

✓ Functional method

```
import numpy as np
import matplotlib.pyplot as plt
from numpy.random import randint

x = np.linspace(0,10,20)

x

array([ 0.          ,  0.52631579,  1.05263158,  1.57894737,  2.10526316,
        2.63157895,  3.15789474,  3.68421053,  4.21052632,  4.73684211,
        5.26315789,  5.78947368,  6.31578947,  6.84210526,  7.36842105,
        7.89473684,  8.42105263,  8.94736842,  9.47368421, 10.          ])

y = randint(0,50,20)

y

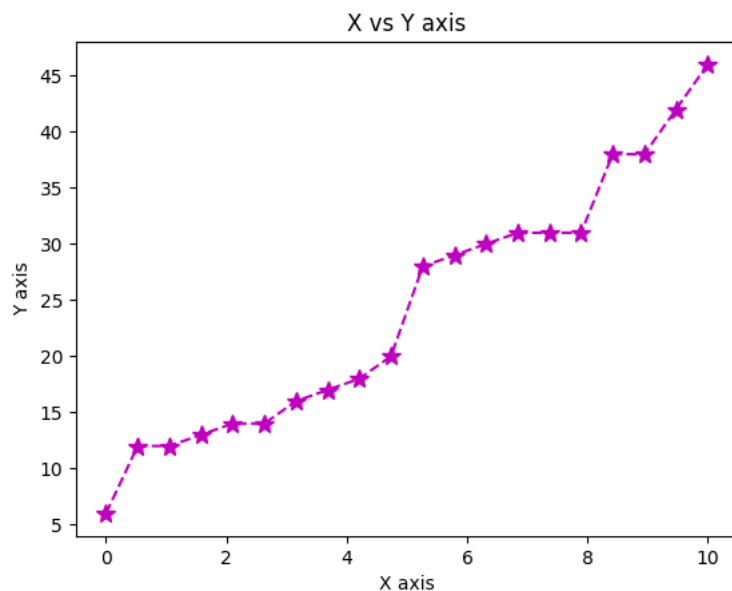
array([12, 31, 12, 18, 17, 31, 31, 46, 29, 14, 38, 16, 38, 20, 14, 30, 28,
       42, 13,  6])

y = np.sort(y)

y

array([ 6, 12, 12, 13, 14, 14, 16, 17, 18, 20, 28, 29, 30, 31, 31, 31, 38,
       38, 42, 46])

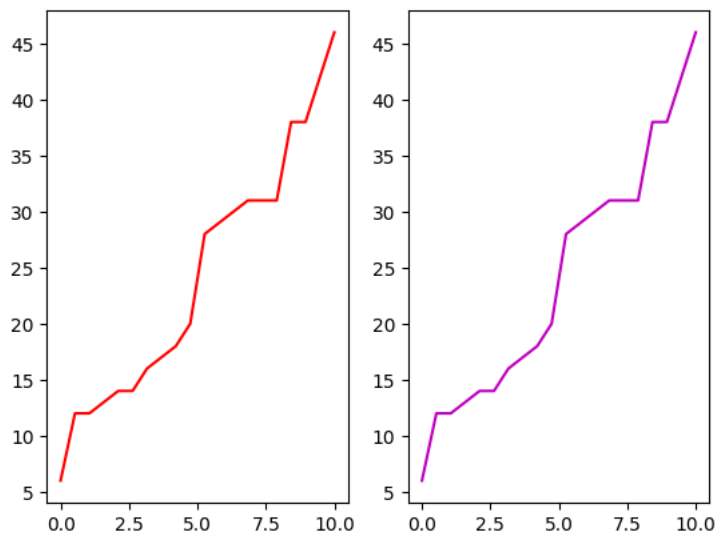
plt.plot(x,y, color='m', linestyle='--', marker='*', markersize=10, lw=1.5)
plt.xlabel('X axis')
plt.ylabel('Y axis')
plt.title('X vs Y axis')
plt.show()
```



```
# multiple plots on same canvas
```

```
plt.subplot(1,2,1)
plt.plot(x,y,color='r')
plt.subplot(1,2,2)
plt.plot(x,y,color='m')
```

```
[<matplotlib.lines.Line2D at 0x78c9101be650>]
```



```
x = np.linspace(0,10,20)
y = randint(1, 50, 20)
y = np.sort(y)
```

```
x
```

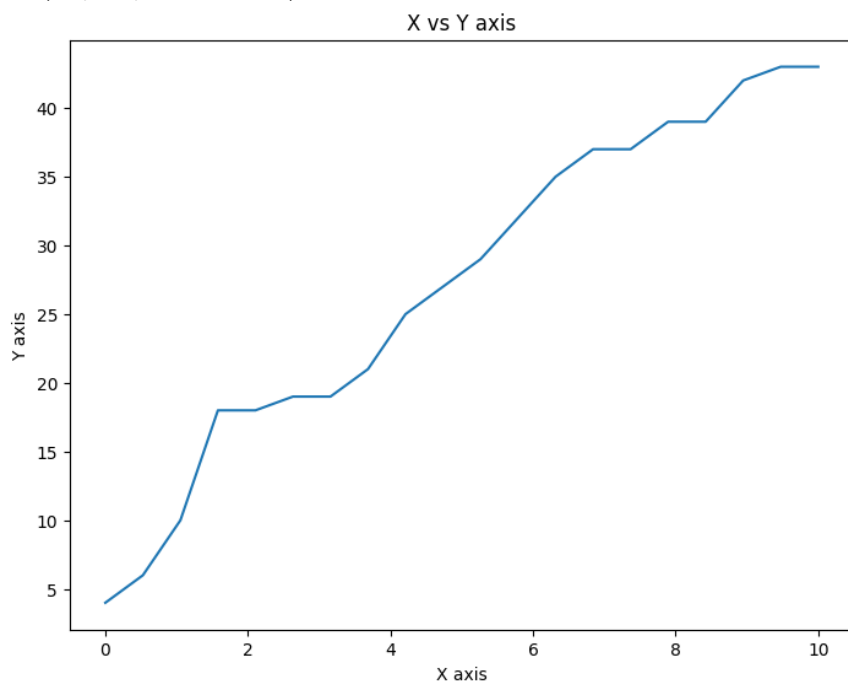
```
array([ 0.          ,  0.52631579,  1.05263158,  1.57894737,  2.10526316,
        2.63157895,  3.15789474,  3.68421053,  4.21052632,  4.73684211,
        5.26315789,  5.78947368,  6.31578947,  6.84210526,  7.36842105,
        7.89473684,  8.42105263,  8.94736842,  9.47368421, 10.          ])
```

```
y
```

```
array([ 4,  6, 10, 18, 18, 19, 19, 21, 25, 27, 29, 32, 35, 37, 37, 39, 39,
       42, 43, 43])
```

```
fig = plt.figure()
axes = fig.add_axes([0.1,0.1,1,1])
axes.plot(x,y)
axes.set_xlabel('X axis')
axes.set_ylabel('Y axis')
axes.set_title('X vs Y axis')
```

```
Text(0.5, 1.0, 'X vs Y axis')
```



✓ Subplots method

```
import numpy as np
import matplotlib.pyplot as plt
from numpy.random import randint
```

```
x = np.linspace(0,10,20)
y = randint(1, 50, 20)
y = np.sort(y)
```

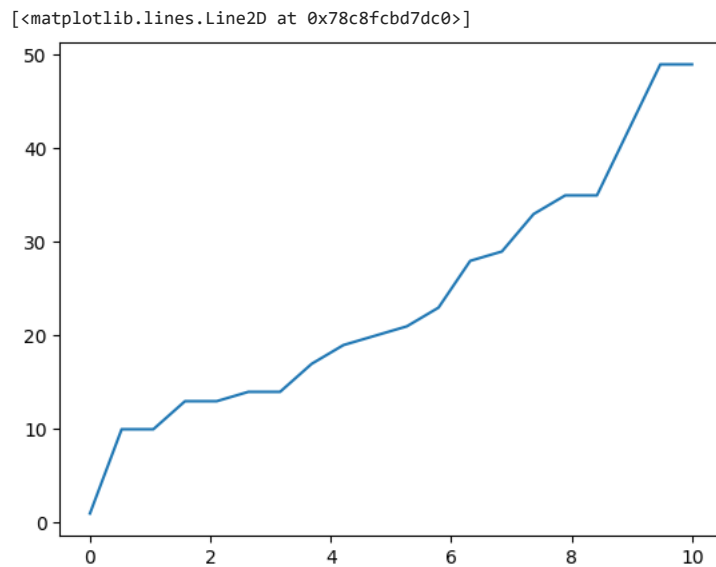
x

```
array([ 0.          ,  0.52631579,  1.05263158,  1.57894737,  2.10526316,
        2.63157895,  3.15789474,  3.68421053,  4.21052632,  4.73684211,
        5.26315789,  5.78947368,  6.31578947,  6.84210526,  7.36842105,
        7.89473684,  8.42105263,  8.94736842,  9.47368421, 10.          ])
```

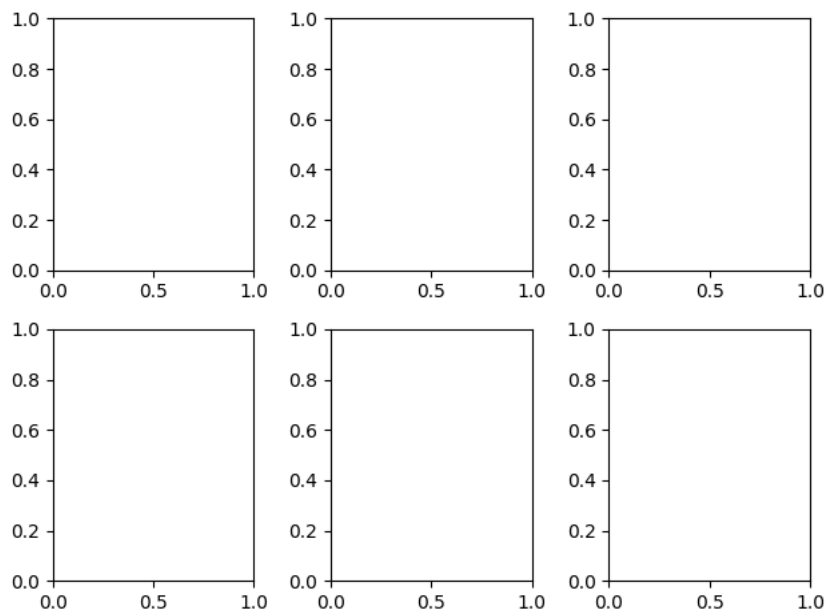
y

```
array([ 1, 10, 10, 13, 13, 14, 14, 17, 19, 20, 21, 23, 28, 29, 33, 35, 35,
       42, 49, 49])
```

```
fig,axes = plt.subplots()
axes.plot(x,y)
```



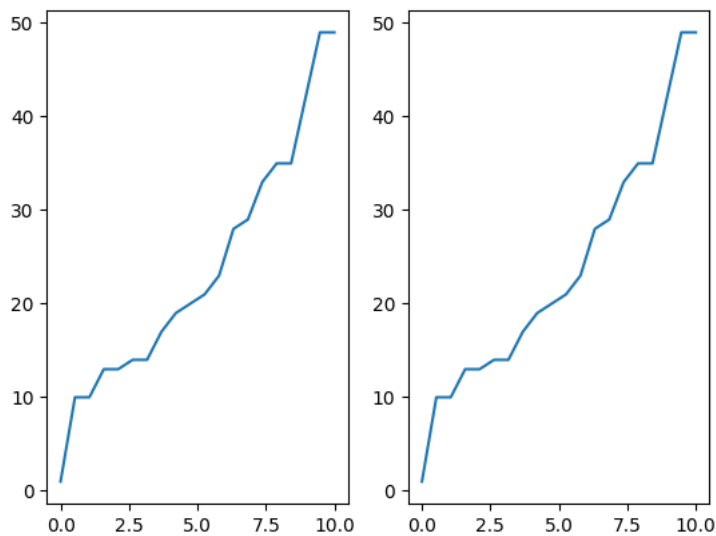
```
fig,axes = plt.subplots(nrows=2,ncols=3)
plt.tight_layout()
```



```
axes
```

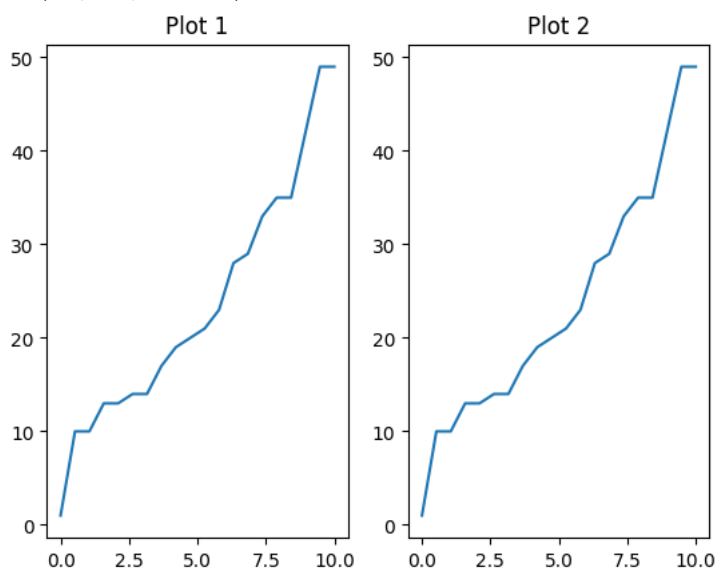
```
array([[<Axes: >, <Axes: >, <Axes: >],
       [<Axes: >, <Axes: >, <Axes: >]], dtype=object)
```

```
fig, axes = plt.subplots(nrows=1, ncols=2)
for current_ax in axes:
    current_ax.plot(x, y)
```



```
fig, axes = plt.subplots(nrows=1, ncols=2)
axes[0].plot(x, y)
axes[1].plot(x, y)
axes[0].set_title('Plot 1')
axes[1].set_title('Plot 2')
```

```
Text(0.5, 1.0, 'Plot 2')
```



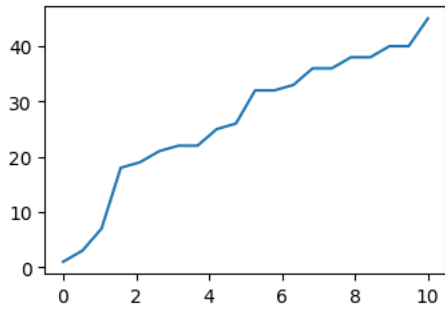
✓ Figure size, Aspect ratio and DPI

```
import numpy as np
import matplotlib.pyplot as plt
from numpy.random import randint
```

```
x = np.linspace(0, 10, 20)
y = randint(1, 50, 20)
y = np.sort(y)
```

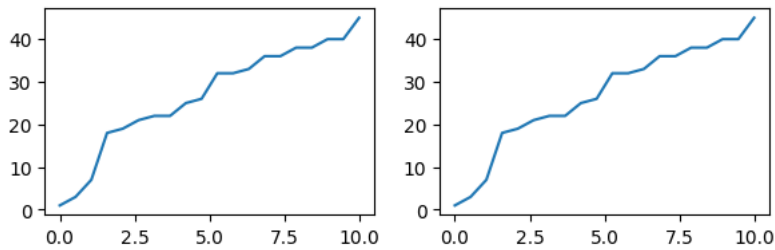
```
fig = plt.figure(figsize=(3, 2), dpi=100)
ax = fig.add_axes([0, 0, 1, 1])
ax.plot(x, y)
```

```
[<matplotlib.lines.Line2D at 0x78c8fc799450>]
```

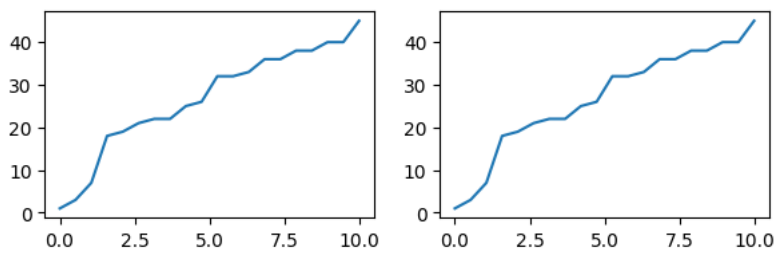


```
fig, axes = plt.subplots(nrows=1, ncols=2, figsize=(7,2))
axes[0].plot(x,y)
axes[1].plot(x,y)
```

```
[<matplotlib.lines.Line2D at 0x78c8fc63a7a0>]
```



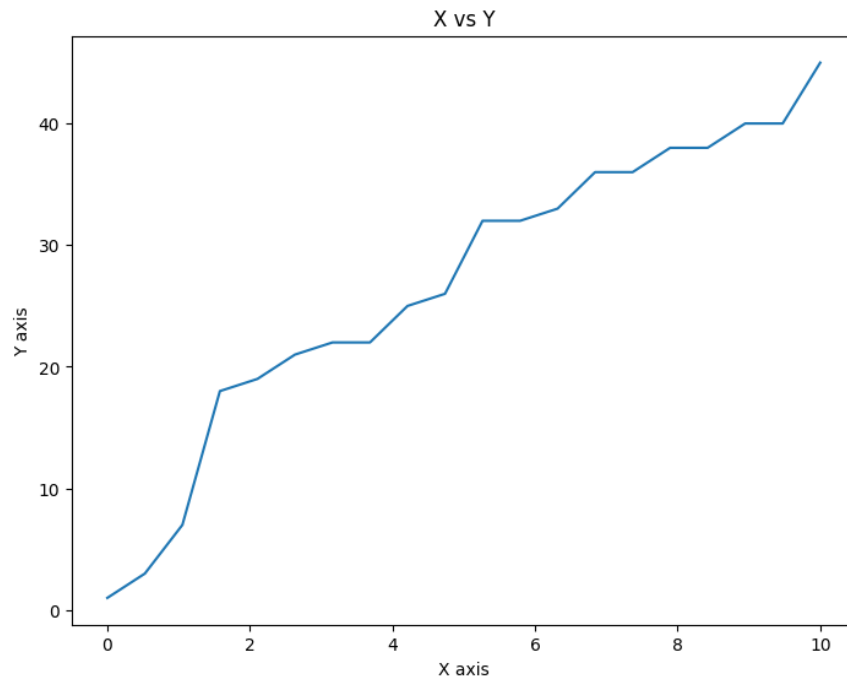
```
fig
```



```
fig.savefig('my_pic.png', dpi=100)
```

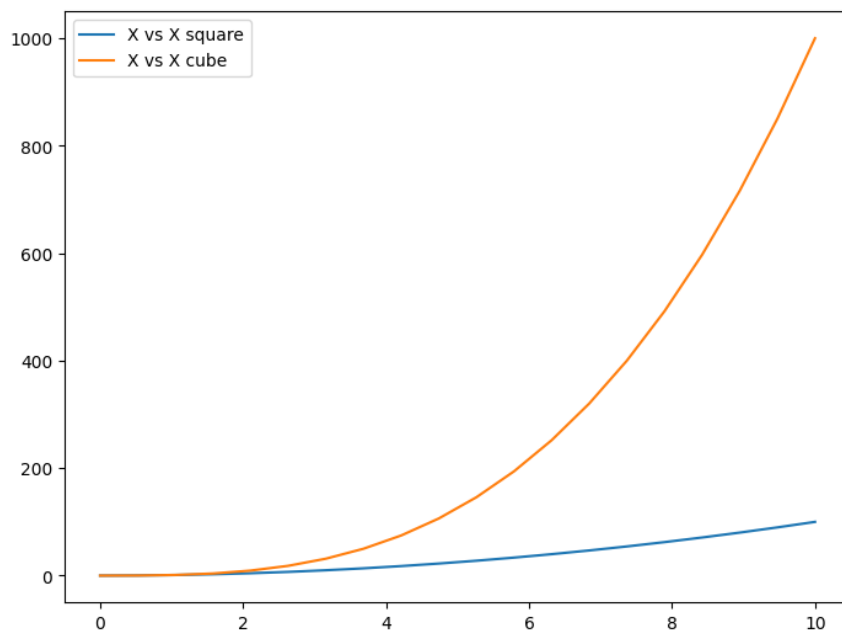
```
fig = plt.figure()
ax = fig.add_axes([0,0,1,1])
ax.plot(x,y)
ax.set_xlabel('X axis')
ax.set_ylabel('Y axis')
ax.set_title('X vs Y')
```

```
Text(0.5, 1.0, 'X vs Y')
```



```
# legends
fig = plt.figure()
ax = fig.add_axes([0,0,1,1])
ax.plot(x,x**2,label='X vs X square')
ax.plot(x,x**3,label='X vs X cube')
ax.legend(loc=0)
```

<matplotlib.legend.Legend at 0x78c8fc52d2d0>

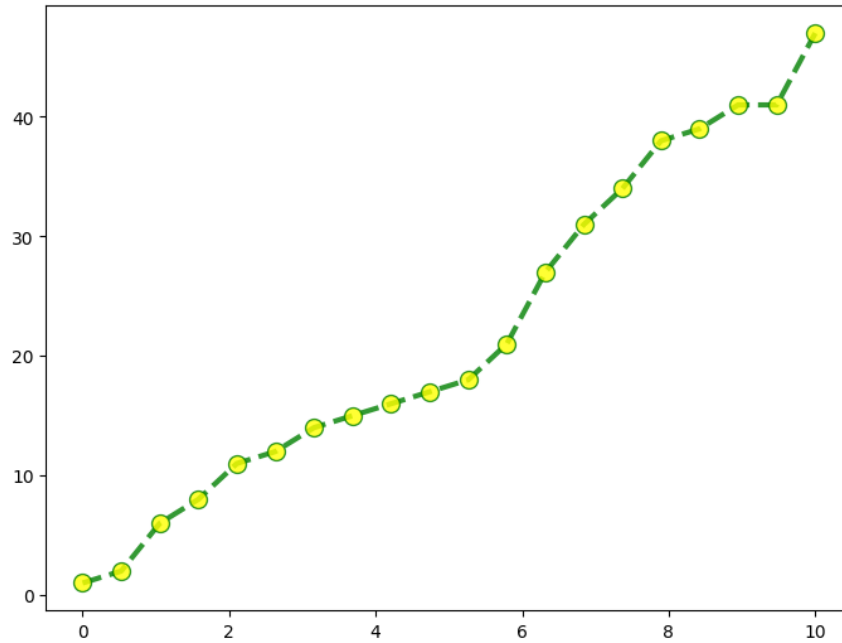


```
import numpy as np
import matplotlib.pyplot as plt
from numpy.random import randint
```

```
x = np.linspace(0,10,20)
y = randint(1, 50, 20)
y = np.sort(y)
```

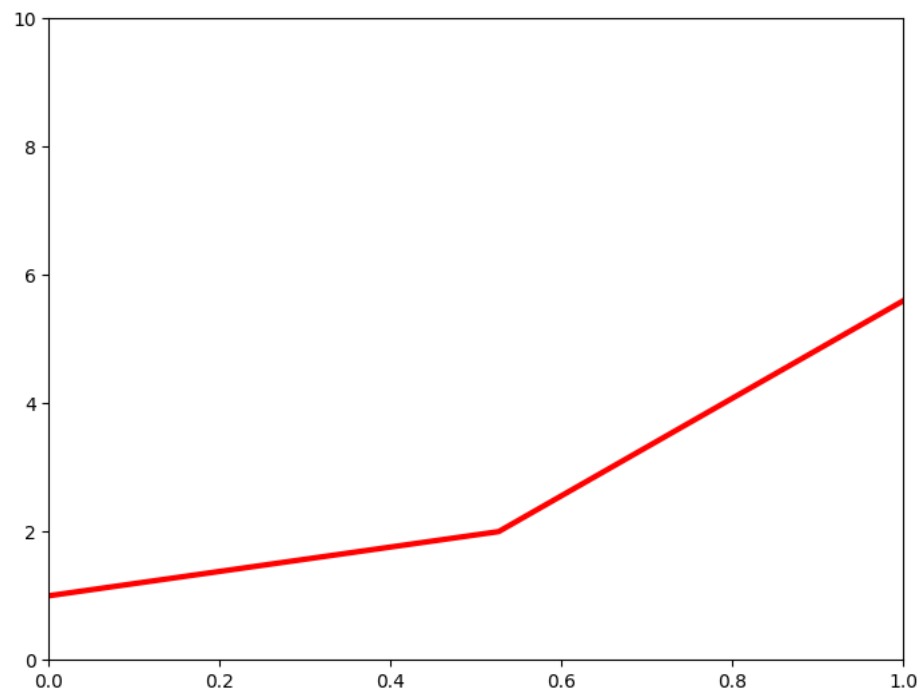
```
fig = plt.figure()
ax = fig.add_axes([0,0,1,1])
ax.plot(x,y,color='g',linewidth=3,ls='--',alpha=0.8,marker='o',markersize=10,markerfacecolor='yellow')
```

```
[<matplotlib.lines.Line2D at 0x78c8fc5ece20>]
```



```
fig = plt.figure()
ax = fig.add_axes([0,0,1,1])
ax.plot(x,y,color='r',linewidth=3)
ax.set_xlim([0,1])
ax.set_ylim([0,10])
```

```
(0.0, 10.0)
```



✓ Different Plots

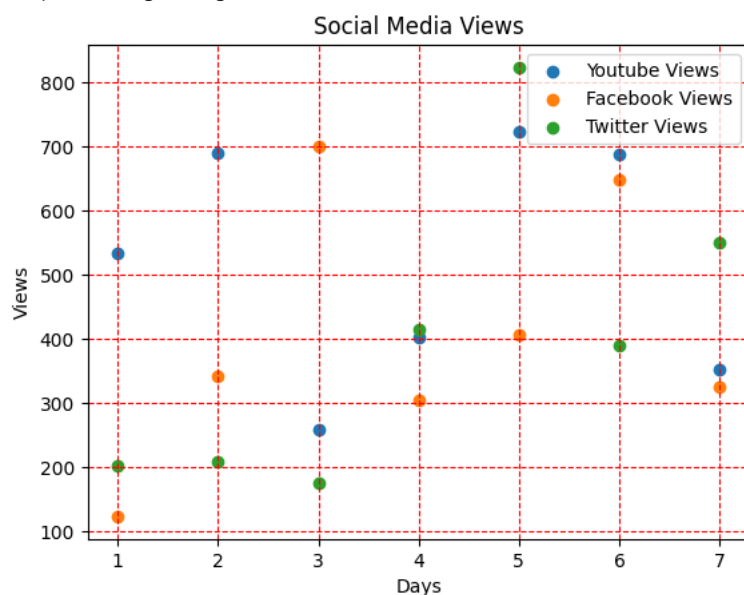
✓ 1) Scatter Plots

```
import matplotlib.pyplot as plt
```

```
y_views=[534,690,258,402,724,689,352]
f_views=[123,342,700,305,406,648,325]
t_views=[202,209,176,415,824,389,550]
days=[1,2,3,4,5,6,7]
```

```
plt.scatter(days,y_views,label='Youtube Views',marker='o')
plt.scatter(days,f_views,label='Facebook Views',marker='o')
plt.scatter(days,t_views,label='Twitter Views',marker='o')
plt.xlabel('Days')
plt.ylabel('Views')
plt.title('Social Media Views')
plt.grid(color='r',linestyle='--')
plt.legend()
```

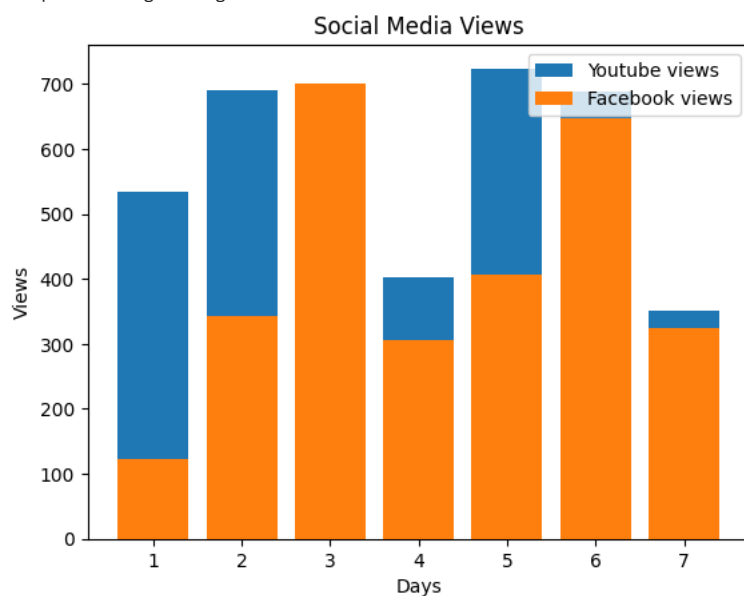
<matplotlib.legend.Legend at 0x78c8fc5ecee0>



2) Bar plot

```
plt.bar(days,y_views,label='Youtube views')
plt.bar(days,f_views,label='Facebook views')
plt.xlabel('Days')
plt.ylabel('Views')
plt.title('Social Media Views')
plt.legend()
```

<matplotlib.legend.Legend at 0x78c8fc50f040>

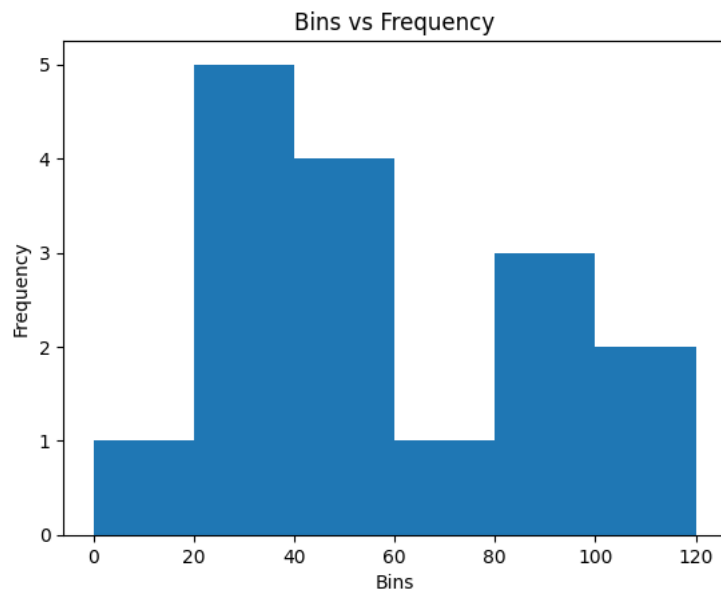


3) Histogram

```
points=[22,55,62,45,21,22,99,34,42,4,102,110,27,48,99,84]
bins=[0,20,40,60,80,100,120]
```



```
plt.hist(points,bins)
plt.xlabel('Bins')
plt.ylabel('Frequency')
plt.title('Bins vs Frequency')
plt.show()
```



4) Pie chart

```
labels_1=['Facebook','Instagram','Youtube','linkedin']
views=[300,350,400,450]
explode_1=[0,0,0,0.2]
```

```
plt.pie(views,labels=labels_1,autopct='%1.1f%%',explode=explode_1,shadow=True)
plt.show()
```

