



# MATPLOTLIB

## ▼ Intro

- `plt.plot(x, y)` : plot eder. “ ; “ `plt.show()` konumu yerine geçer. bellekteki yeri göstermez

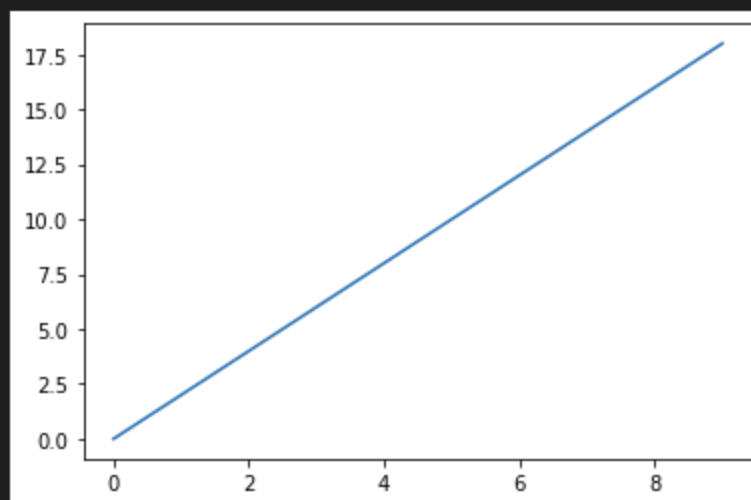
```
1 x = np.arange(0,10)
2 y = 2*x
3 print(x)
4 print(y)
```

✓ 0.4s

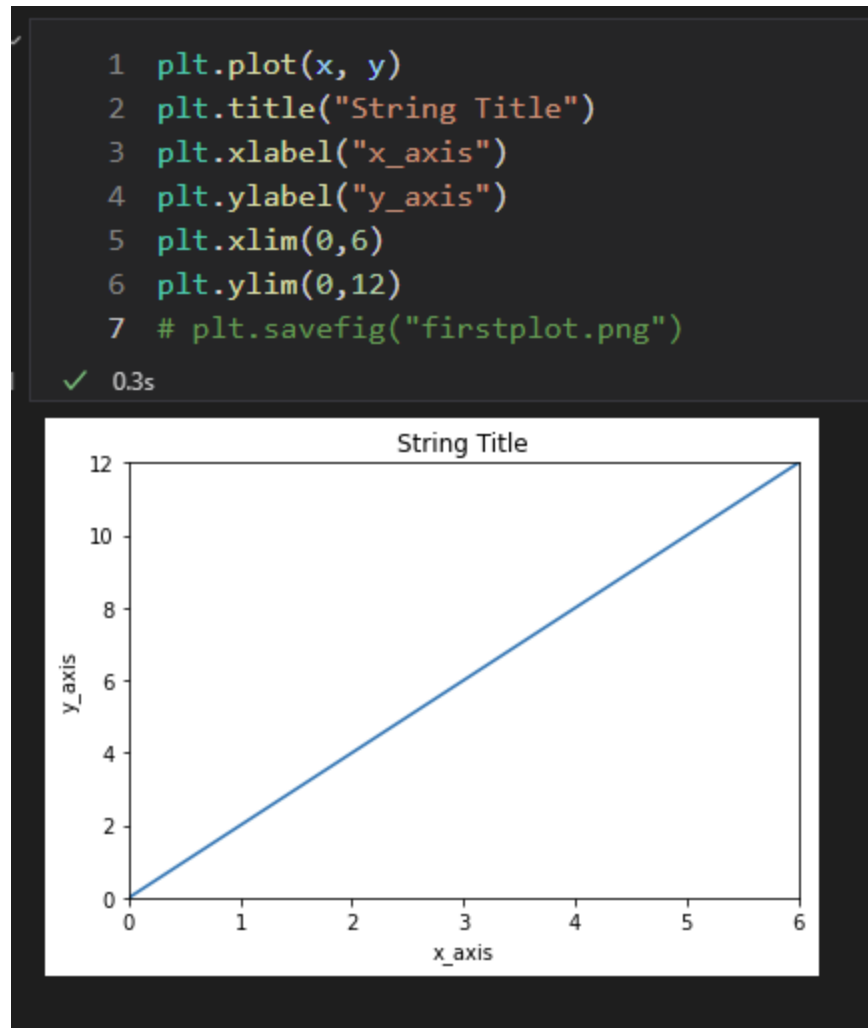
```
[0 1 2 3 4 5 6 7 8 9]
[ 0  2  4  6  8 10 12 14 16 18]
```

```
1 plt.plot(x, y);
```

✓ 0.2s



- `plt.title("String Title")` : başlık  
`plt.xlabel("x_axis")` : x eksen adı  
`plt.ylabel("y_axis")` : y eksen adı  
`plt.xlim(0,6)` : x eksen sınırları  
`plt.ylim(0,12)` : y eksen sınırları  
`plt.savefig("firstplot.png")` : dosyayı kaydetmek için



- plot içinde plot

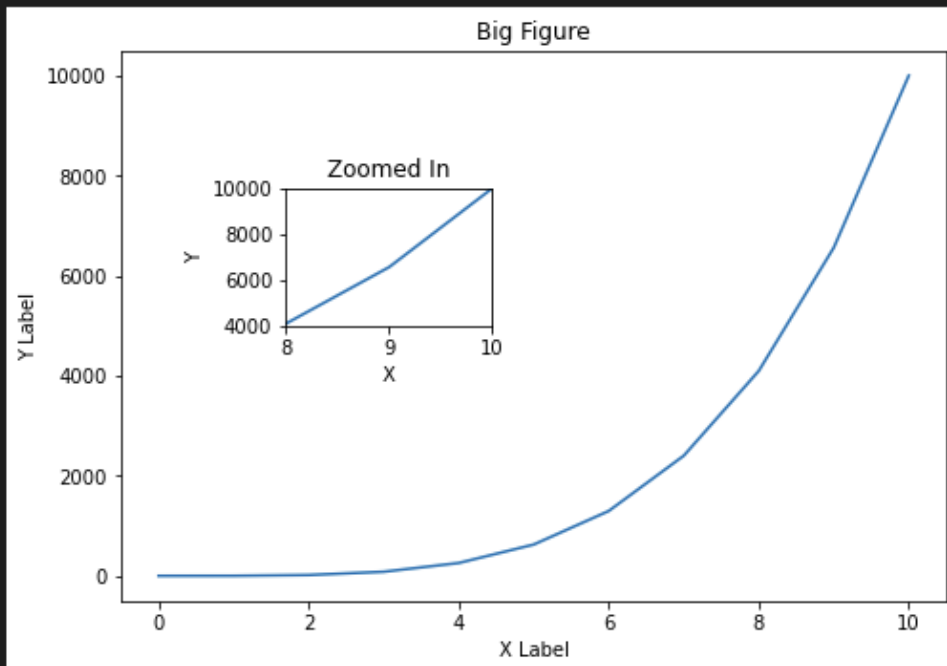
```

1 # Creates blank canvas
2 fig = plt.figure()
3
4 axes1 = fig.add_axes([0, 0, 1, 1]) # Large figure
5 axes2 = fig.add_axes([0.2, 0.5, 0.25, 0.25]) # Smaller figure
6
7 # Larger Figure Axes 1
8 axes1.plot(a, b)
9
10 # Use set_ to add to the axes figure
11 axes1.set_xlabel('X Label')
12 axes1.set_ylabel('Y Label')
13 axes1.set_title('Big Figure')
14
15 # Insert Figure Axes 2
16 axes2.plot(a,b)
17 axes2.set_xlim(8,10)
18 axes2.set_ylim(4000,10000)
19 axes2.set_xlabel('X')
20 axes2.set_ylabel('Y')
21 axes2.set_title('Zoomed In');

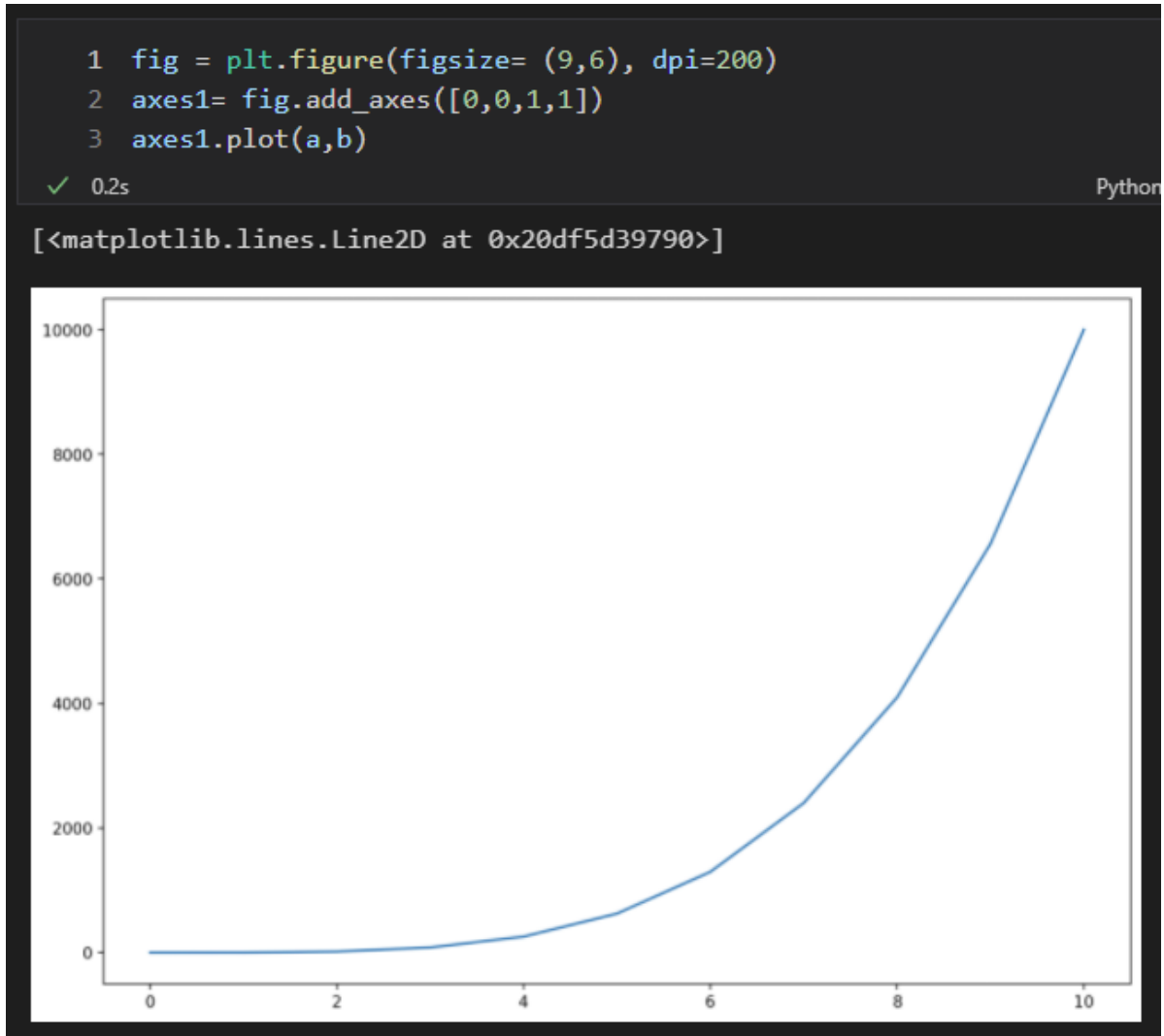
```

✓ 0.4s

Py



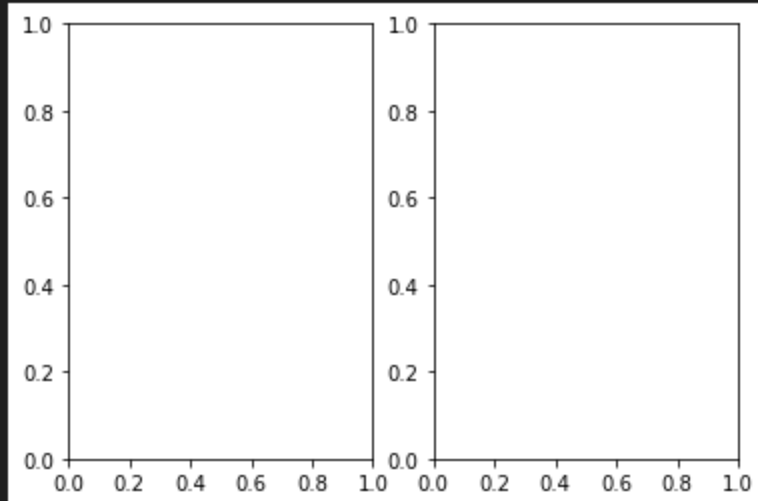
- `fig = plt.figure(figsize= (9,6), dpi=200)`  
    `figsize= (9,6)` : 9 inç x 6 inç  
    `dpi= 200` : 200 dot per inç kare



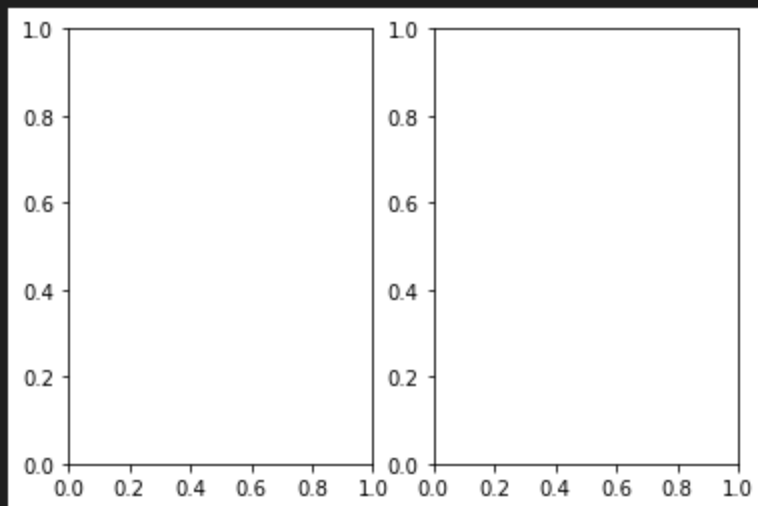
#### ▼ Subplot

- `plt.subplots(1,2)` : subplot çizer, 1 satır 2 sütun

```
1 fig, axes = plt.subplots(1,2)
2 # OR
✓ 0.3s
```



```
1 fig, axes = plt.subplots(nrows= 1, ncols= 2)
✓ 0.2s
```



- subplot'a yerleştirme

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

`axes[0][0].plot(a, b)` : 0,0 index

`axes[1][1].plot(x, y)` : 1,1 index

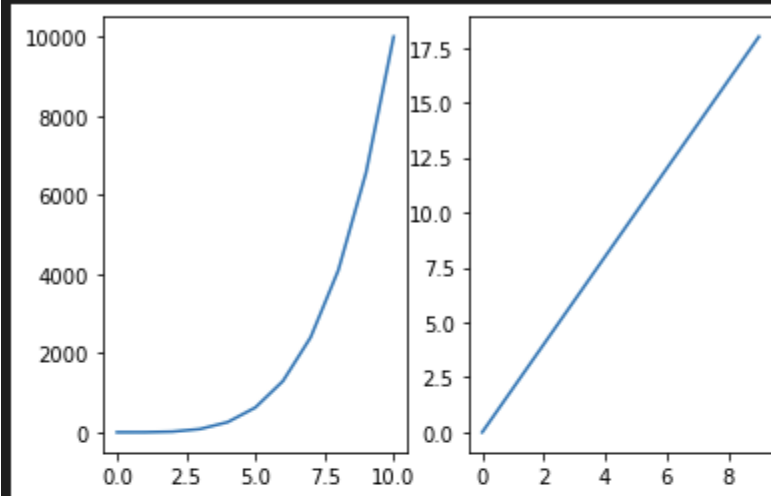
```

1 fig, axes = plt.subplots(nrows=1, ncols=2)
2 axes[0].plot(a, b)
3 axes[1].plot(x, y)

```

✓ 0.4s

[<matplotlib.lines.Line2D at 0x20df5939880>]



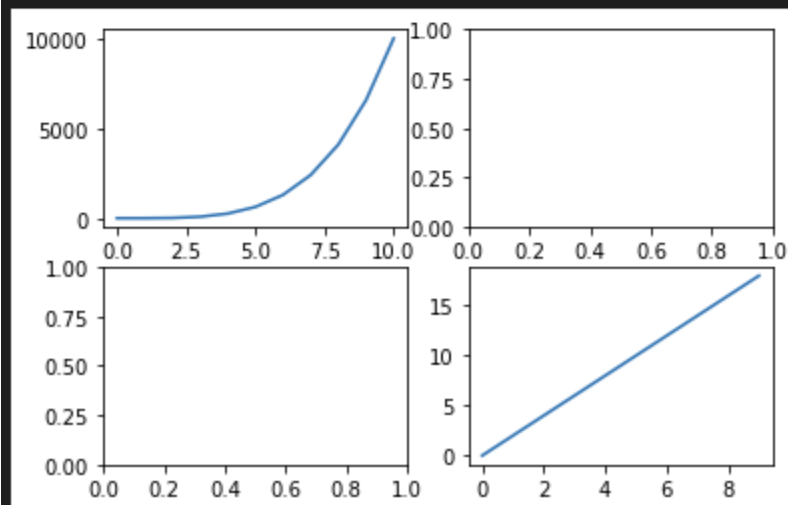
```

1 fig, axes = plt.subplots(nrows=2, ncols=2)
2 axes[0][0].plot(a, b)
3 axes[1][1].plot(x, y)

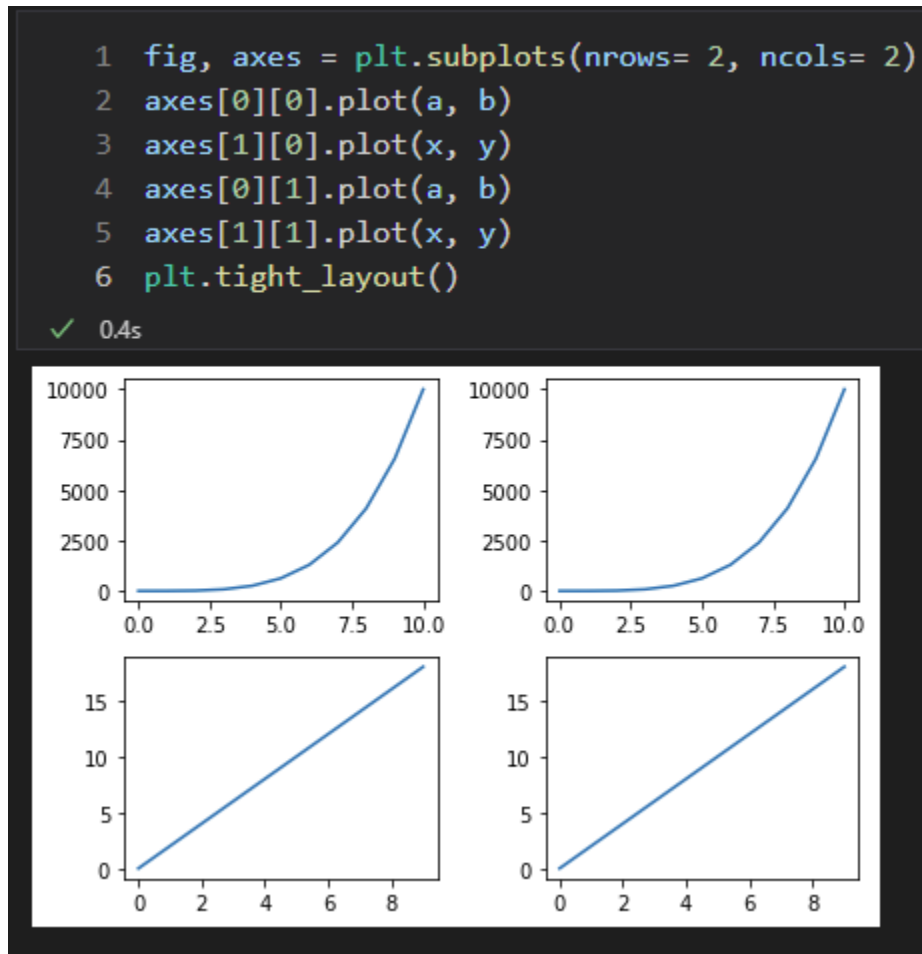
```

✓ 0.5s

[<matplotlib.lines.Line2D at 0x20df5e28490>]



- `plt.tight_layout()` : içiçe geçmeleri engeller



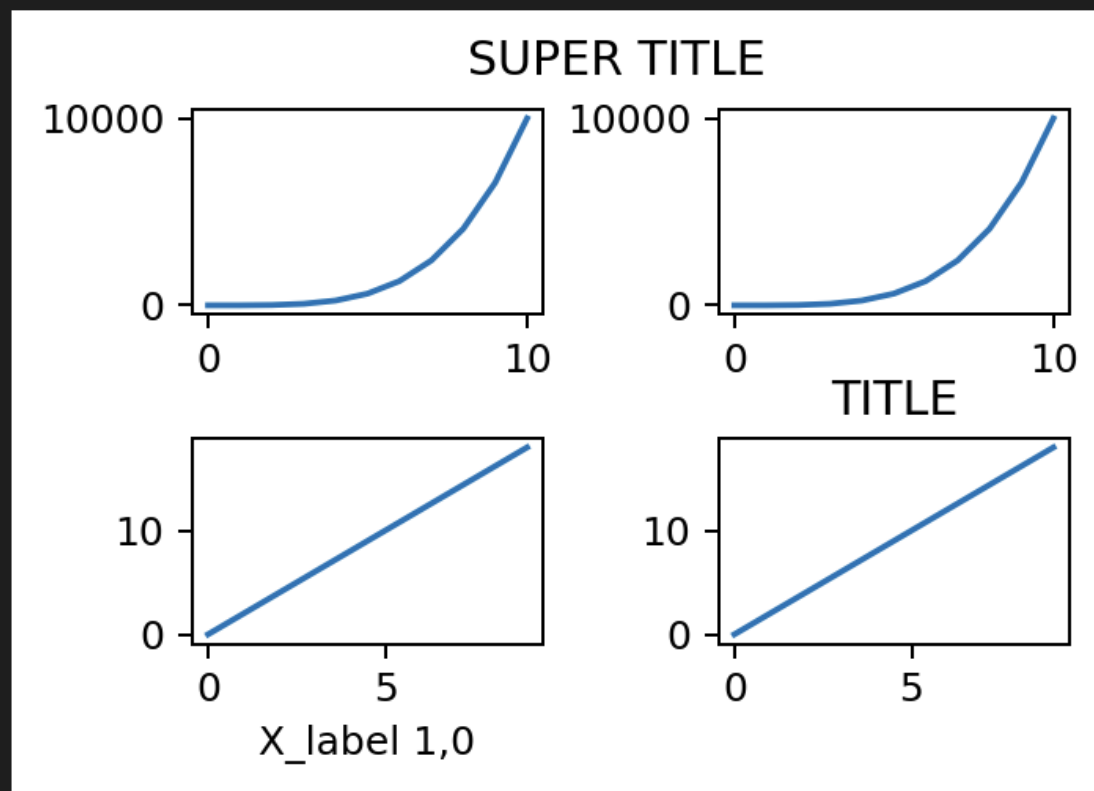
- `fig.subplots_adjust(wspace=0.3, hspace= 0.3)`  
wspace= : width genişlik aralığı  
hspace= : yükseklik aralığı

```

1 fig, axes = plt.subplots(nrows= 2, ncols= 2, figsize=(4,2.5), dpi=180)
2 axes[0][0].plot(a, b)
3 axes[1][0].plot(x, y)
4 axes[1][0].set_xlabel("X_label 1,0")
5 axes[0][1].plot(a, b)
6 axes[1][1].plot(x, y)
7 axes[1][1].set_title("TITLE")
8 fig.suptitle("SUPER TITLE")
9
10 fig.subplots_adjust(wspace=0.5, hspace= 0.6)
11
12 fig.savefig("new_plot.png", bbox_inches="tight")

```

✓ 0.5s



- `fig.savefig("new_plot.png", bbox_inches="tight")` : subplotu kaydeder.  
`bbox_inches="tight"` : thick markları tutar

#### ▼ Styling

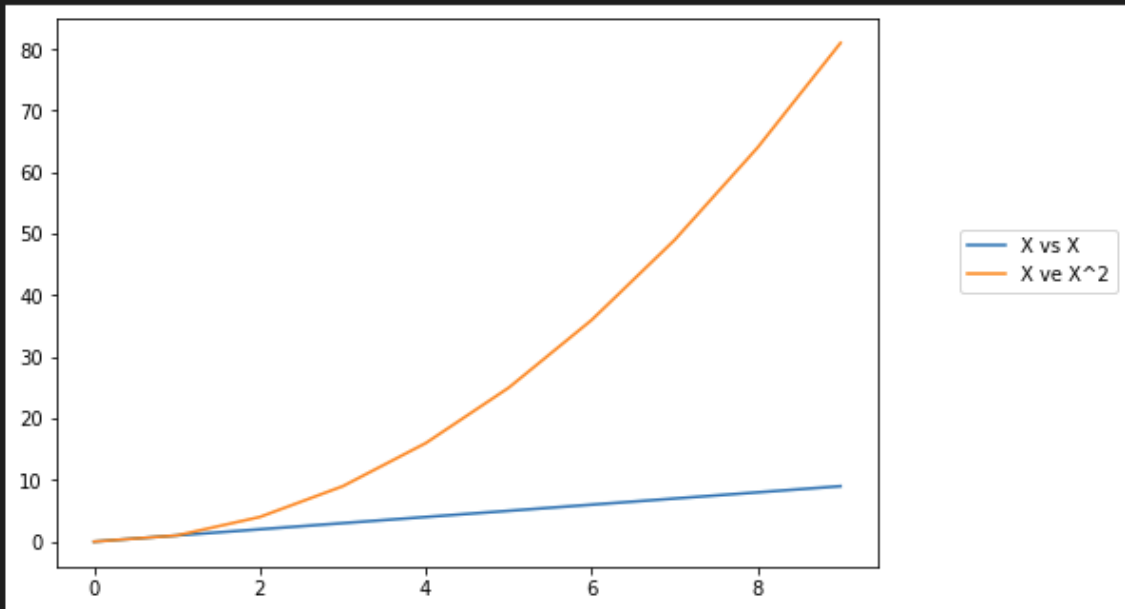
- legend eklemek  
`label="legend"` : `.legend` komutu ile `label`'e yazılan legend olarak eklenir  
`loc=(1.1,0.5)` : legend konumu



```
1 fig = plt.figure()
2
3 ax = fig.add_axes([0,0,1,1])
4 ax.plot(x,x, label="X vs X")
5 ax.plot(x,x**2, label="X ve X^2")
6 ax.legend(loc= (1.1,0.5))
```

✓ 0.3s

<matplotlib.legend.Legend at 0x1a26d724f70>



- `ax.plot(x,x**2, color="purple")` : çizgi rengi verir (HEX code kullanılabilir.)

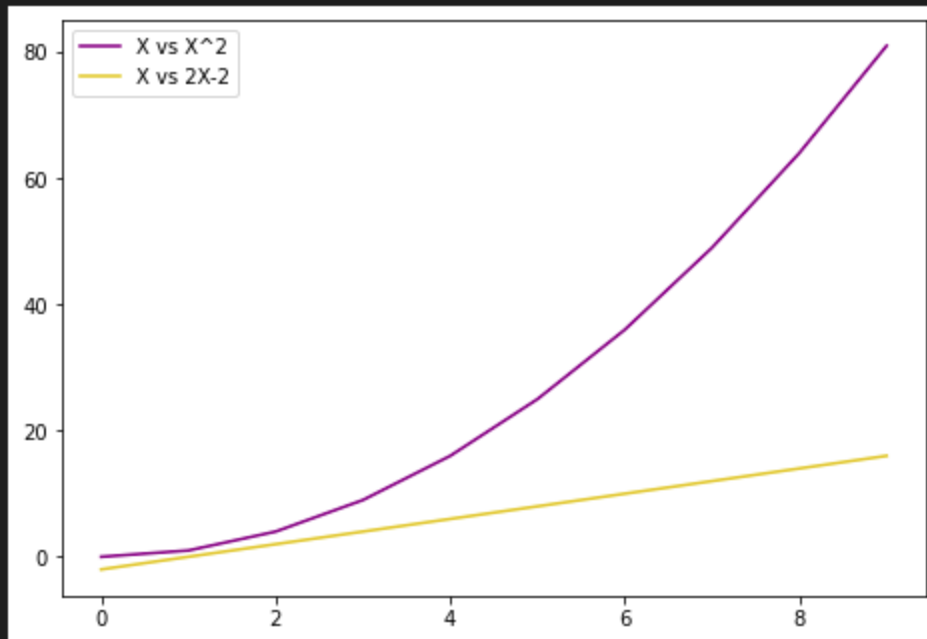
```

1 fig = plt.figure()
2
3 ax = fig.add_axes([0,0,1,1])
4 ax.plot(x,x**2, color="purple", label="X vs X^2")
5 ax.plot(x,x+x-2, color="#e6c017", label="X vs 2X-2")
6 ax.legend()

```

✓ 0.2s

<matplotlib.legend.Legend at 0x2821d7e3520>



- lw= : çizgi kalınlığı değiştirir  
linewidth= : aynısı

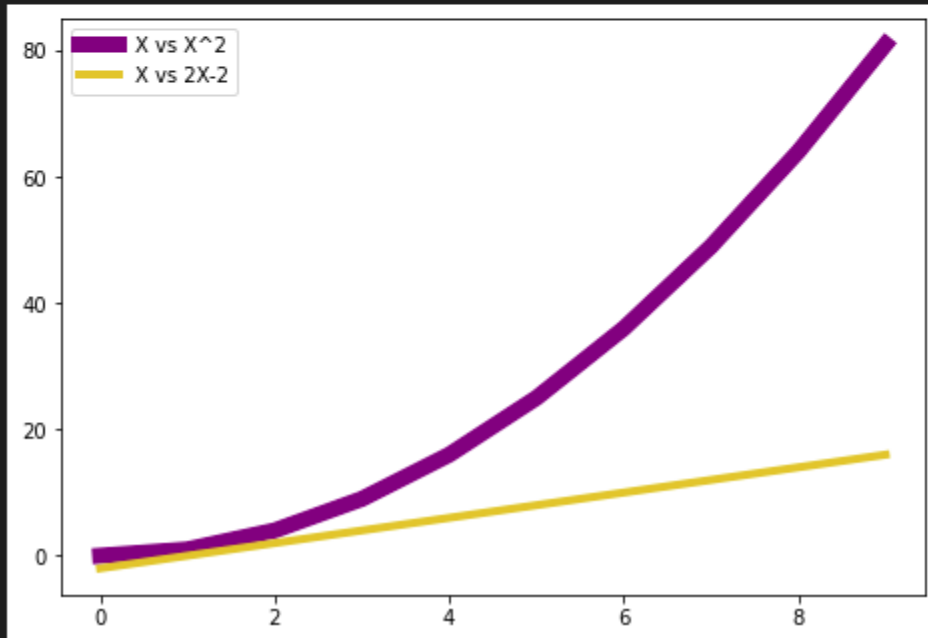
```

1 fig = plt.figure()
2
3 ax = fig.add_axes([0,0,1,1])
4 ax.plot(x,x**2, color="purple", label="X vs X^2",
5         lw=8)
6 ax.plot(x,x+x-2, color="#e6c017", label="X vs 2X-2",
7         linewidth=4)
8 ax.legend()

```

✓ 0.4s

<matplotlib.legend.Legend at 0x2821d8cbfa0>

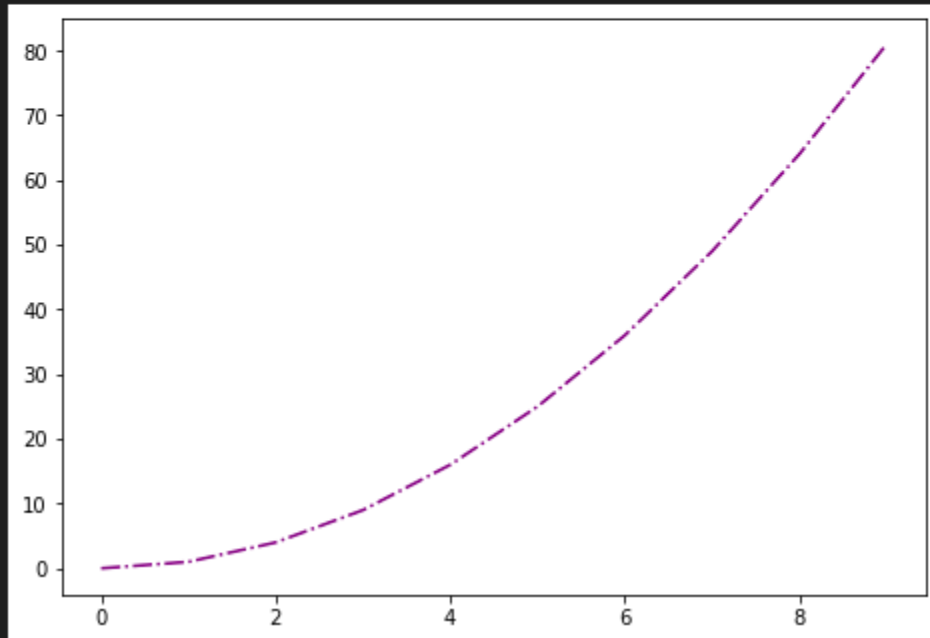


- `ax.plot(x,x**2, color="purple",ls="-.")` : `ls` : çizgi tüpünü değiştir  
`"-_"` , `"-"` , `"."` , `"-."` kullanılabilir  
`linestyle="-."` : aynısı

```
1 fig = plt.figure()
2
3 ax = fig.add_axes([0,0,1,1])
4 ax.plot(x,x**2, color="purple",ls="-.")
```

✓ 0.2s

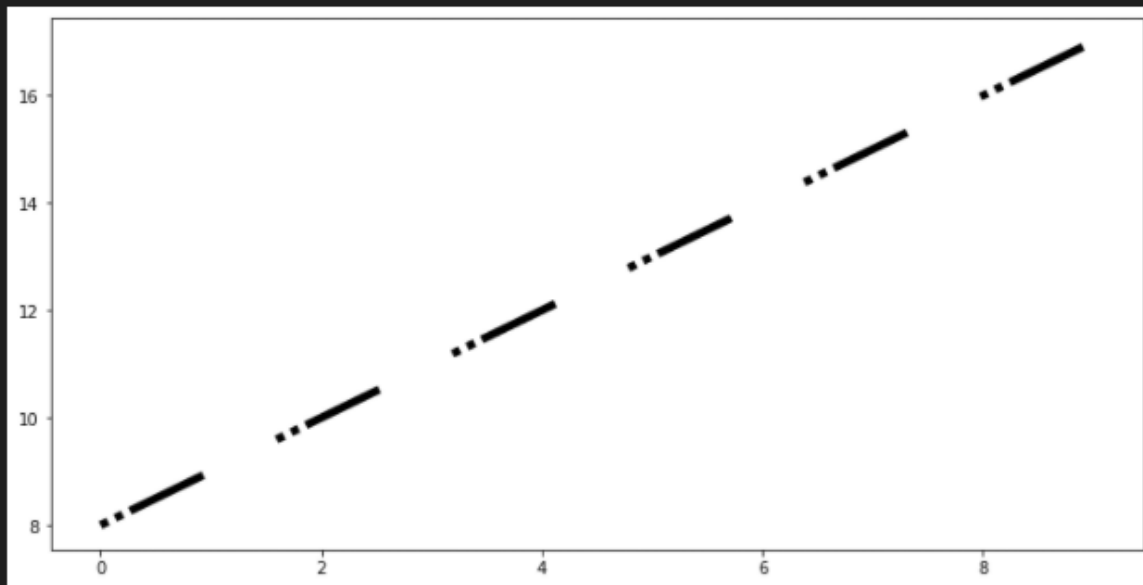
[<matplotlib.lines.Line2D at 0x2821db37160>]



- `lines[0].set_dashes([1, 1,1,1,10,10])` : 1 nokta 1 boşluk 1 nokta 1 boşluk 10 nokta 10 boşluk

```
1 fig, ax = plt.subplots(figsize=(12,6))
2 # custom dash
3 lines = ax.plot(x, x+8, color="black", lw=5)
4 # format: line length, space length
5 lines[0].set_dashes([1, 1,1,1,10,10])
```

Python



- marker eklemek

```

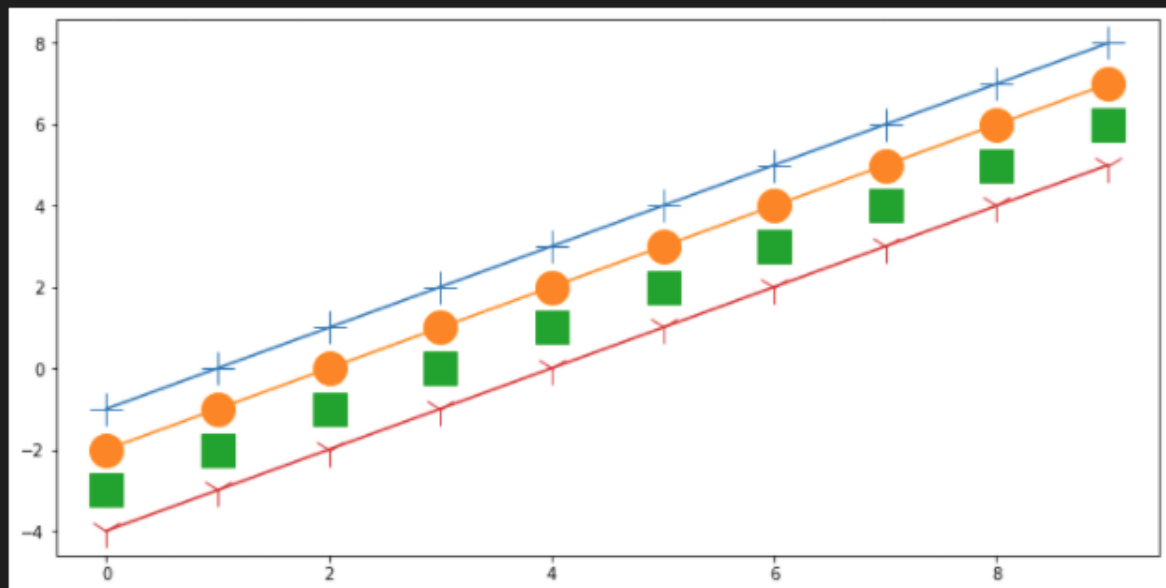
1 fig, ax = plt.subplots(figsize=(12,6))
2 # Use marker for string code
3 # Use markersize or ms for size
4 ax.plot(x, x-1,marker='+',markersize=20)
5 ax.plot(x, x-2,marker='o',ms=20)
6 #ms can be used for markersize
7 ax.plot(x, x-3,marker='s',ms=20,lw=0)
8 # make linewidth zero to see only markers
9 ax.plot(x, x-4,marker='1',ms=20)

```

✓ 0.2s

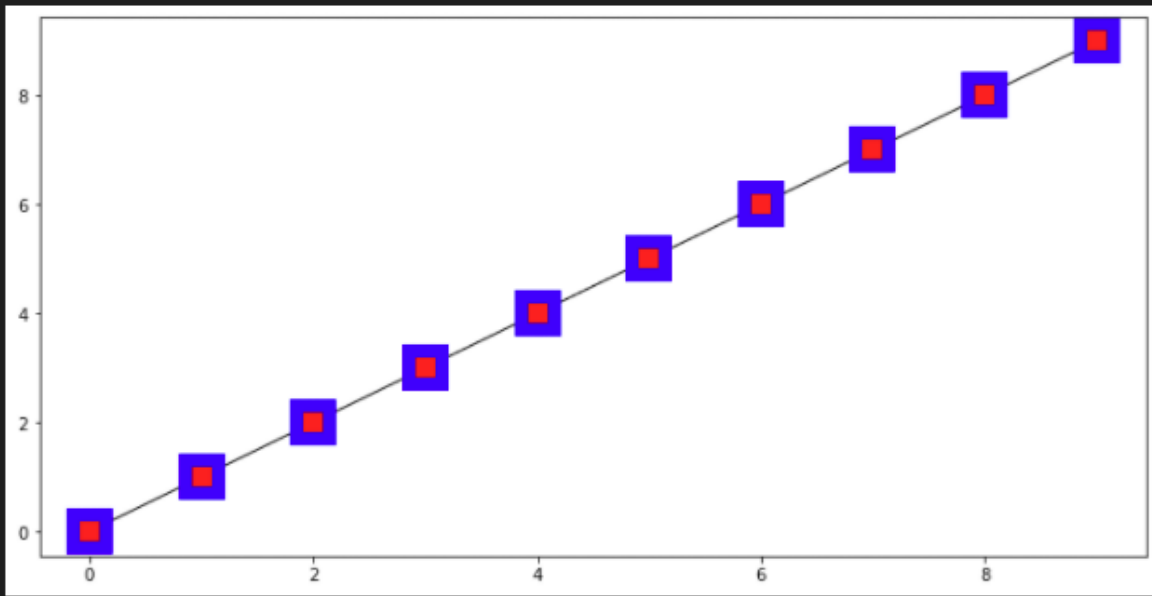
Pytho

[<matplotlib.lines.Line2D at 0x2821dd6c790>]



- custom marker

Python



- iki eksenli grafik

```
1 fig, ax1 = plt.subplots(figsize=(12,8))
2
3 ax1.plot(labels,july16_2007, lw=2, color="blue")
4 ax1.set_ylabel("2007", fontsize=18, color="blue")
5 ax1.spines['left'].set_color('blue')
6 ax1.spines['left'].set_linewidth(4)
7
8 for label in ax1.get_yticklabels():
9     label.set_color("blue")
10 plt.yticks(fontsize=15)
11
12 ax2 = ax1.twinx()
13 ax2.plot(labels,july16_2020, lw=2, color="red")
14 ax2.set_ylabel("2020", fontsize=18, color="red")
15 ax2.spines['right'].set_color('red')
16 ax2.spines['right'].set_linewidth(4)
17
18 for label in ax2.get_yticklabels():
19     label.set_color("red")
20
21 ax1.set_title("July 16th Yield Curves");
22 plt.yticks(fontsize=15);
```

✓ 0.5s Python

