Task 10.Use Matplotlib module for plotting in python

Aim:

To use Matplotlib module for plotting in python.

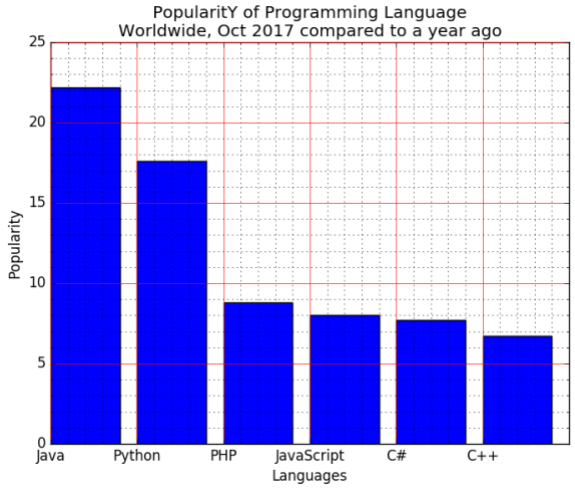
Problem 10.1. Write a Python programming to display a bar chart of the popularity of programming Languages.

Sample data:

Programming languages: Java, Python, PHP, JavaScript, C#, C++

Popularity: 22.2, 17.6, 8.8, 8, 7.7, 6.7

Sample Output:



Algorithm:

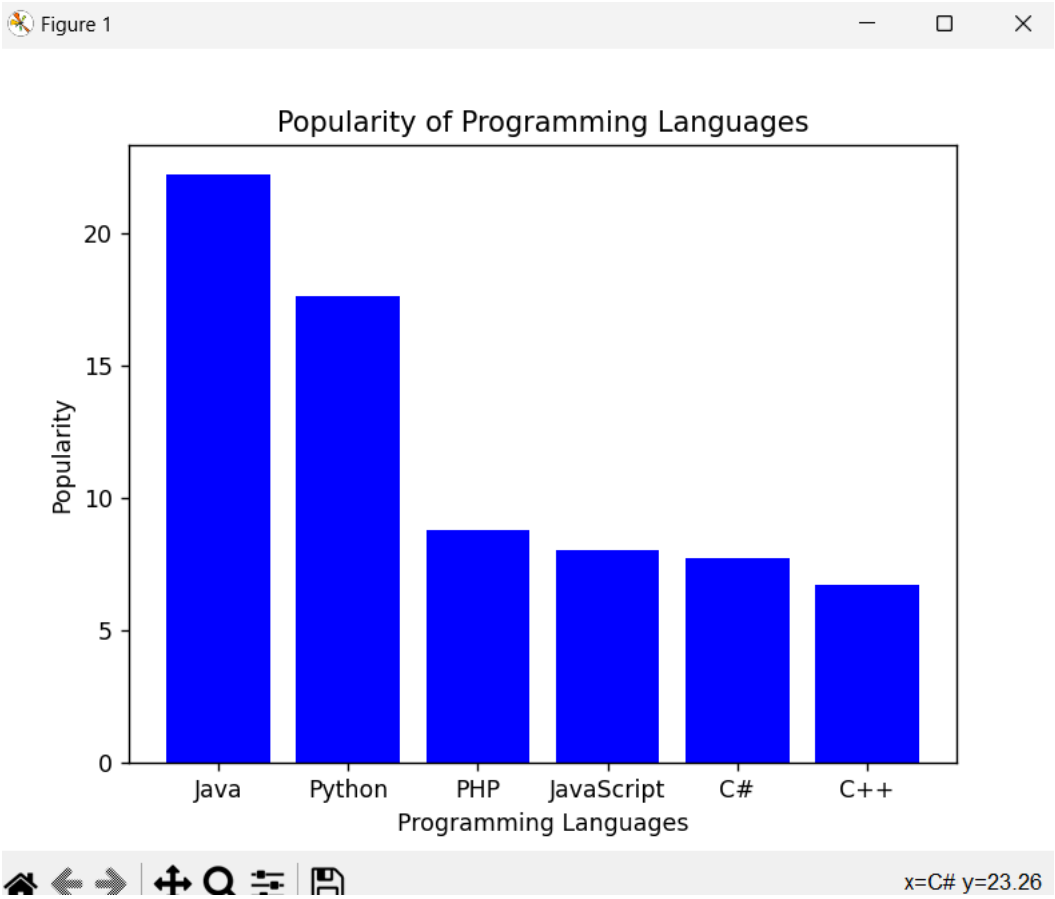
1. Define two lists for programming languages and their popularity respectively
2. Find the maximum popularity value in the list
3. Define a scaling factor to scale the bar heights within a certain limit (e.g. 50 characters)
4. For each language and popularity pair, calculate the bar height as the popularity value scaled by the scaling factor
5. Print the chart using a loop to iterate over the programming language list: a. Print the language name and a separator character (e.g. "|") b. Use a loop to print the bar chart by printing the bar character (e.g. "*") a number of times equal to the bar height c. Print the popularity value with a separator character d. Print a newline character

Program:

#pip install matplotlib

```
import matplotlib.pyplot as plt

languages = ['Java', 'Python', 'PHP', 'JavaScript', 'C#', 'C++']
popularity = [22.2, 17.6, 8.8, 8, 7.7, 6.7]

plt.bar(languages, popularity, color='b')
plt.title('Popularity of Programming Languages')
plt.xlabel('Programming Languages')
plt.ylabel('Popularity')
plt.show()
```

Output:



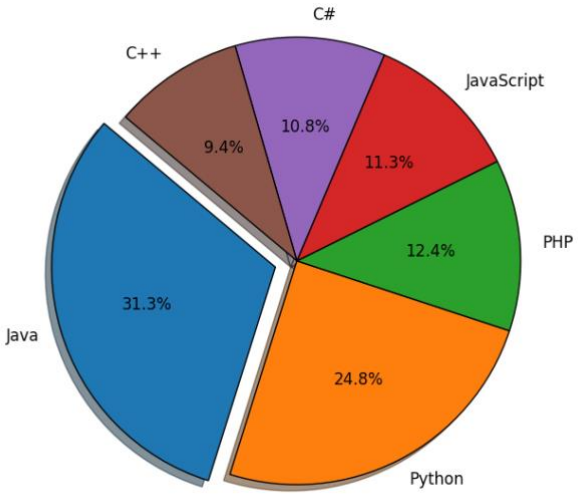
Problem 10.2.Write a Python programming to create a pie chart of the popularity of programming Languages.

Sample data:

Programming languages: Java, Python, PHP, JavaScript, C#, C++

Popularity: 22.2, 17.6, 8.8, 8, 7.7, 6.7

Sample Output:



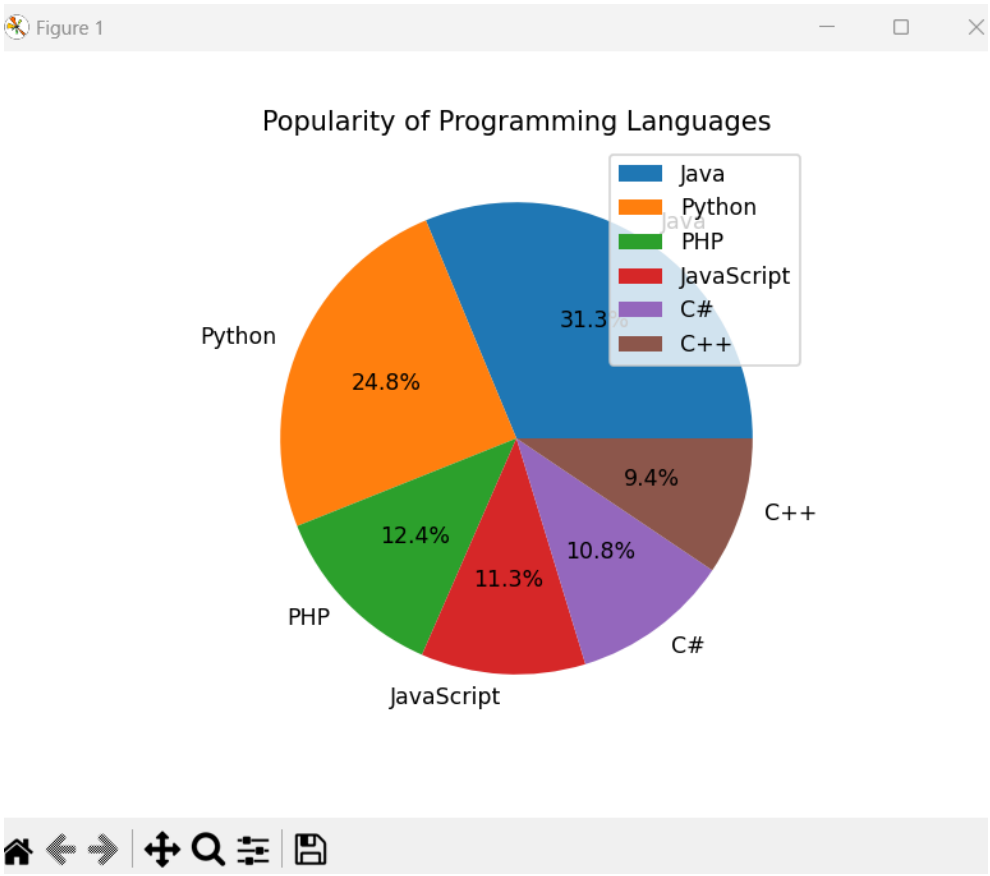
Algorithm:

1. Create a list of Programming Languages and Popularity
2. Create a pie chart using the matplotlib library
3. Set the title and legend for the pie chart
4. Show the pie chart

Program:

```
import matplotlib.pyplot as plt

# Step 1
languages = ['Java', 'Python', 'PHP', 'JavaScript', 'C#', 'C++']
popularity = [22.2, 17.6, 8.8, 8, 7.7, 6.7]

# Step 2
plt.pie(popularity, labels=languages, autopct='%1.1f%%')

# Step 3
plt.title('Popularity of Programming Languages')
plt.legend(languages, loc="best")

# Step 4
plt.show()
```

Output:



Result: Thus the python program use Matplotlib module for plotting is executed and verified successful.