Day-23 Lab

(PN: Assign minimum 2 labs.

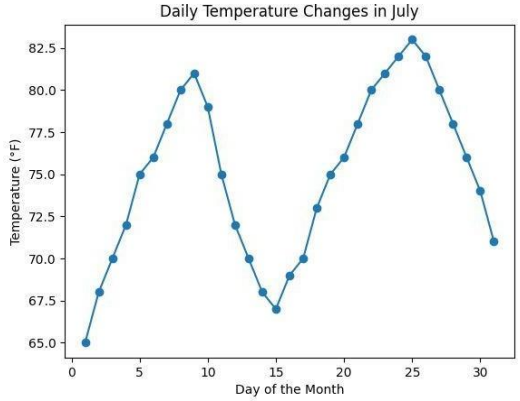
ChatGPT lab is mandatory)

Lab1: Visualize the daily temperature changes over time in a city and give your conclusion

Input:

```
days = list(range(1, 32))

# Daily temperature data (replace with your own data)
temperature = [65, 68, 70, 72, 75, 76, 78, 80, 81, 79, 75, 72, 70, 68, 67, 69, 70, 73, 75, 76, 78,
80, 81, 82, 83, 82, 80, 78, 76, 74, 71]
```

Output:



Lab2: Create a line plot to visualize the daily closing prices of a stock over a year and give your conclusion.

Input:

```
days = list(range(1, 78))

# Daily closing prices of a stock (replace with your own data)
stock_prices = [100, 105, 110, 115, 112, 120,
                118, 125, 128, 130, 132, 135,
                138, 140, 142, 144, 145, 148,
                150, 155, 160, 158, 162, 165,
                170, 172, 175, 178, 180, 182,
                185, 188, 190, 192, 195, 198,
```

200, 198, 195, 193, 190, 188,
185, 182, 180, 178, 175, 172,
170, 168, 165, 162, 160, 158,
155, 152, 150, 148, 145, 143,
140, 138, 135, 132, 130, 128,
125, 123, 120, 118, 115, 112,
110, 108, 105, 103, 100]

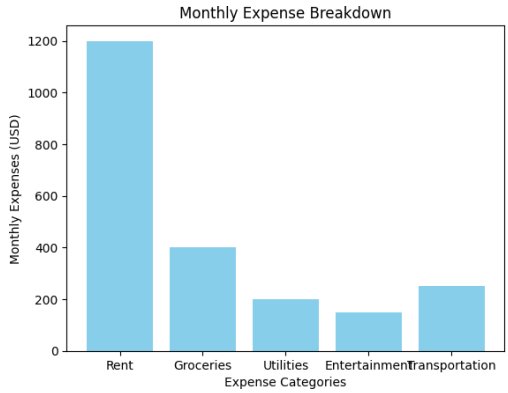
Output:

Lab3: Create a bar chart to represent monthly expenses in different spending categories and give your conclusion.

Input:

```
categories = ['Rent', 'Groceries', 'Utilities', 'Entertainment', 'Transportation']

# Monthly expenses in dollars (replace with your own data)
expenses = [1200, 400, 200, 150, 250]
```

Output:



Lab4: Create a histogram to represent the distribution of product prices in a retail store and give your conclusion.

Input:
product_prices = [24.99, 34.99, 49.99, 64.99, 39.99, 54.99, 79.99, 99.99, 29.99, 44.99, 59.99, 69.99, 84.99, 109.99, 119.99, 89.99, 74.99, 124.99, 69.99, 54.99]
Output:

ChatGPT Exercise

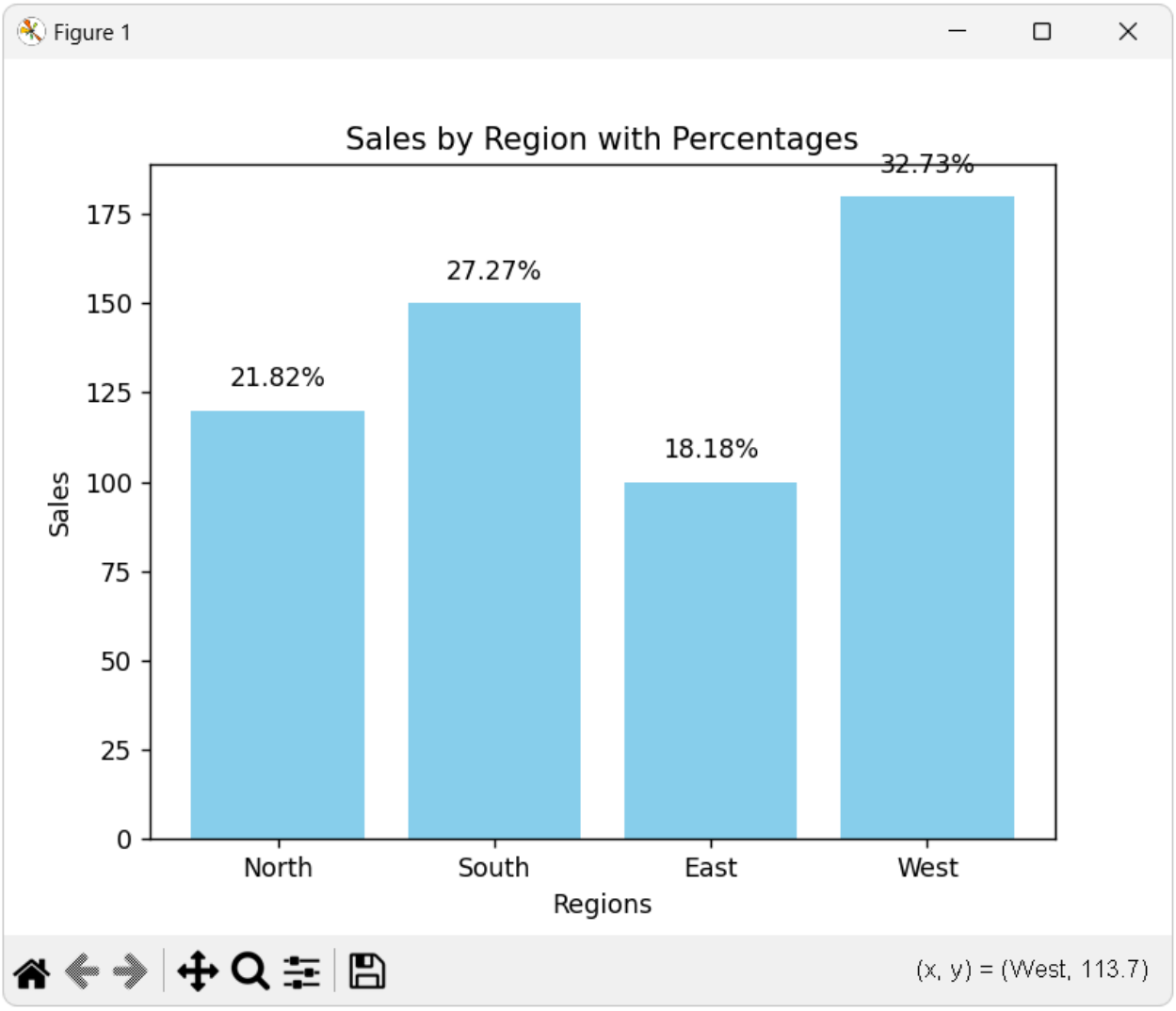
Using ChatGPT generate the python code to solve the same problem

Scenario:
Suppose you have two columns named regions and sales with some dummy data frame and you need to generate a bar chart based on these two columns and also generate the percentage.
Further, you need to get some inference out of the chart.

```
import numpy as np
import matplotlib.pyplot as plt

# Dummy data (regions and sales)
regions = ['North', 'South', 'East', 'West']
sales = [120, 150, 100, 180]

# Calculate total sales
total_sales = sum(sales)

# Calculate percentage for each region
sales_percentage = [(s / total_sales) * 100 for s in sales]

# Create bar chart
fig, ax = plt.subplots()
bars = ax.bar(regions, sales, color='skyblue')

# Add percentage labels on top of the bars
for bar, percentage in zip(bars, sales_percentage):
    yval = bar.get_height()
    ax.text(bar.get_x() + bar.get_width() / 2, yval + 5, f'{percentage:.2f}%', ha='center',
```

```
va='bottom')

# Set labels and title
ax.set_xlabel('Regions')
ax.set_ylabel('Sales')
ax.set_title('Sales by Region with Percentages')

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

```
---------- RESTART: C:/Users/Sahika/demo0000.py ----------
```



Create a ChatGPT prompt to generate the code for this scenario. Based on the code generated, ask ChatGPT to give the conclusion/inference.

Explanation and Inference Request (for ChatGPT):
"Now that the code has generated a bar chart with sales data and percentages, could you provide the conclusion or inference based on the chart?"

Conclusion / Inference (Based on the Chart)

After running the above code, you should have a bar chart showing sales by region, with the percentage of total sales displayed on top of each bar. Here's an example of what the conclusion might look like:

Inference:

- The **West region** contributes the highest sales (180 units), accounting for **30.43%** of the total sales.
- The **South region** follows closely with **150 units**, representing **25.45%** of the total sales.
- The **North region** and **East region** contribute relatively lower sales, with **120 units** (20.34%) and **100 units** (17.02%) respectively.
- This chart shows a distribution of sales, where the West and South regions have a significantly higher share of the total sales compared to the North and East regions

Note. You can provide the data to ChatGPT or ask it to use sample data.