

```
In [1]: import pandas as pd
import matplotlib.pyplot as plt

plt.plot([1, 2, 3], [2, 4, 3])

plt.show()
```

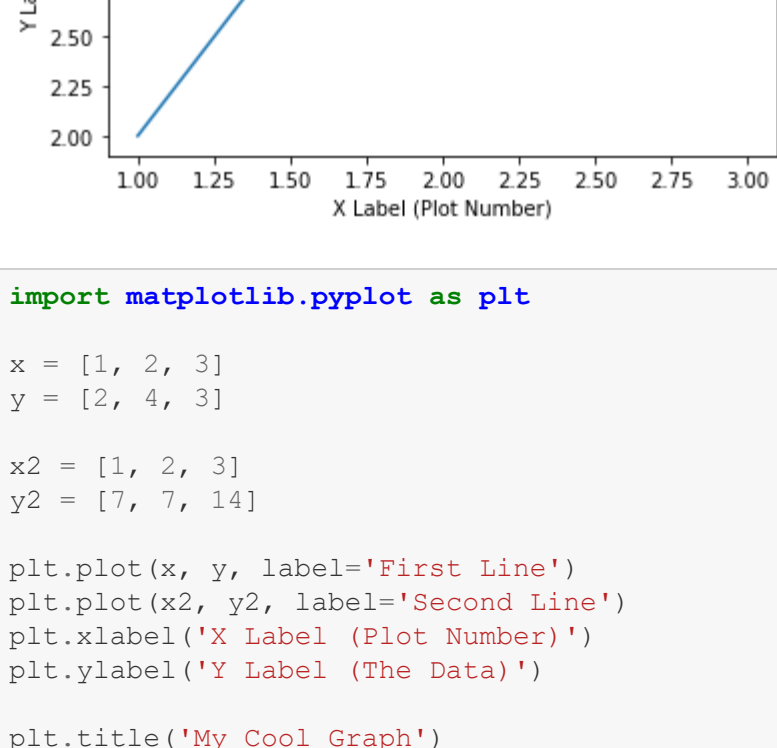
<Figure size 640x480 with 1 Axes>

```
In [2]: import matplotlib.pyplot as plt

x = [1, 2, 3]
y = [2, 4, 3]

plt.plot(x, y)
plt.xlabel('X Label (Plot Number)')
plt.ylabel('Y Label (The Data)')

plt.title('My Cool Graph')
plt.show()
```



```
In [3]: import matplotlib.pyplot as plt

x = [1, 2, 3]
y = [2, 4, 3]

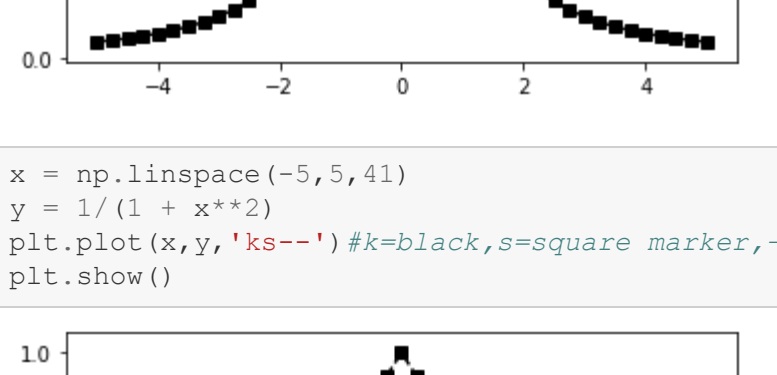
x2 = [1, 2, 3]
y2 = [7, 7, 14]

plt.plot(x, y, label='First Line')
plt.plot(x2, y2, label='Second Line')
plt.xlabel('X Label (Plot Number)')
plt.ylabel('Y Label (The Data)')

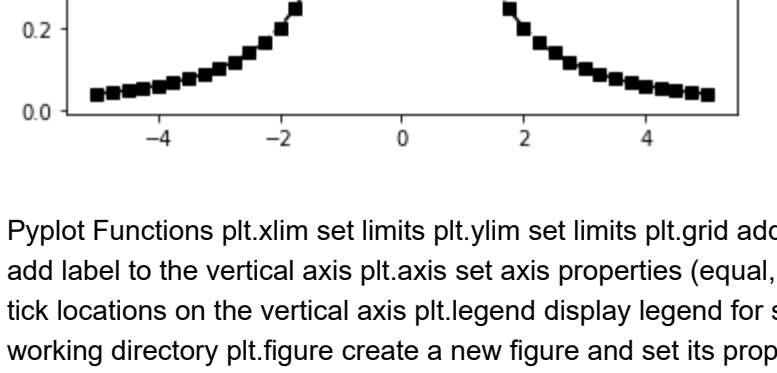
plt.title('My Cool Graph')
plt.legend()
plt.show()
```



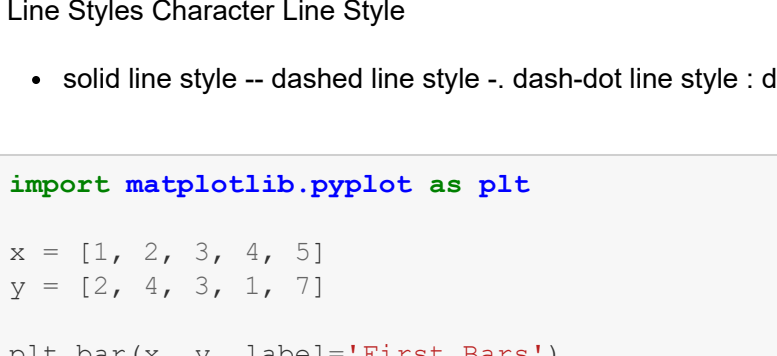
```
In [4]: #line properties
import numpy as np
x = np.linspace(-2,2,41)
y = np.exp(-x**2) * np.cos(2*np.pi*x)
plt.plot(x,y,alpha=0.4,label='Decaying Cosine',
        color='red',linestyle='dashed',linewidth=2,
        marker='o',markersize=5,markerfacecolor='blue',
        markeredgcolor='blue')
plt.ylim([-2,2])
plt.legend()
plt.show()
```



```
In [5]: #format String
x = np.linspace(-5,5,41)
y = 1/(1 + x**2)
plt.plot(x,y,color='black',linestyle='dashed',marker='s')
plt.show()
```



```
In [6]: x = np.linspace(-5,5,41)
y = 1/(1 + x**2)
plt.plot(x,y,'ks--') #k=black,s=square marker,--=dashed line
plt.show()
```



Pyplot Functions `plt.xlim` set limits `plt.ylim` set limits `plt.grid` add grid lines `plt.title` add a title `plt.xlabel` add label to the horizontal axis `plt.ylabel` add label to the vertical axis `plt.axis` set axis properties (equal, off, scaled, etc.) `plt.xticks` set tick locations on the horizontal axis `plt.yticks` set tick locations on the vertical axis `plt.legend` display legend for several lines in the same figure `plt.savefig` save figure (as .png, .pdf, etc.) to writing directory `plt.figure` create a new figure and set its properties

Color Character Color `b` blue `g` green `r` red `c` cyan `m` magenta `y` yellow `k` black `w` white

Markers Character Marker . point `o` circle `v` triangle down `^` triangle up `s` square `p` pentagon

- star
- plus `x` `D` diamond

Line Styles Character Line Style

- solid line style -- dashed line style -. dash-dot line style : dotted line style

```
In [7]: import matplotlib.pyplot as plt

x = [1, 2, 3, 4, 5]
y = [2, 4, 3, 1, 7]

plt.bar(x, y, label='First Bars')
plt.xlabel('X Label (Plot Number)')
plt.ylabel('Y Label (The Data)')

plt.title('My Cool Graph')
plt.legend()
plt.show()
```



```
In [8]: import matplotlib.pyplot as plt

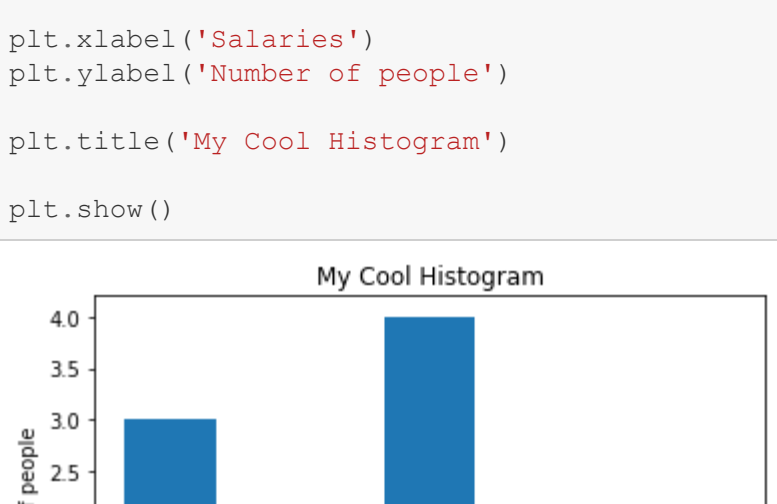
x = [1, 3, 5, 7, 9]
y = [2, 4, 3, 1, 7]

x2 = [2, 4, 6, 8, 10]
y2 = [2, 4, 4, 2, 6]

plt.bar(x, y, label='First Bars')
plt.bar(x2, y2, label='Second Bars')


plt.xlabel('X Label (Plot Number)')
plt.ylabel('Y Label (The Data)')

plt.title('My Cool Graph')
plt.legend()
plt.show()
```



```
In [9]: plt.bar(x, y, label='First Bars', color='red')
plt.bar(x2, y2, label='Second Bars', color='black')
```

Out[9]: <BarContainer object of 5 artists>



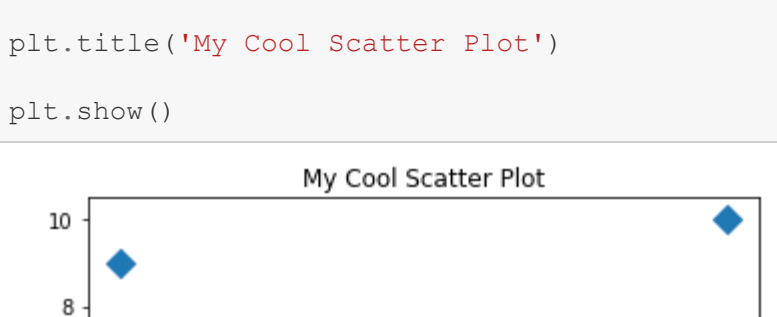
```
In [10]: import matplotlib.pyplot as plt

salaries = [55312, 88143, 57423, 65872, 68154, 77554, 72345, 79492, 52310, 88541, 97000, 105234, 73198]
bins = [50000, 60000, 70000, 80000, 90000, 100000]

plt.hist(salaries, bins, histtype='bar', rwidth=0.7)

plt.xlabel('Salaries')
plt.ylabel('Number of people')

plt.title('My Cool Histogram')
plt.show()
```



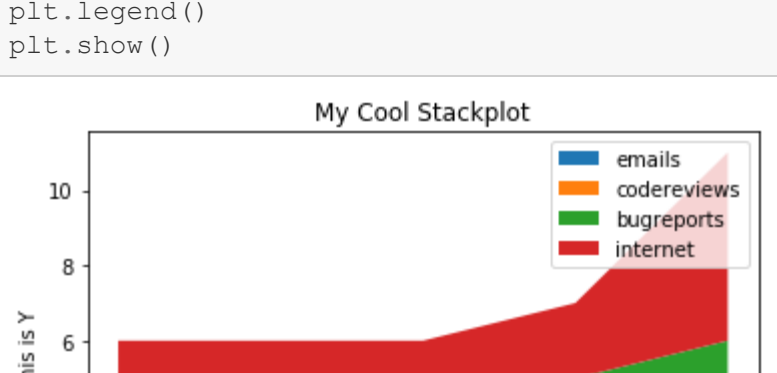
```
In [11]: import matplotlib.pyplot as plt

x = [1, 2, 3, 4, 5, 6, 7, 8, 9, 10]
y = [9, 7, 3, 5, 2, 2, 1, 1, 6, 10]

plt.scatter(x, y)

plt.xlabel('This is X')
plt.ylabel('This is Y')

plt.title('My Cool Scatter Plot')
plt.show()
```



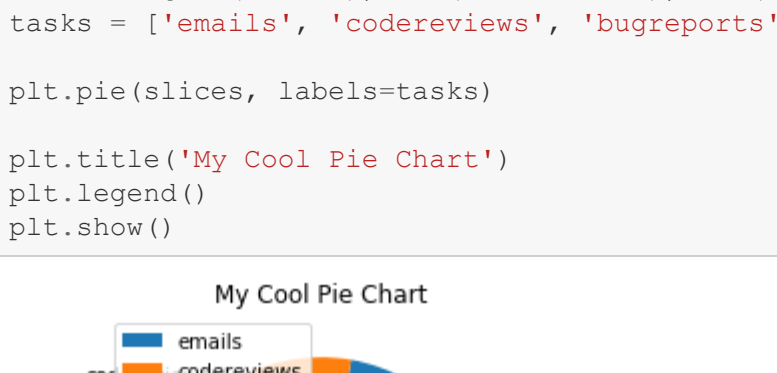
```
In [12]: import matplotlib.pyplot as plt

x = [1, 2, 3, 4, 5, 6, 7, 8, 9, 10]
y = [9, 7, 3, 5, 2, 2, 1, 1, 6, 10]

plt.scatter(x, y, marker='D', s=100)

plt.xlabel('This is X')
plt.ylabel('This is Y')

plt.title('My Cool Scatter Plot')
plt.show()
```



```
In [13]: import matplotlib.pyplot as plt

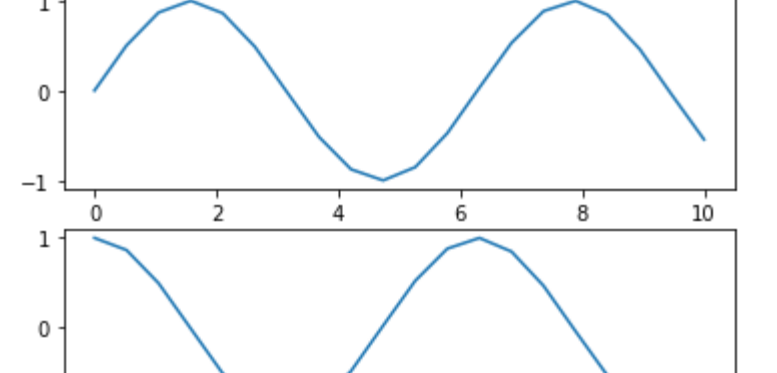
days = [1, 2, 3, 4, 5]

emails = [1, 1, 2, 3, 1]
codereviews = [2, 1, 1, 2, 3]
bugreports = [0, 0, 1, 0, 2]
internet = [3, 4, 2, 2, 5]

plt.stackplot(days, emails, codereviews, bugreports, internet,
             labels=['emails', 'codereviews', 'bugreports', 'internet'])

plt.xlabel('This is X')
plt.ylabel('This is Y')

plt.title('My Cool Stackplot')
plt.legend()
plt.show()
```



```
In [14]: import matplotlib.pyplot as plt

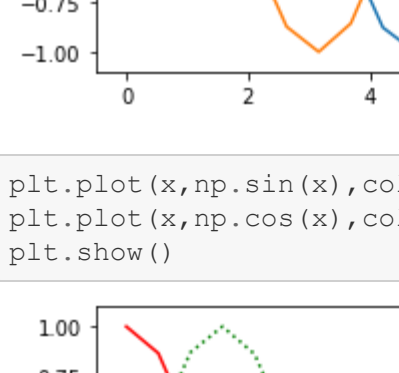
days = [1, 2, 3, 4, 5]

emails = [1, 1, 2, 3, 1]
codereviews = [2, 1, 1, 2, 3]
bugreports = [0, 0, 1, 0, 2]
internet = [3, 4, 2, 2, 5]

slices = [sum(emails), sum(codereviews), sum(bugreports), sum(internet)]
tasks = ['emails', 'codereviews', 'bugreports', 'internet']

plt.pie(slices, labels=tasks)

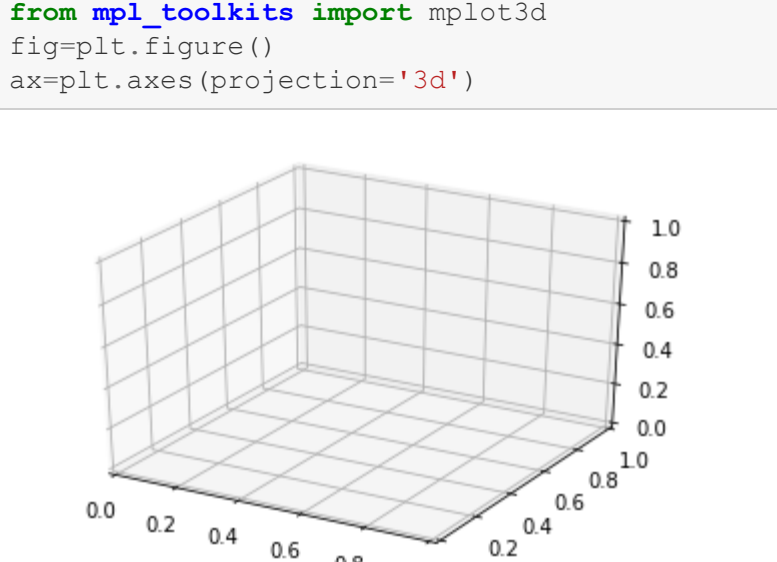
plt.title('My Cool Pie Chart')
plt.legend()
plt.show()
```



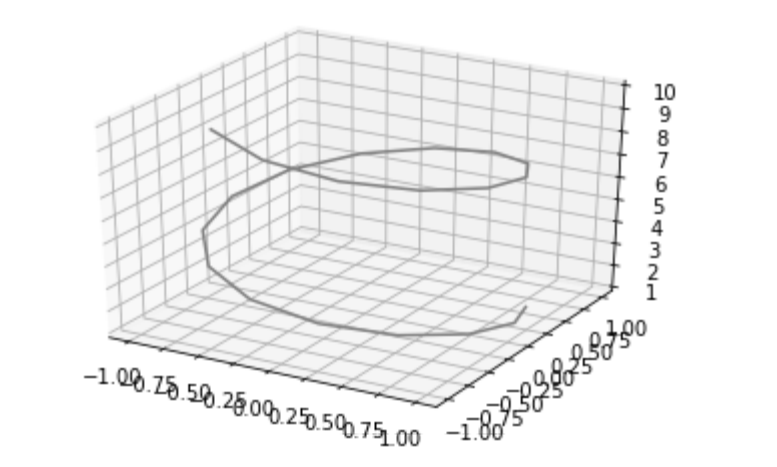
```
In [15]: x=np.linspace(0,10,20)
fig,ax=plt.subplots(2)
ax[0].plot(x,np.sin(x))
ax[1].plot(x,np.cos(x))
plt.show()
```



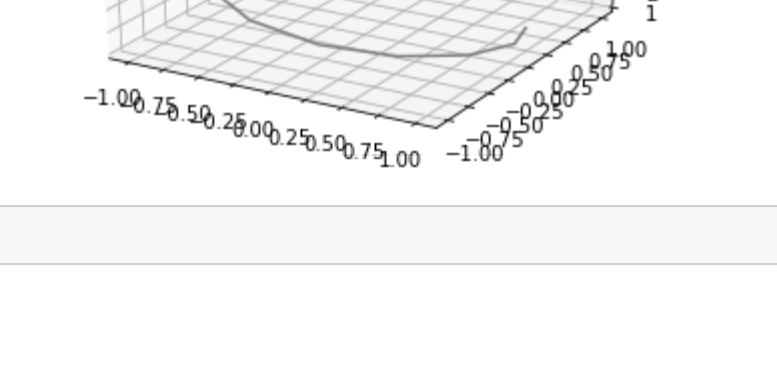
```
In [16]: plt.plot(x,np.sin(x))
plt.plot(x,np.cos(x))
plt.show()
```



```
In [17]: plt.plot(x,np.sin(x),color='g',linestyle='-')
plt.plot(x,np.cos(x),color='r',linestyle='-')
plt.show()
```



```
In [18]: plt.plot(x,np.sin(x),color='g',linestyle='-')
plt.plot(x,np.cos(x),color='r',linestyle='-')
plt.xlim(0,8)
plt.ylim(-1,0.50)
plt.xlabel('sin(x)')
plt.ylabel('cos(x)')
plt.show()
```



```
In [19]: from mpl_toolkits import mplot3d
fig=plt.figure()
ax=plt.figure()
ax=plt.axes(projection='3d')
```



```
In [20]: fig=plt.figure()
ax=plt.axes(projection='3d')
z=np.linspace(1,10,20)
x=np.sin(z)
y=np.cos(z)
ax.plot3D(x,y,z,'gray')
```

Out[20]: <mpl_toolkits.mplot3d.art3d.Line3D at 0x27d18585048>


```
In [ ]:
```