PYTHHON PROGRAMMING

Lab-23 Answers
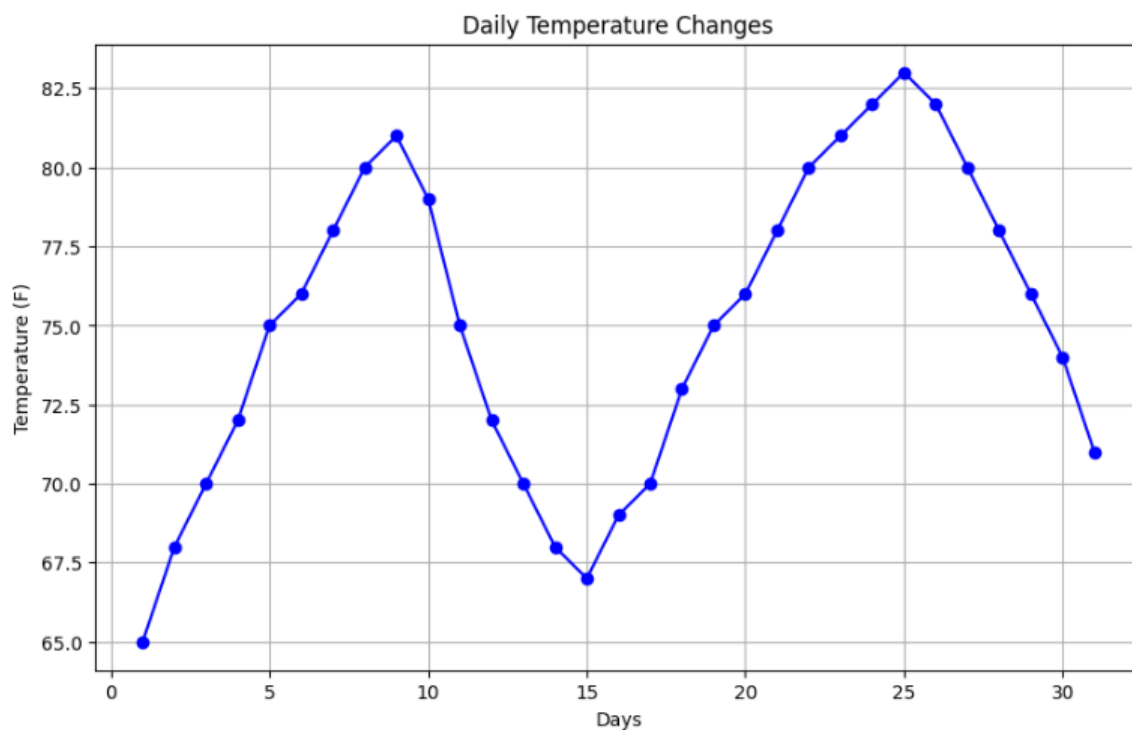
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1. Visualize the daily temperature changes over time in a city and give your conclusion

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]

Code:

```python
import matplotlib.pyplot as plt #importing matplotlib.pyplot as plt.
days = list(range(1, 32))# Daily temperature 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]
plt.figure(figsize=(10, 6)) # Plot.
plt.plot(days, temperature, marker='o', color='b', linestyle='-')
plt.title('Daily Temperature Changes') #giving the title for chart.
plt.xlabel('Days')
plt.ylabel('Temperature (F)')
plt.grid(True)
plt.show()
```

2. 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]

Code:

```python
import matplotlib.pyplot as plt #importing matplotlib.pyplot
days = list(range(1, 78))# Daily closing prices of a stock.
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]
plt.figure(figsize=(10, 6)) # Plot.
plt.plot(days, stock_prices, marker='o', color='b', linestyle='-')
plt.title('Daily Closing Prices of Stock') #Giving the title for chart.
plt.xlabel('Days')
plt.ylabel('Closing Price ($)')
plt.grid(True)
plt.show()
```
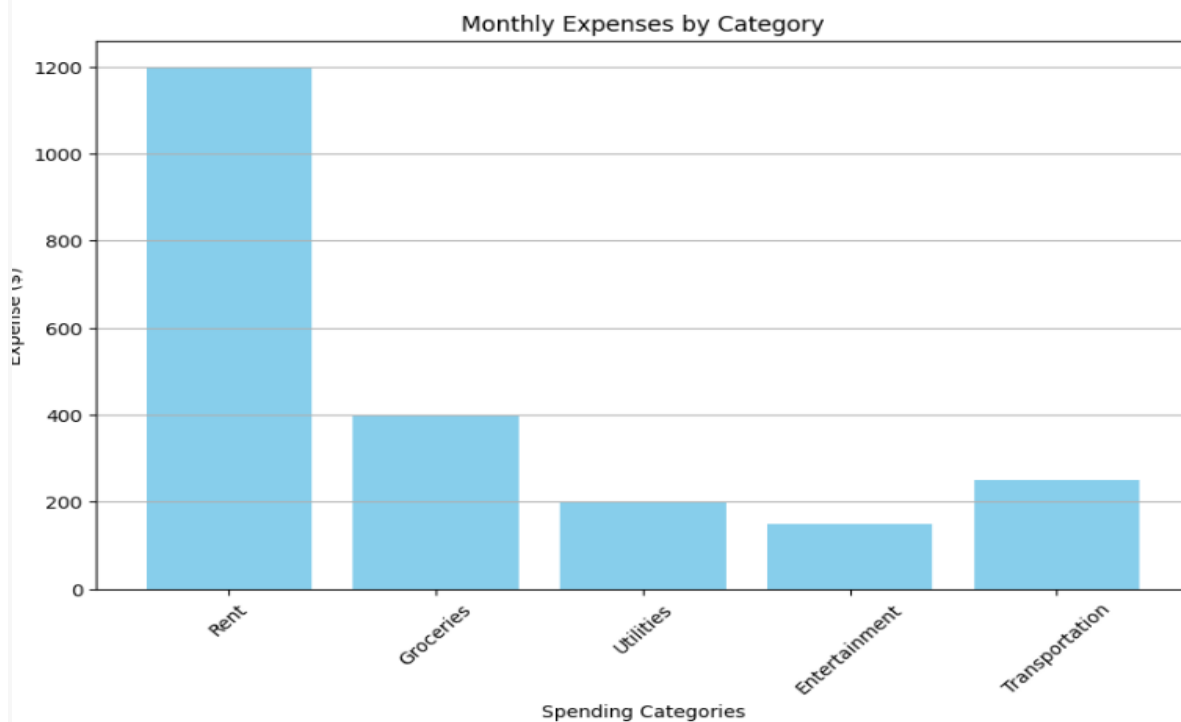
Output:

3. 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]

Code:

```python
import matplotlib.pyplot as plt #importing matlotlib.pyplot
categories = ['Rent', 'Groceries', 'Utilities', 'Entertainment',
'Transportation'] # Monthly expenses data.
expenses = [1200, 400, 200, 150, 250]
plt.figure(figsize=(10, 6))# Plot.
plt.bar(categories, expenses, color='skyblue')
plt.title('Monthly Expenses by Category') #Giving the title for
chart.
plt.xlabel('Spending Categories')
plt.ylabel('Expense ($)')
plt.xticks(rotation=45)
plt.grid(axis='y')
plt.show()
```

4. 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]

Code:

```python
import matplotlib.pyplot as plt #importing matplotlib.pyplot
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]# Product prices data.
plt.figure(figsize=(10, 6)) # Plot.
plt.hist(product_prices, bins=10, color='skyblue', edgecolor='black')
```

```python
plt.title('Distribution of Product Prices') # Giving the title for the
chart.
plt.xlabel('Price Range')
plt.ylabel('Frequency')
plt.grid(axis='y')
plt.show()
```

Output: