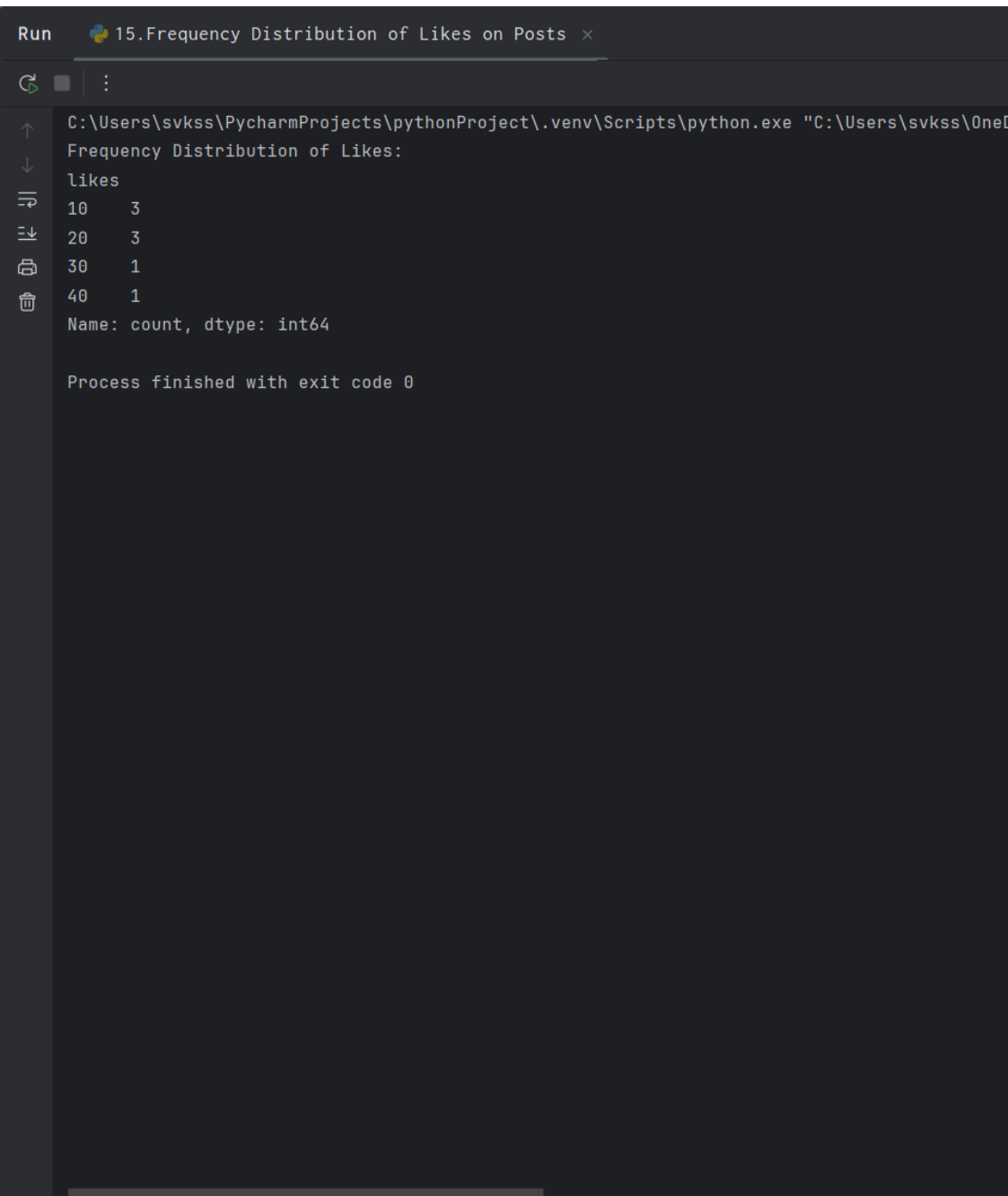
oles

9:1 CRLF UTF-8 4 spaces Python 3.12 virtualenv a...jects\pythonProject\.venv

Run 14. Frequency Distribution of Customer Ages

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```
C:\Users\svkss\PycharmProjects\pythonProject\.venv\Scripts\python.exe "C:\Users\svkss\0ne  
Frequency Distribution of Customer Ages:  
age  
25    3  
30    3  
35    1  
40    1  
Name: count, dtype: int64  
  
Process finished with exit code 0
```



Pyth... Vers... Curr... 16.Frequency Distribution of Words in Reviews.py

```
1 from collections import Counter
2 import string
3
4 reviews = [
5     "Great product and fast delivery",
6     "Product is good but delivery was late",
7     "Excellent product and support"
8 ]
9
10 all_words = []
11 for review in reviews:
12     cleaned = review.lower().translate(str.maketrans('', '', string.punctuation))
13     all_words.extend(cleaned.split())
14
15 word_freq = Counter(all_words)
16
17 print("Frequency Distribution of Words in Reviews:")
18 for word, freq in word_freq.most_common():
19     print(f"{word}: {freq}")
20
```

20:1 CRLF UTF-8 4 spaces Python 3.12 virtualenv a...jects\pythonProject\.venv

Run 16.Frequency Distribution of Words in Reviews

```
C:\Users\svkss\PycharmProjects\pythonProject\.venv\Scripts\python.exe "C:\Users\svkss\OneD
Frequency Distribution of Words in Reviews:
product: 3
and: 2
delivery: 2
great: 1
fast: 1
is: 1
good: 1
but: 1
was: 1
late: 1
excellent: 1
support: 1

Process finished with exit code 0
```



```
1 import string
2 import matplotlib.pyplot as plt
3 from collections import Counter
4 import nltk
5 from nltk.corpus import stopwords
6
7 # Download NLTK stopwords (first time only)
8 nltk.download('stopwords')
9 stop_words = set(stopwords.words('english'))
10
11 # Sample feedback data (replace with your actual comments if needed)
12 feedback_data = [
13     "I love this product! It's amazing and very helpful.",
14     "Customer service was excellent and the product quality is",
15     "The delivery was late, but the product is worth it.",
16     "Very poor support, I did not get any response.",
17     "Highly recommend this! Fast delivery and awesome packaging",
18     "Not satisfied with the service. Could be better."
19 ]
20
21 # Preprocess text: lowercase, remove punctuation, remove stopwords
22 def preprocess(text):
23     text = text.lower()
24     text = text.translate(str.maketrans('', '', string.punctuation))
25     words = text.split()
26     return [word for word in words if word not in stop_words]
27
28 # Combine all feedback into one list of words
29 all_words = []
30 for feedback in feedback_data:
31     all_words.extend(preprocess(feedback))
32
33 # Count frequency
34 word_freq = Counter(all_words)
35
36 # Ask user how many top words to display
```

Run 17.Text Analysis from CSV Feedback x

C:\Users\svkss\PycharmProjects\pythonProject\.venv\Scripts\python.exe "C:\Users\svkss\OneDrive\Documents\17.Text Analysis from CSV Feedback.py"
Enter number of top frequent words to display: [nltk_data] Downloading package stopwords to: C:\Users\svkss\AppData\Roaming\nltk_data...
[nltk_data] Package stopwords is already up-to-date!
12

Top Words:
product: 3
service: 2
delivery: 2
love: 1
amazing: 1
helpful: 1
customer: 1
excellent: 1
quality: 1
great: 1
late: 1
worth: 1

Figure 1

Top 12 Most Frequent Words in Feedback

| Word | Frequency |
|-----------|-----------|
| product | 3 |
| service | 2 |
| delivery | 2 |
| love | 1 |
| amazing | 1 |
| helpful | 1 |
| customer | 1 |
| excellent | 1 |
| quality | 1 |
| great | 1 |
| late | 1 |
| worth | 1 |

(x, y) = (excellent, 0.162)

```
18.Hospital tested the age&body fat data.py x 19.Sale v :
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r plot.py

24 plt.subplot(*args: 1, 2, 1)
25 sns.boxplot(y=df['Age'], color='lightblue')
26 plt.title('Boxplot of Age')
27
28 plt.subplot(*args: 1, 2, 2)
29 sns.boxplot(y=df['%Fat'], color='lightgreen')
30 plt.title('Boxplot of %Fat')
31 plt.tight_layout()
32 plt.show()
33
34 # 3. Scatter Plot
35 plt.figure(figsize=(6, 4))
36 sns.scatterplot(x='Age', y='%Fat', data=df, color='red')
37 plt.title('Scatter Plot: Age vs %Fat')
38 plt.xlabel('Age')
39 plt.ylabel('%Fat')
40 plt.grid(True)
41 plt.show()
42
43 # 4. Q-Q Plot for Age and %Fat
44 plt.figure(figsize=(10, 4))
45 plt.subplot(*args: 1, 2, 1)
46 stats.probplot(df['Age'], dist="norm", plot=plt)
47 plt.title('Q-Q Plot: Age')
48
49 plt.subplot(*args: 1, 2, 2)
50 stats.probplot(df['%Fat'], dist="norm", plot=plt)
51 plt.title('Q-Q Plot: %Fat')
52 plt.tight_layout()
53 plt.show()
54
```

Run 18.Hospital tested the age&body fat data x

C:\Users\svkss\PycharmProjects\pythonProject\.venv\Scripts\python.exe "C:\Users\svkss\OneD...
== Descriptive Statistics ==

Mean:
Age 46.444444
%Fat 28.783333
dtype: float64

Median:
Age 51.0
%Fat 30.7
dtype: float64

Standard Deviation:
Age 13.218624
%Fat 9.254395
dtype: float64

Figure 1

Boxplot of Age

Boxplot of %Fat

60
55
50
45
40
35
30
25

%Fat

40
35
30
25
20
15
10

Home Left Right Pan Zoom Reset Save

54:1 CRLF UTF-8 4 spaces Python 3.12 virtualenv a...jects\pythonProject\.venv

```
18.Hospital tested the age&body fat data.py x 19.Sale v :
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54
```

Run 18.Hospital tested the age&body fat data x

C:\Users\svkss\PycharmProjects\pythonProject\.venv\Scripts\python.exe "C:\Users\svkss\0ne
== Descriptive Statistics ==

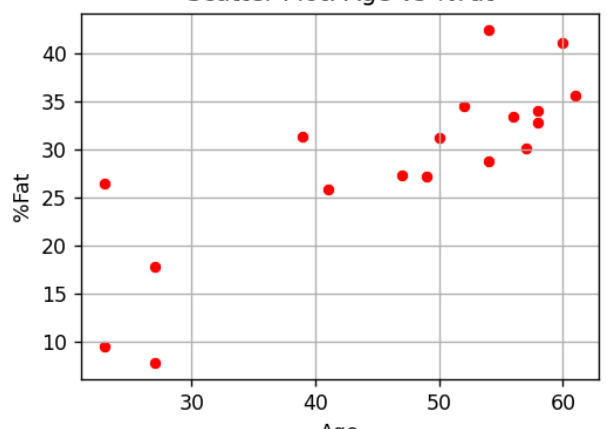
Mean:
Age 46.444444
%Fat 28.783333
dtype: float64

Median:
Age 51.0
%Fat 30.7
dtype: float64

Standard Deviation:
Age 13.218624
%Fat 9.254395
dtype: float64

Figure 1

Scatter Plot: Age vs %Fat



| Age | %Fat |
|-----|------|
| 35 | 10 |
| 35 | 27 |
| 38 | 18 |
| 40 | 32 |
| 42 | 26 |
| 48 | 28 |
| 50 | 28 |
| 50 | 32 |
| 52 | 29 |
| 52 | 35 |
| 54 | 43 |
| 55 | 29 |
| 57 | 30 |
| 57 | 34 |
| 58 | 33 |
| 58 | 35 |
| 60 | 41 |
| 60 | 36 |

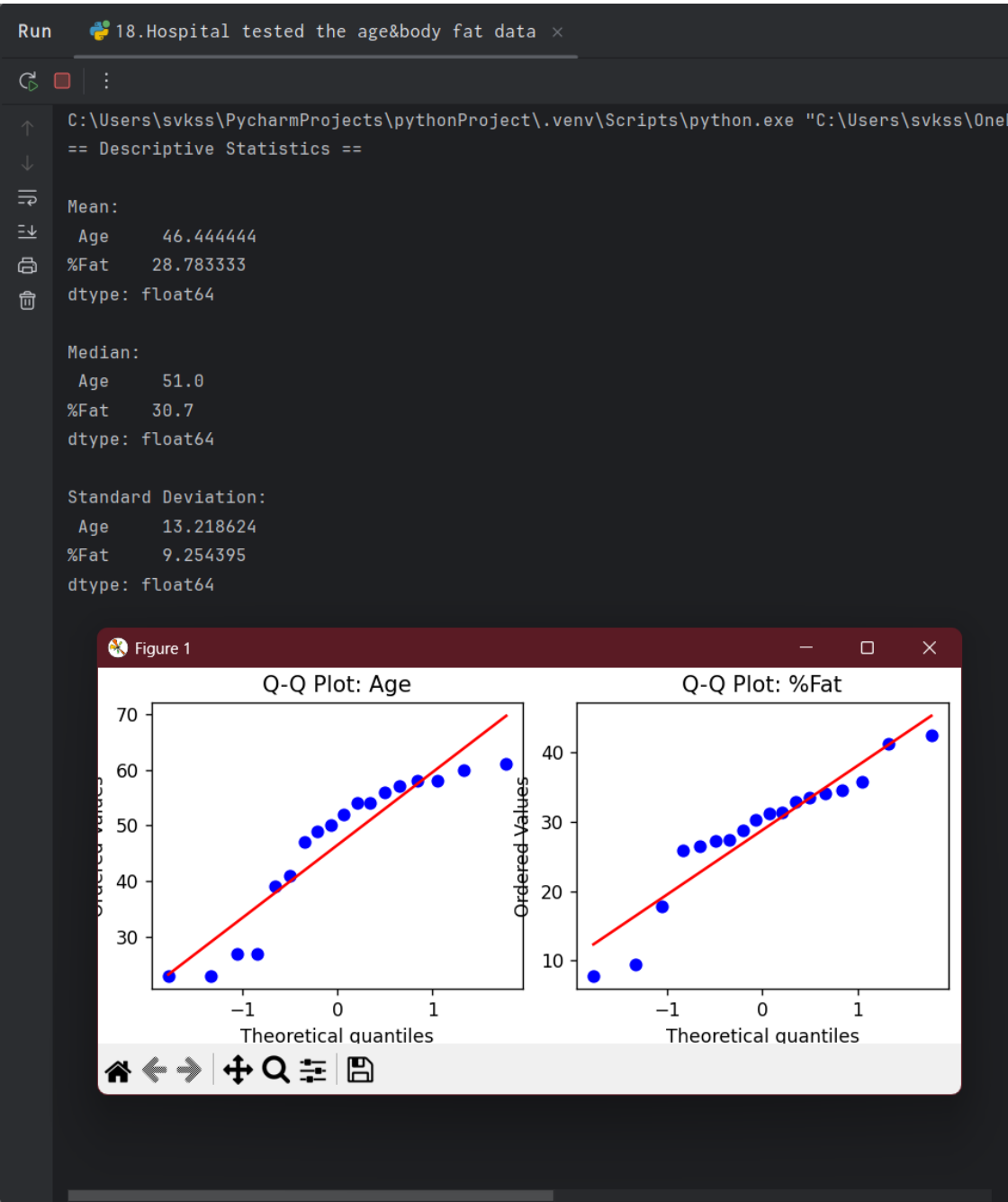
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dictionary.py
r plot.py

# 3. Scatter Plot
plt.figure(figsize=(6, 4))
sns.scatterplot(x='Age', y='%Fat', data=df, color='red')
plt.title('Scatter Plot: Age vs %Fat')
plt.xlabel('Age')
plt.ylabel('%Fat')
plt.grid(True)
plt.show()

# 4. Q-Q Plot for Age and %Fat
plt.figure(figsize=(10, 4))
plt.subplot(*args: 1, 2, 1)
stats.probplot(df['Age'], dist="norm", plot=plt)
plt.title('Q-Q Plot: Age')

plt.subplot(*args: 1, 2, 2)
stats.probplot(df['%Fat'], dist="norm", plot=plt)
plt.title('Q-Q Plot: %Fat')
plt.tight_layout()
plt.show()

54
```



Pyth... Vers... Curr... 19.Sales and Profit Analysis.py

```
1 import pandas as pd
2
3 # Load the CSV file
4 sales_df = pd.read_csv("sales_data.csv")
5
6 # a) Create 'Total Sales' column
7 sales_df['Total Sales'] = sales_df['Quantity Sold'] * sales_df['Price']
8
9 # b) Total sales by product
10 product_sales = sales_df.groupby('Product')['Total Sales'].sum()
11
12 # c) Assume 20% profit margin → Profit = 0.20 * Total Sales
13 product_sales['Profit'] = product_sales['Total Sales'] * 0.20
14
15 # d) Sort and display top 5 most profitable products
16 top_5_profitable = product_sales.sort_values(by='Profit', ascending=False)
17
18 print("Top 5 Most Profitable Products:")
19 print(top_5_profitable)
20
```

Debug 19.Sales and Profit Analysis

Threads & Variables Console

3 Product D 1500 300.0

Process finished with exit code 0

20:1 CRLF UTF-8 4 spaces Python 3.12 virtualenv a...jects\pythonProject\.venv

Run 19.Sales and Profit Analysis

C:\Users\svkss\PycharmProjects\pythonProject\.venv\Scripts\python.exe "C:\Users\svkss\OneDrive\Documents\19.Sales and Profit Analysis.py"

Top 5 Most Profitable Products:

| | Product | Total Sales | Profit |
|---|-----------|-------------|--------|
| 4 | Product E | 4500 | 900.0 |
| 0 | Product A | 1900 | 380.0 |
| 2 | Product C | 1800 | 360.0 |
| 1 | Product B | 1600 | 320.0 |
| 3 | Product D | 1500 | 300.0 |

Process finished with exit code 0

Pyth... Vers... Curr... 20. Customer Segmentation.py

```
1 import pandas as pd
2
3 # Load the CSV file
4 customer_df = pd.read_csv("customer_data.csv")
5
6 # a) Define segmentation based on 'Total Spending'
7 def segment_customer(spending):
8     if spending >= 1000:
9         return "High Spenders"
10    elif spending >= 500:
11        return "Medium Spenders"
12    else:
13        return "Low Spenders"
14
15 # b) Apply segmentation
16 customer_df['Spending Segment'] = customer_df['Total Spending'].apply(segment_customer)
17
18 # c) Calculate average age in each segment
19 avg_age_by_segment = customer_df.groupby('Spending Segment')['Age'].mean()
20
21 print("Average Age by Spending Segment:")
22 print(avg_age_by_segment)
23
```

19. Sales and Profit Analysis

3 Product D 1500 300.0

Process finished with exit code 0

23:1 CRLF UTF-8 4 spaces Python 3.12 virtualenv a...jects\pythonProject\.venv

Run 20. Customer Segmentation x 11.3. Bar Plot of Monthly Sales x

C:\Users\svkss\PycharmProjects\pythonProject\.venv\Scripts\python.exe "C:\Users\svkss\OneD..."

Average Age by Spending Segment:

| Spending Segment | Age |
|-------------------|-----------|
| 0 High Spenders | 32.333333 |
| 1 Low Spenders | 28.333333 |
| 2 Medium Spenders | 35.000000 |

Process finished with exit code 0