Deborah Barndt

ITMD 513 Open Source Programming

Professor Dr. Sam

Hw6

2-28-19

```
Question #1: Expense Pie Chart

'''
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2-28-19
ExpensePieChart.py
hw6: Question 1 Expense Pie Chart

This program will read data from a text file and use the matplotlib to plot
out and display a pie chart showing how you spend your money.

Written by Deborah Barndt.
'''

import matplotlib.pyplot as plt

# Function to read a text file, and then build and display a pie chart.
def main():
    # Open the text file in read mode.
    budget = open('expenses.txt', 'r')

    # Create the labels for the pie chart.
    categories = ['Rent', 'Gas', 'Food', 'Clothing', 'Car Payment', 'Misc']
```
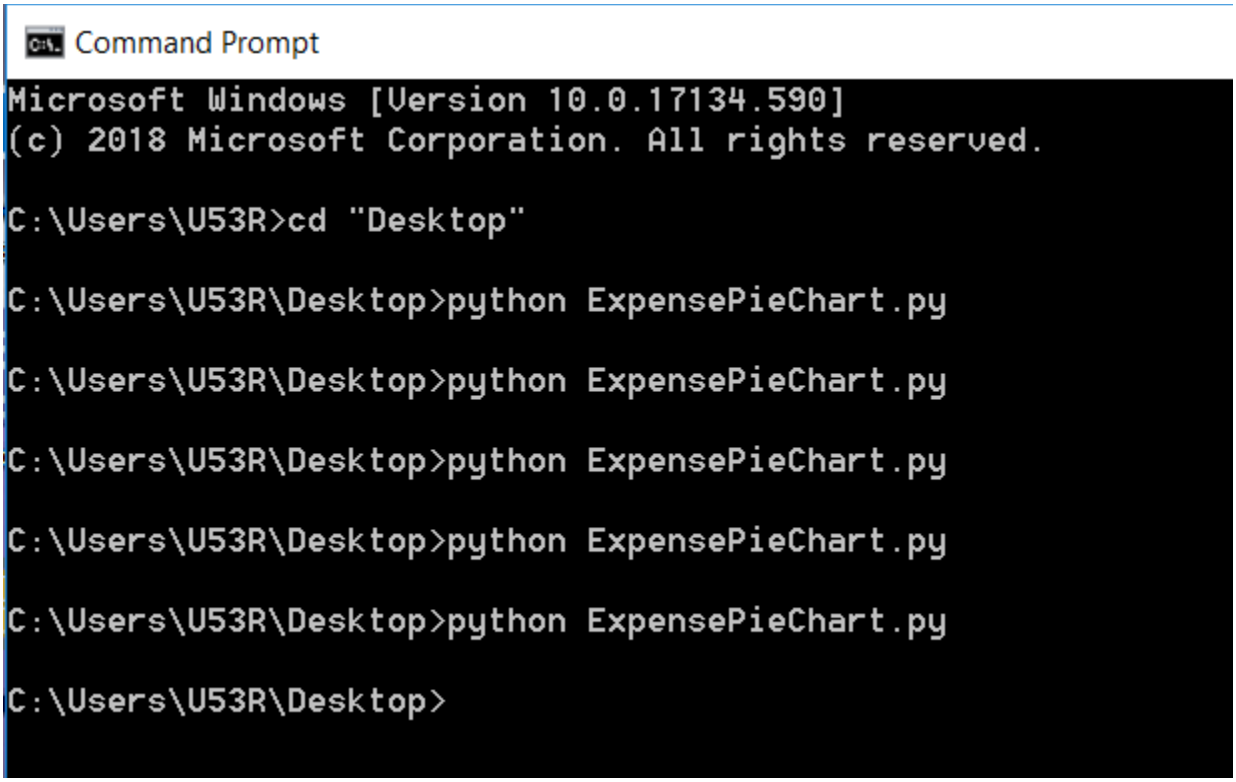
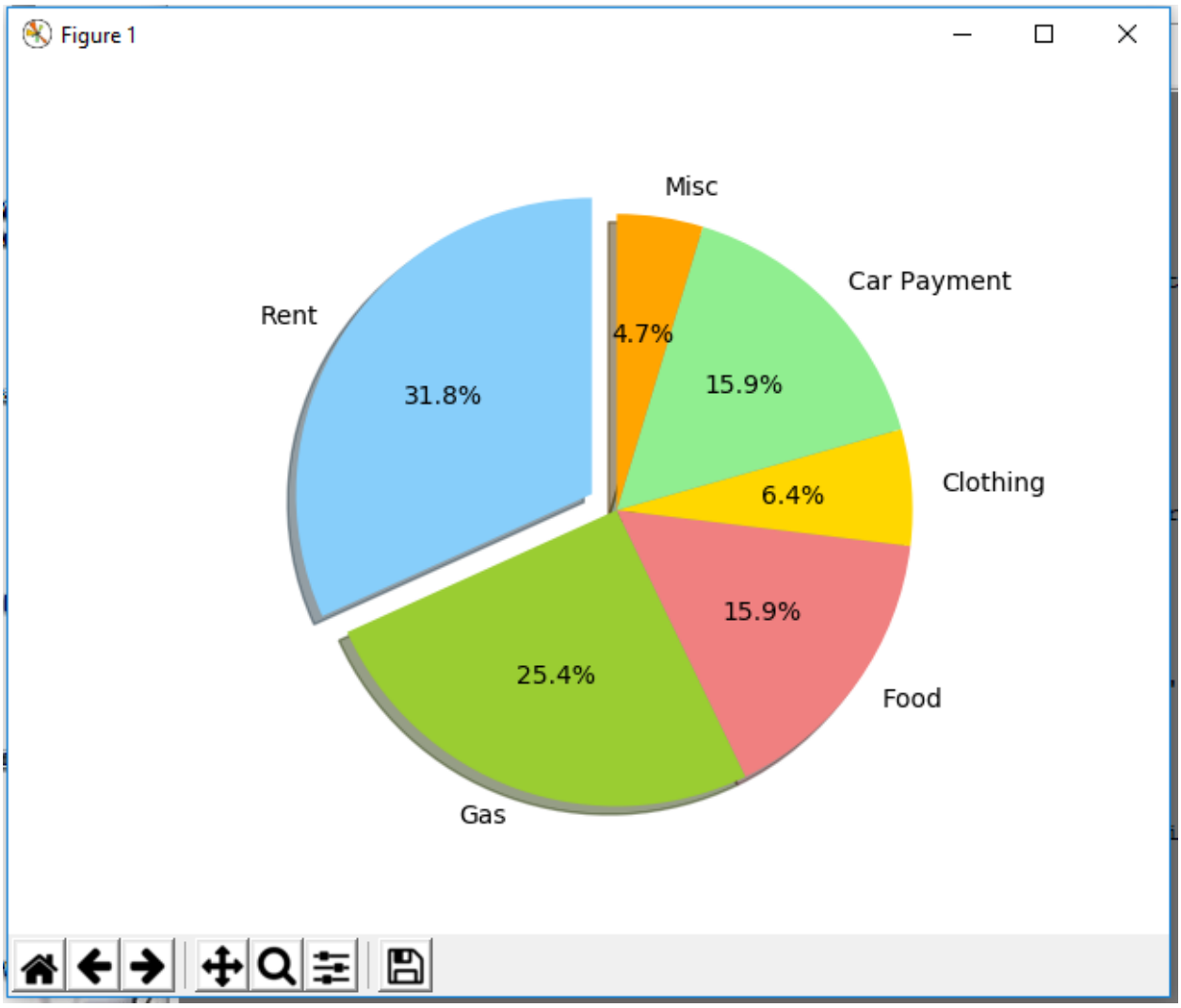

```
24
25      # Store the expense amounts in the order of the category labels.
26      expenses = []
27
28      # Read the content of the expenses file and then read the file line by line.
29      content = budget.read()
30
31      for data in content.split('\n'):
32          # Add the current expense in the file to the expenses.
33          expenses.append(int(data))
34
35      # Create the color scheme for the pie chart.
36      colors = ['lightskyblue', 'yellowgreen', 'lightcoral', 'gold','lightgreen', 'orange']
37
38      # Explode the first slice of the expense pie chart.
39      explode = (0.1, 0, 0, 0, 0, 0)
40
41      # Plot out the expenses pie chart from the values.
42      plt.pie(expenses, labels = categories, colors = colors, explode = explode, autopct = '%1.1f%%', shadow
43  = True, startangle = 90)
44
45      # Set the axis of the expense pie chart as equal.
46      plt.axis('equal')
47
48      # Display the expense pie chart.
49      plt.show()
50
51
52  # Call the main function to run the program.
```

```
main()
```

Output Result:





Question #2: 1994 Weekly Gas Averages

'''

Deborah Barndt

2-28-19

WeeklyGasAverages.py

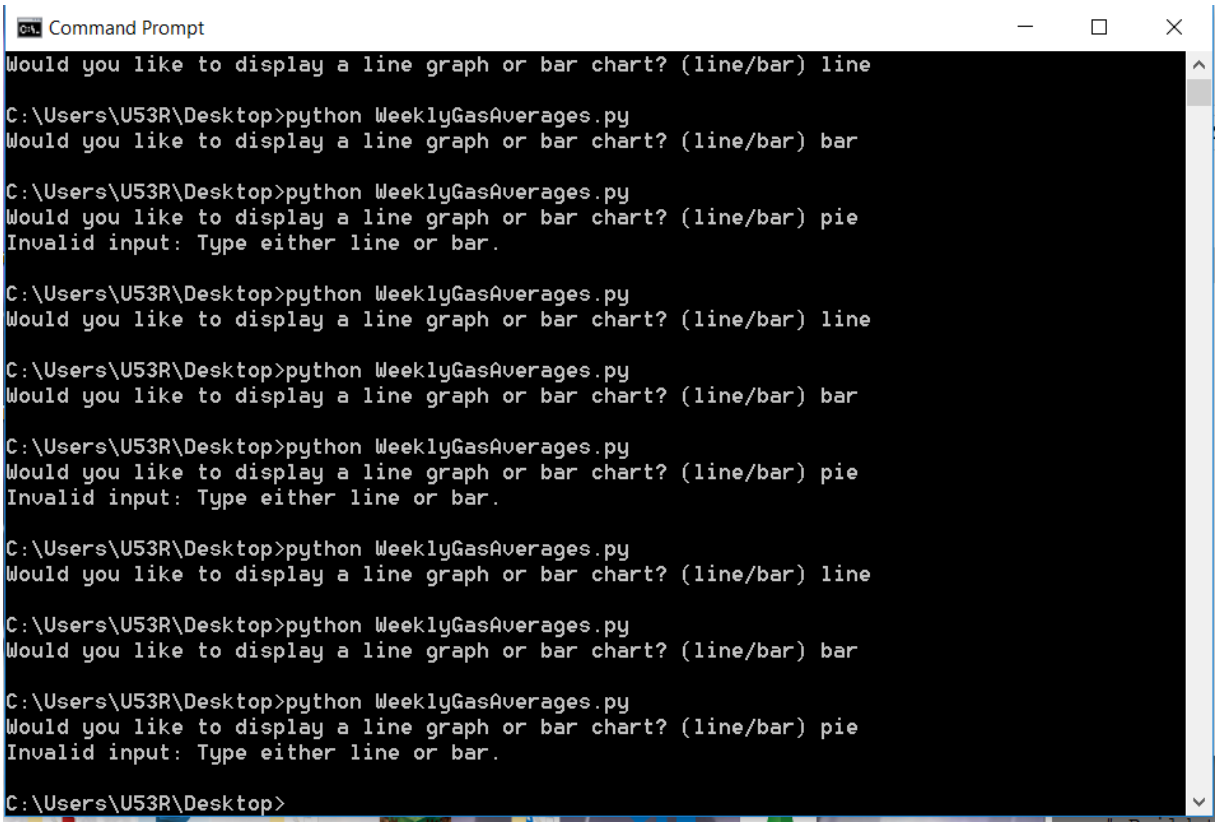
hw6: Question 2 1994 Weekly Gas Averages

This program will read data from 1994_Weekly_Gas_averages.txt and then plot the data as either a line graph or a bar chart.

```
71
72      Written by Deborah Barndt.
73      '''
74
75      import matplotlib.pyplot as plt
76
77      # Function to read a text file, and then build and display a line graph or bar chart.
78      def main():
79          # Ask the user if they would like the values to be displayed as a line graph or bar chart.
80          display = input('Would you like to display a line graph or bar chart? (line/bar) ')
81
82          # Open the text file in read mode.
83          averages = open('1994_weekly_gas_averages.txt', 'r')
84
85          # Read the content of the gas averages.
86          content = averages.read()
87
88          # Split the content of the gas averages.
89          gas = content.split()
90
91          # Close the text file.
92          averages.close()
93
94          # For loop to strip the gas price into a float.
95          for i in range(0, len(gas)):
96              gas[i] = float(gas[i].strip())
97
98          # Create the range for the x-coordinates.
99          x_coords = list(range(1,53))
```

```
100
101         # Build the line graph or bar chart dependent on user input.
102         if (display == 'line'):
103             # Build the line graph.
104             plt.plot(x_coords, gas, color = 'lightskyblue')
105
106             # Set the limit of x-axis.
107             plt.xlim([1, 52])
108
109             # Create the label for the x-axis.
110             plt.xlabel('Week')
111
112             # Create the label for the y-axis.
113             plt.ylabel('Gas Price')
114
115             # Create the title of the line graph.
116             plt.title('Weekly Average Gas Price in 1994')
117
118             # Display the line graph.
119             plt.show()
120
121         elif (display == 'bar'):
122             # Build the bar chart.
123             plt.bar(x_coords, gas, color = 'lightskyblue')
124
125             # Set the limit of x-axis.
126             plt.xlim([1, 52])
127
128             # Create the label for the x-axis.
```

```
129             plt.xlabel('Week')
130
131             # Create the label for the y-axis.
132             plt.ylabel('Gas Price')
133
134             # Create the title of the line graph.
135             plt.title('Weekly Average Gas Price in 1994')
136
137             # Display the line graph.
138             plt.show()
139
140         else:
141             print('Invalid input: Type either line or bar.')
142
143
144     # Call the main function the run the program.
145     main()
146
147     Output Result:
148
```


Command Prompt
Would you like to display a line graph or bar chart? (line/bar) line
C:\Users\U53R\Desktop>python WeeklyGasAverages.py
Would you like to display a line graph or bar chart? (line/bar) bar
C:\Users\U53R\Desktop>python WeeklyGasAverages.py
Would you like to display a line graph or bar chart? (line/bar) pie
Invalid input: Type either line or bar.
C:\Users\U53R\Desktop>python WeeklyGasAverages.py
Would you like to display a line graph or bar chart? (line/bar) line
C:\Users\U53R\Desktop>python WeeklyGasAverages.py
Would you like to display a line graph or bar chart? (line/bar) bar
C:\Users\U53R\Desktop>python WeeklyGasAverages.py
Would you like to display a line graph or bar chart? (line/bar) pie
Invalid input: Type either line or bar.
C:\Users\U53R\Desktop>python WeeklyGasAverages.py
Would you like to display a line graph or bar chart? (line/bar) line
C:\Users\U53R\Desktop>python WeeklyGasAverages.py
Would you like to display a line graph or bar chart? (line/bar) bar
C:\Users\U53R\Desktop>python WeeklyGasAverages.py
Would you like to display a line graph or bar chart? (line/bar) pie
Invalid input: Type either line or bar.
C:\Users\U53R\Desktop>

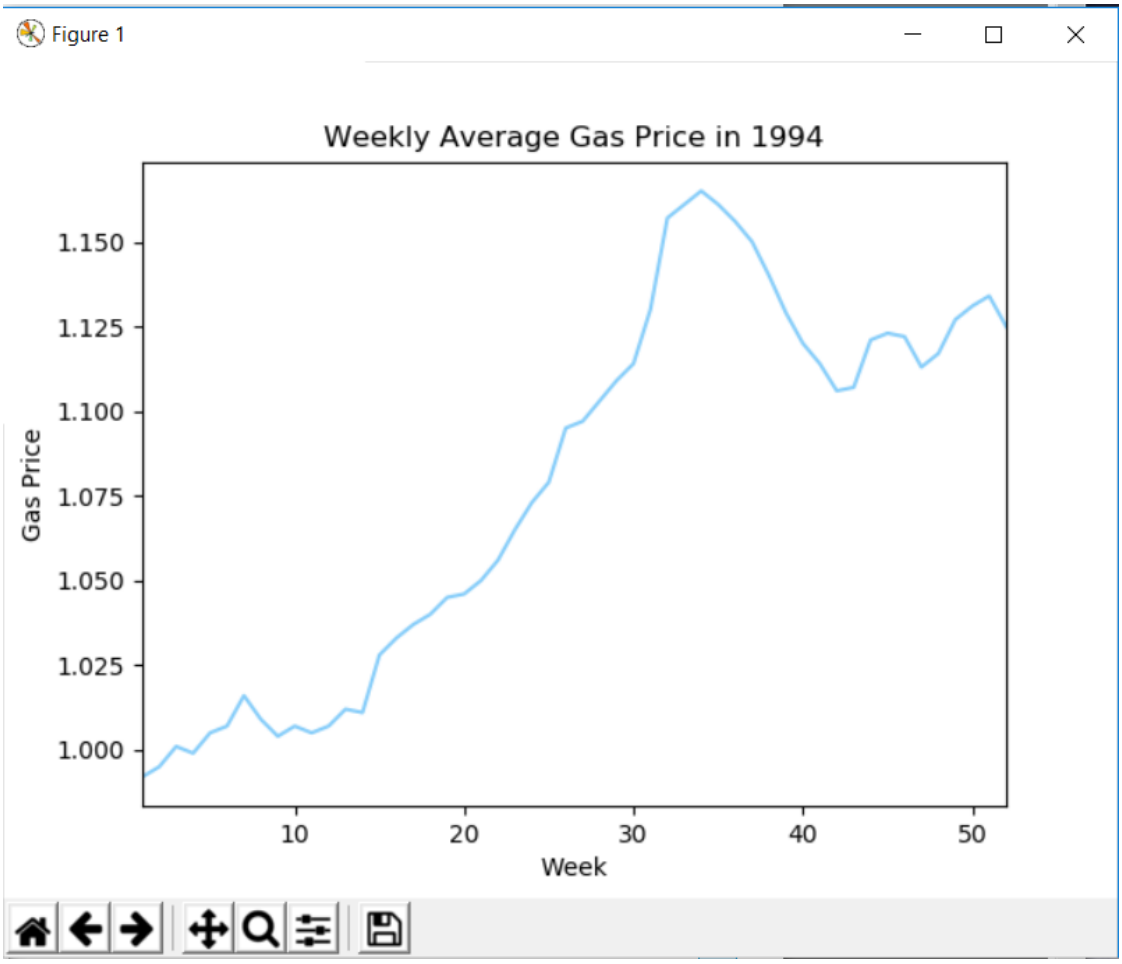


Figure 1
Weekly Average Gas Price in 1994
Gas Price
1.150
1.125
1.100
1.075
1.050
1.025
1.000
10
20
30
40
50
Week

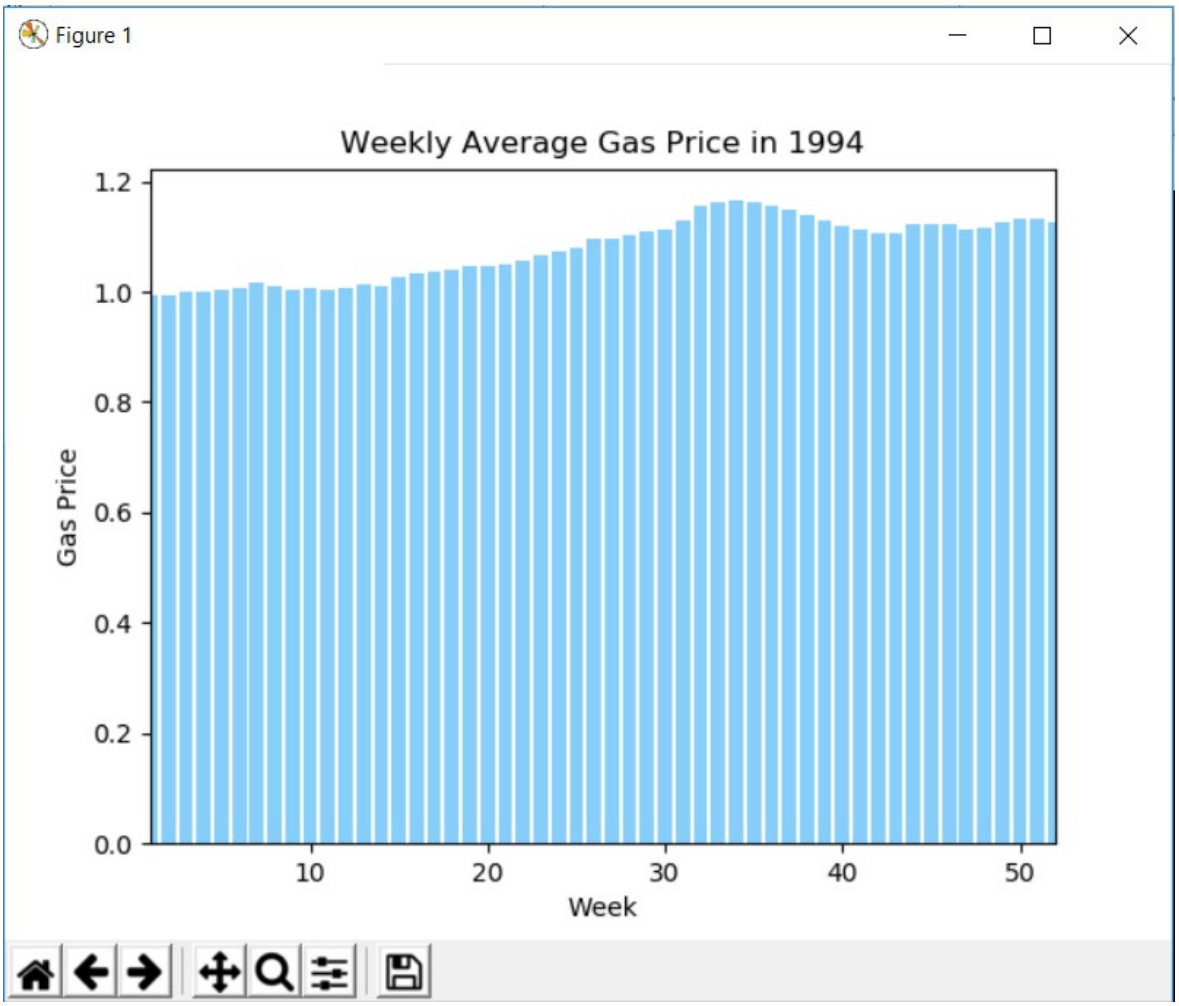


Figure 1
Weekly Average Gas Price in 1994
Gas Price
Week
0.0
0.2
0.4
0.6
0.8
1.0
1.2
10
20
30
40
50