Matplotlib Exercise

In [64]:
```
#Import Packages
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
%matplotlib inline
```

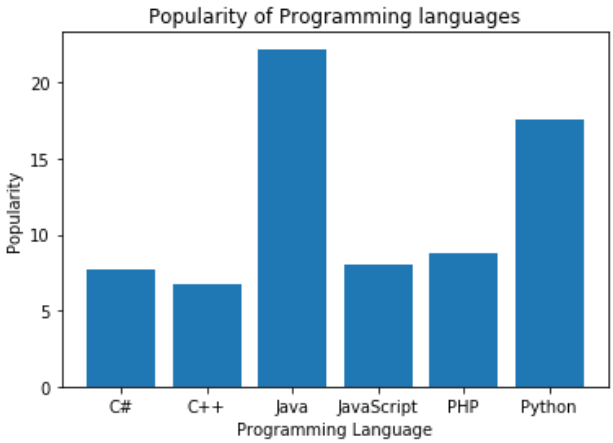
Barchart

Ques-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

In [65]:
```
lang = ['Java','Python','PHP','JavaScript','C#','C++']
popularity = [22.2,17.6,8.8,8,7.7,6.7]
plt.bar(lang,popularity)
plt.ylabel('Popularity')
plt.xlabel('Programming Language')
plt.title('Popularity of Programming languages')
plt.show()
```



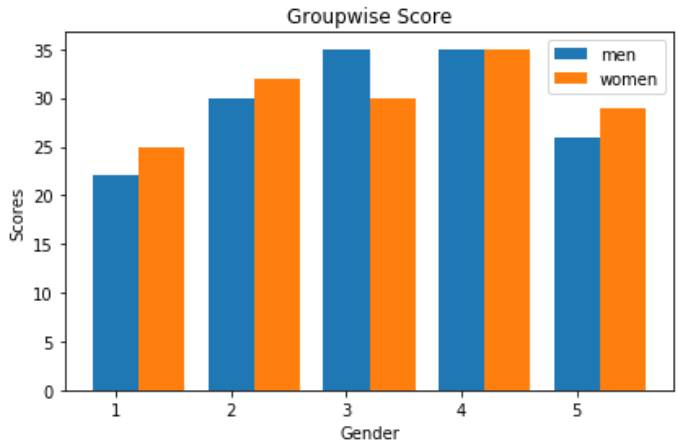
Ques-2. Write a Python program to create a bar plot of scores by group and gender. Use multiple X values on the same chart for men and women.

Sample Data:

Means (men) = (22, 30, 35, 35, 26)

Means (women) = (25, 32, 30, 35, 29)

In [66]:
```
men = [22, 30, 35, 35, 26]
women = [25, 32, 30, 35, 29]
cols = np.arange(5)
width=0.40
plt.bar(cols,men,width,label = 'men')
plt.bar(cols+width,women,width,label= 'women')
plt.xlabel('Gender')
plt.ylabel('Scores')
plt.title('Groupwise Score')
plt.xticks(cols, (1,2,3,4,5))
plt.tight_layout()
plt.legend()
plt.show()
```



Ques-3. Write a Python program to add textures (black and white) to bars and wedges.
Note: Use bottom to stack the women's bars on top of the men's bars.

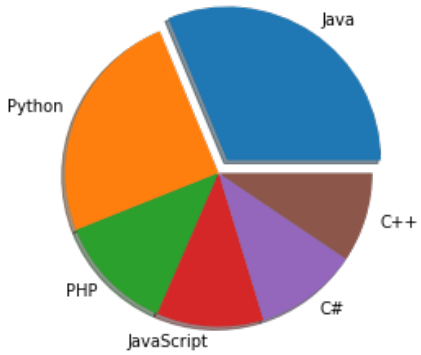
In [67]:
```
plt.bar(cols,women,width,label='women',color='white',edgecolor='black',h
atch='*',bottom=men)
plt.bar(cols,men,width,label='men',color='white',edgecolor='black',hatc
h='.')

plt.xlabel('Gender')
plt.ylabel('Scores')
plt.title('Groupwise Score')
plt.xticks(cols, (1,2,3,4,5))
plt.tight_layout()
plt.legend()
plt.show()
```

Matplotlib Pie Chart

Ques-4. Write a Python programming to create a pie chart with a title 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

In [68]:
```
explode=(0.1,0,0,0,0,0) #frame out the 1st slice
plt.pie(popularity,labels=lang,shadow=True,explode=explode)
plt.axis('equal')
plt.show()
```



Ques-5. what is heat map and its uses, plot heatmap on data.

Heatmap:
A heat map is a graphical representation of data where the individual values contained in a matrix are represented as colors.It is often desirable to show data which depends on two independent variables as a color coded image plot. If the data is categorical, this would be called a categorical heatmap.
We need to choose a relevant colour palette, use cluster analysis and thus permute the rows and the columns of the matrix to place similar values near each other according to the clustering.

- It is really useful to display a general view of numerical data,not to extract specific data point.
- It is a very good way to perform exploratory data analysis.
- Heatmaps can reveal general pattern in the dataset, thus widely used in data analysis in python

In [69]:
```
a = np.random.random((16, 16))
plt.imshow(a)
plt.show()
```