

traî

April 13, 2021

0.1 Import ve Versiyon Kontrolü

```
[2]: import numpy as np  
import pandas as pd  
import matplotlib
```

```
[3]: np.__version__
```

```
[3]: '1.19.5'
```

```
[4]: pd.__version__
```

```
[4]: '1.2.1'
```

```
[5]: matplotlib.__version__
```

```
[5]: '3.3.3'
```

```
[6]: import matplotlib.pyplot as plt
```

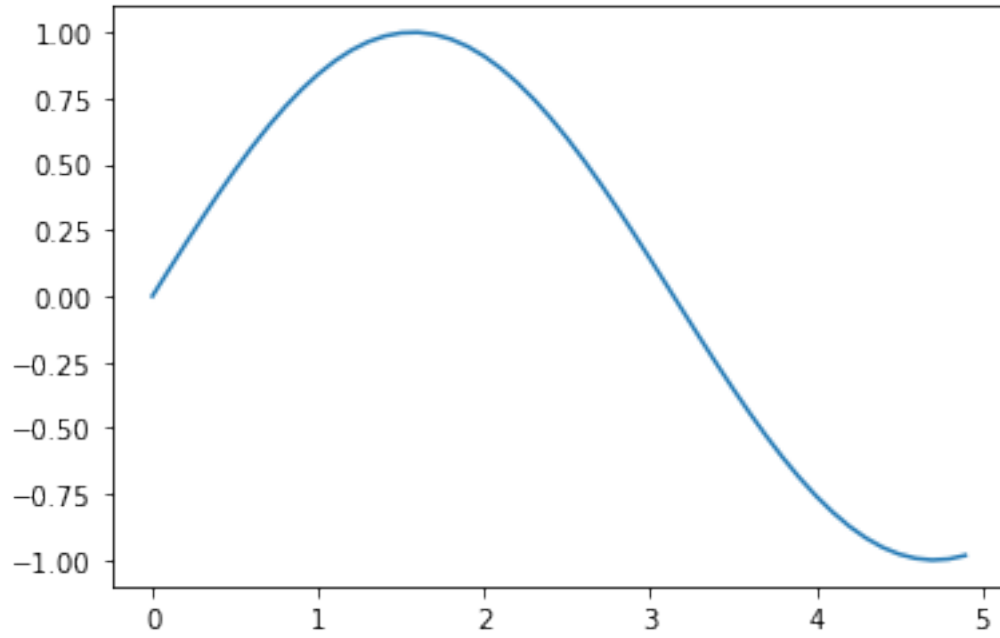
```
[7]: %matplotlib inline
```

```
[8]: plt?
```

```
[9]: x = np.arange(0, 5, 0.1)  
y = np.sin(x)  
  
plt.plot(x, y)
```

```
[9]: [<matplotlib.lines.Line2D at 0x1ab6fae3ee0>]
```

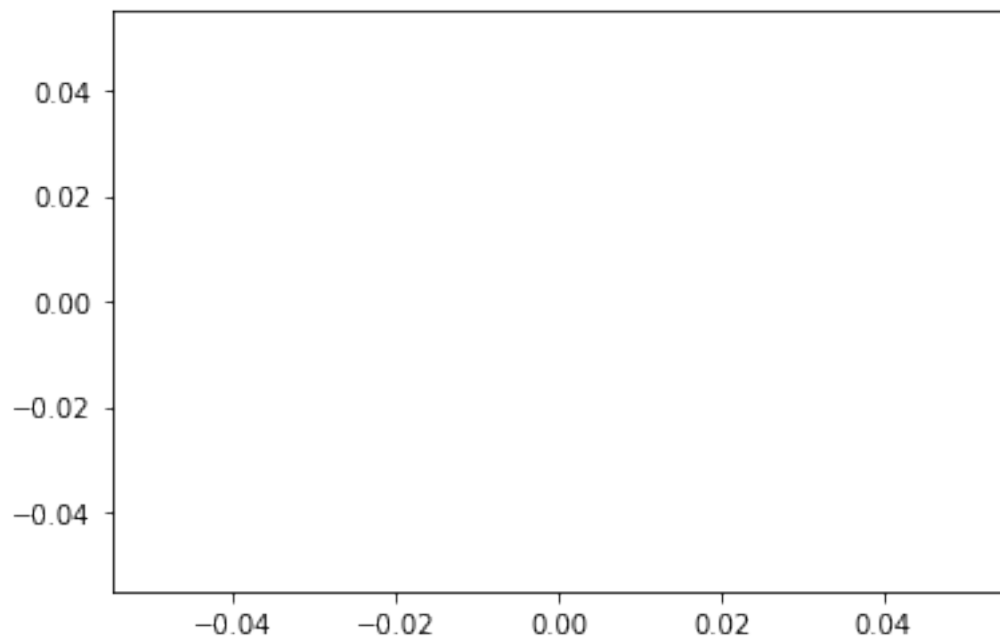




0.2 İlk Grafik

```
[10]: plt.plot()
```

```
[10]: []
```



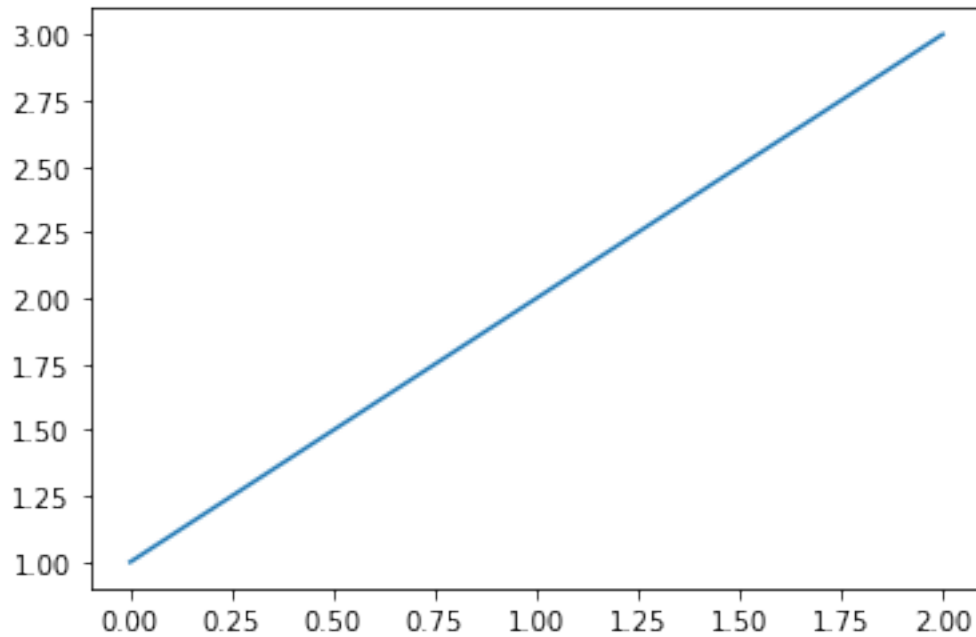
Mühendisin Blogu

Hüseyin Averbek

```
[11]: x = [1,2,3]
```

```
plt.plot(x)
```

```
plt.show()
```



```
[12]: x = [1,2,3]
```

```
y = [2,4,6]
```

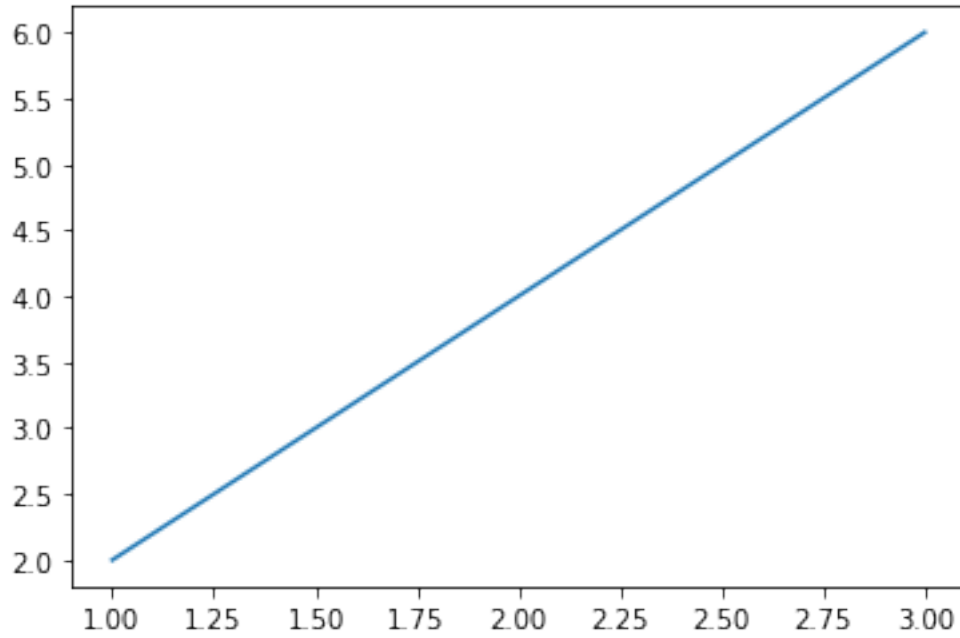
```
plt.plot(x,y)
```

```
plt.show()
```



Mühendisin Blogu

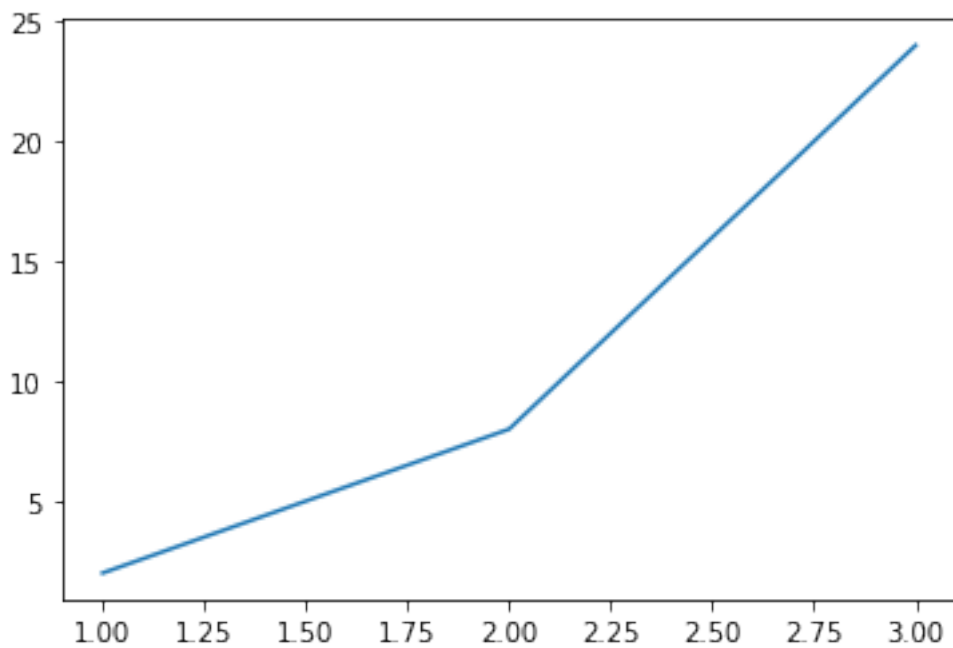
Hüseyin Averbek



```
[13]: x = [1,2,3]
      y = [2,8,24]

      plt.plot(x,y)

      plt.show()
```



Mühendisin Blogu

Hüseyin Averbek

0.2.1 Yazı Boyutu

```
[14]: x = [1,2,3]
      y = [2,8,24]

      plt.plot(x,y)

      plt.title("İlk Grafik", fontsize = 25)
      plt.show()
```



0.2.2 Renk

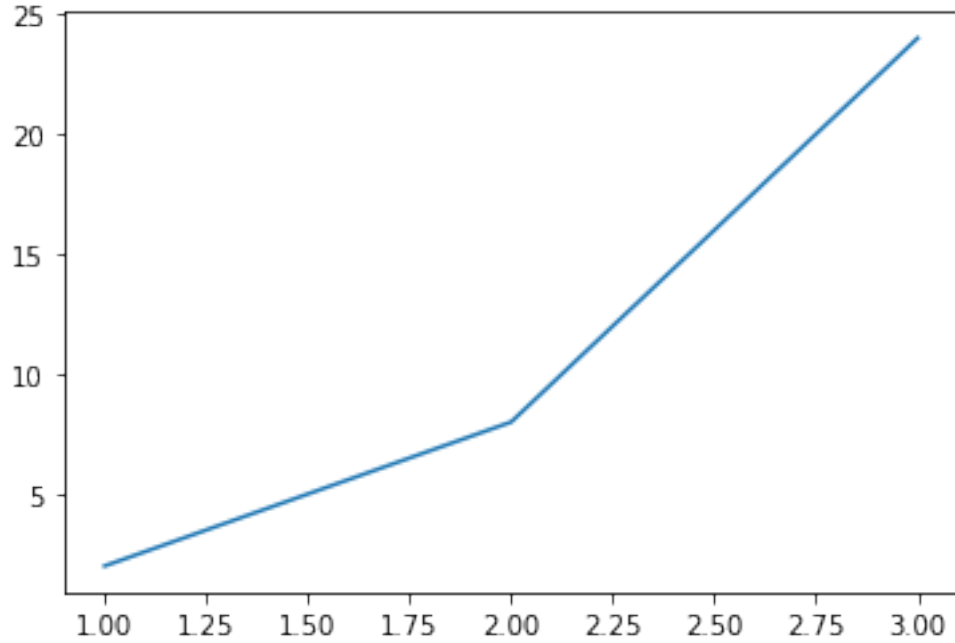
```
[15]: x = [1,2,3]
      y = [2,8,24]

      plt.plot(x,y)

      plt.title("İlk Grafik", fontsize = 25, color = "blue")
      plt.show()
```



İlk Grafik



0.2.3 Konum Değiştirme

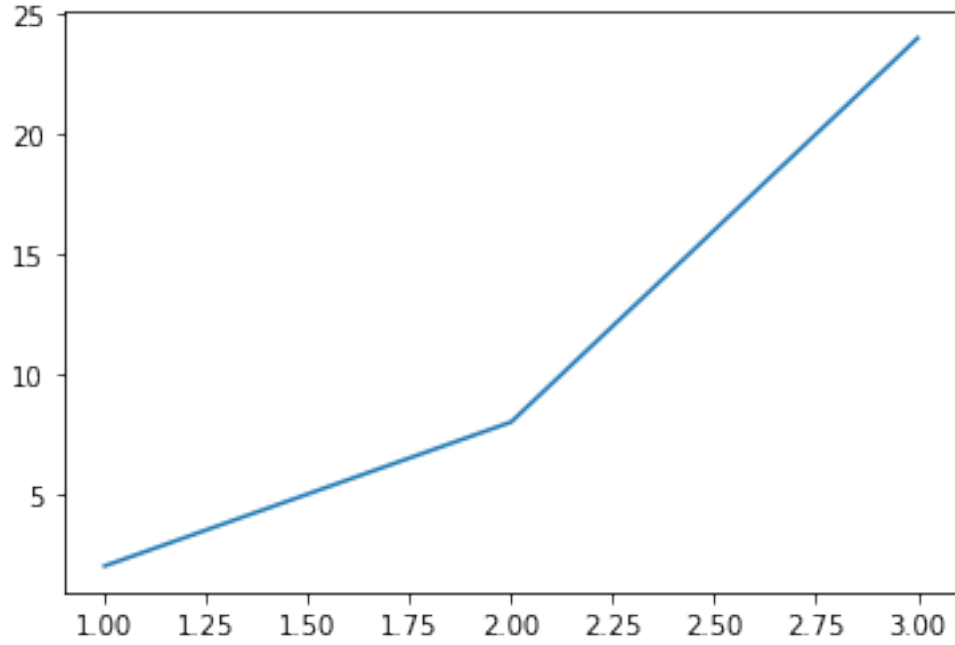
```
[17]: x = [1,2,3]
      y = [2,8,24]

      plt.plot(x,y)

      plt.title("İlk Grafik", fontsize = 25, color = "blue" , loc = "left")
      plt.show()
```



İlk Grafik



```
[20]: x = [1,2,3]
      y = [2,8,24]

      plt.plot(x,y)

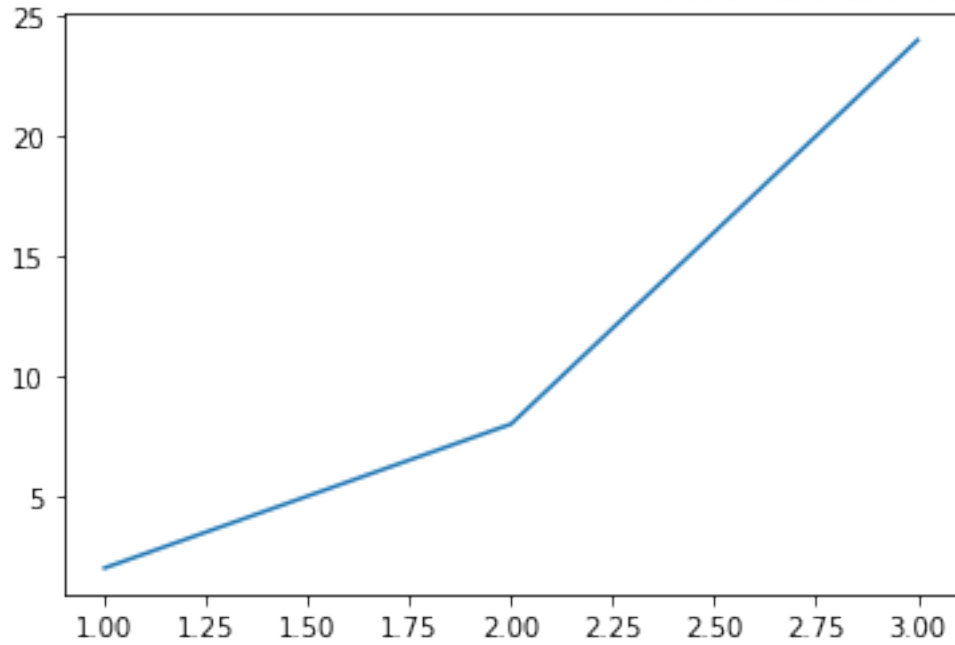
      plt.title("İlk Grafik", fontsize = 25, color = "blue" , loc = "right")
      plt.show()
```



Mühendisin Blogu

Hüseyin Averbek

İlk Grafik



0.2.4 Padding

```
[22]: x = [1,2,3]
      y = [2,8,24]

      plt.plot(x,y)

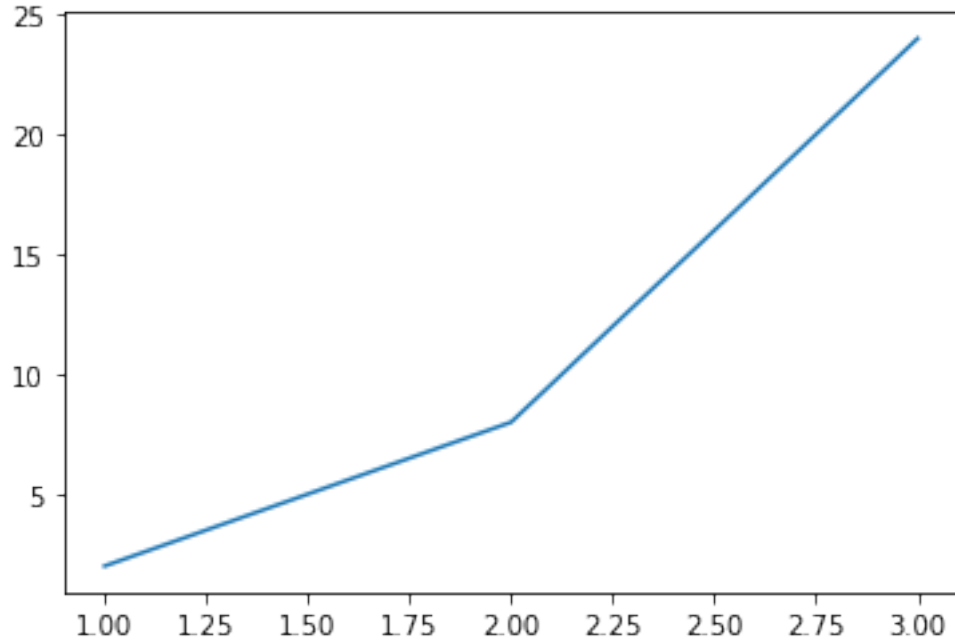
      plt.title("İlk Grafik", fontsize = 25, color = "blue" , loc = "right", pad = 50)
      plt.show()
```



Mühendisin Blogu

Hüseyin Averbek

İlk Grafik



0.2.5 Font Adı

```
[25]: x = [1,2,3]
      y = [2,8,24]

      plt.plot(x,y)

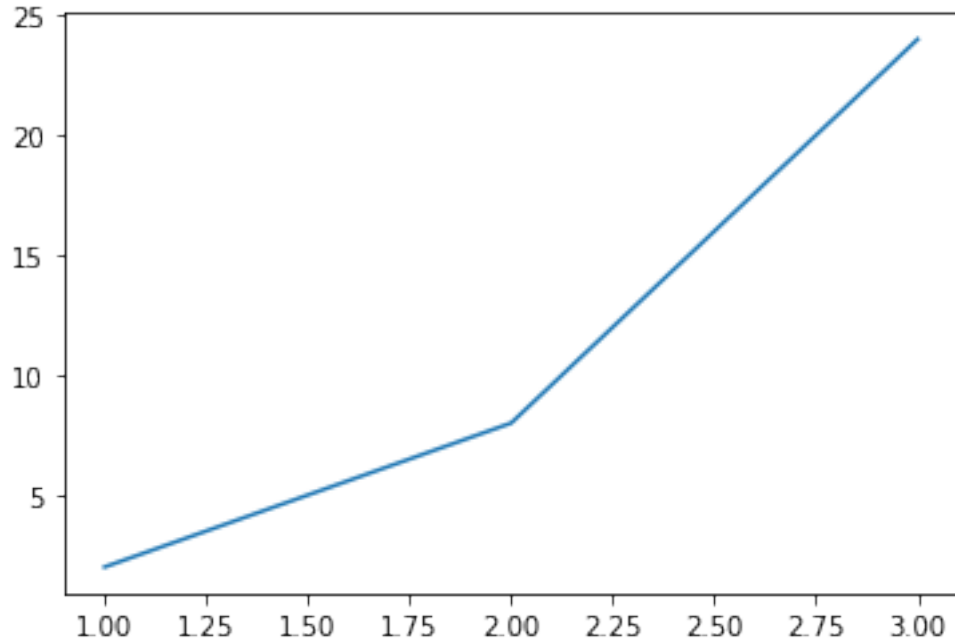
      plt.title("İlk Grafik", fontsize = 25, color = "blue" , loc = "right", pad = 50, fontname="Comic Sans MS")
      plt.show()
```



Mühendisin Blogu

Hüseyin Averbek

İlk Grafik



0.3 Label

```
[26]: x = [1,2,3]
      y = [2,8,24]

      plt.plot(x,y)

      plt.title("İlk Grafik", fontsize = 25, color = "blue" , loc = "right", pad = 50, fontname="Comic Sans MS")

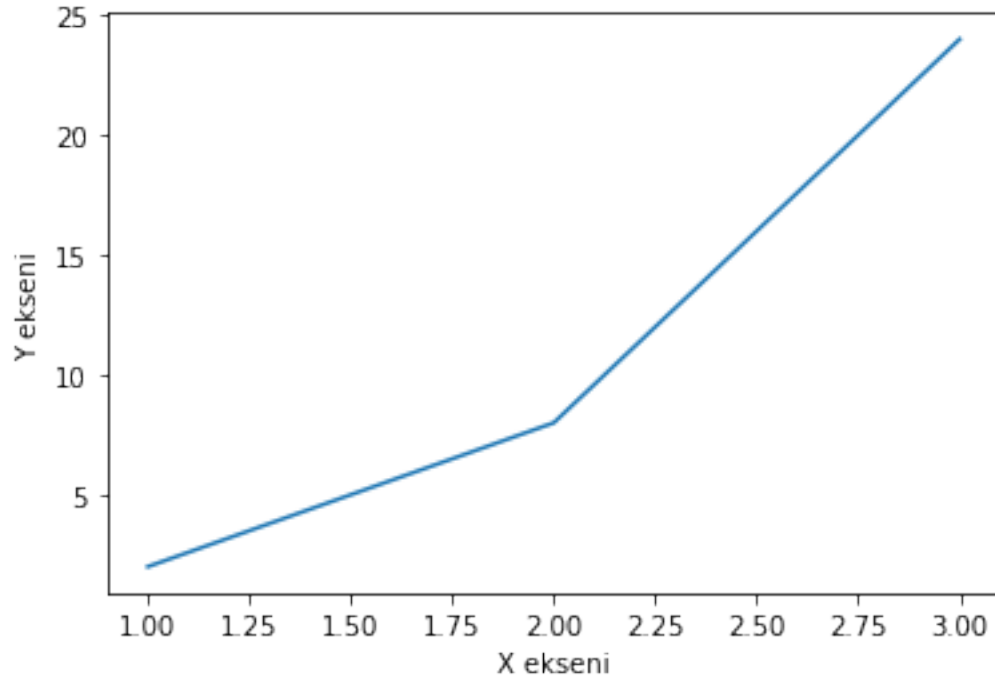
      plt.xlabel("X eksenı")
      plt.ylabel("Y eksenı")
      plt.show()
```



Mühendisin Blogu

Hüseyin Averbek

İlk Grafik



```
[29]: x = [1,2,3]
      y = [2,8,24]

      plt.plot(x,y)

      plt.title("İlk Grafik", fontsize = 25, color = "blue" , loc = "right", pad = 50, fontname="Comic Sans MS")

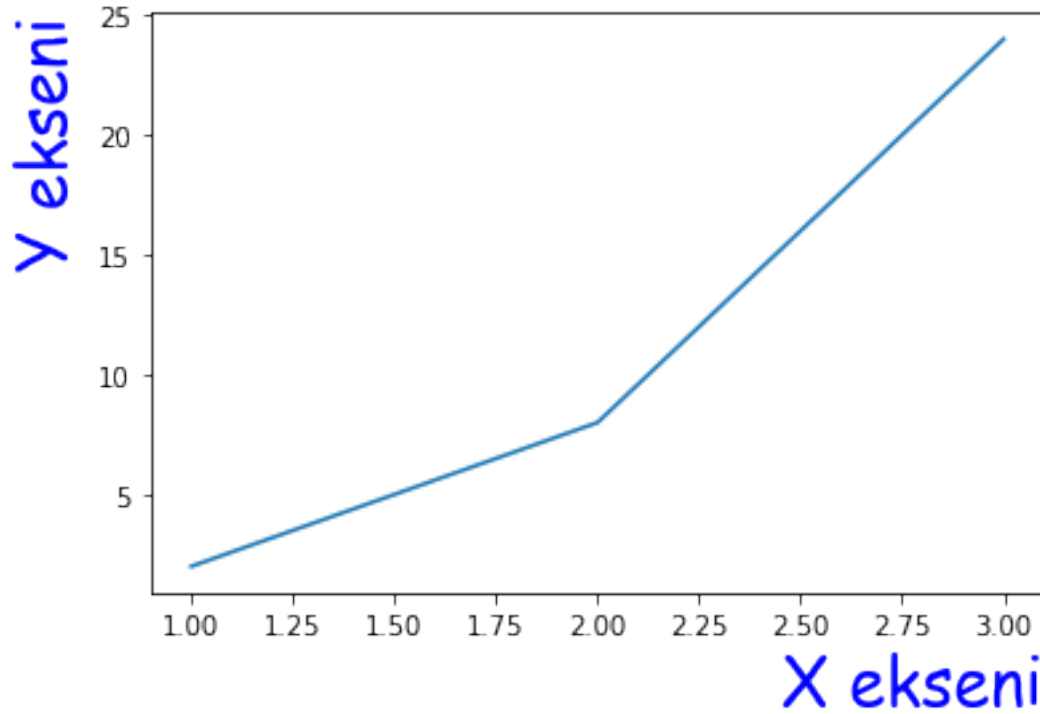
      plt.xlabel("X eksenı" , fontsize = 25, color = "blue" , loc = "right", fontname="Comic Sans MS")

      plt.ylabel("Y eksenı", fontsize = 25, color = "blue" , loc = "top", fontname = "Comic Sans MS")

      plt.show()
```



İlk Grafik



0.4 Ticks

```
[30]: x = [1,2,3]
      y = [2,8,24]

      plt.plot(x,y)

      plt.title("İlk Grafik", fontsize = 25, color = "blue" , loc = "right", pad = 50, fontname="Comic Sans MS")

      plt.xlabel("X eksenini" , fontsize = 25, color = "blue" , loc = "right", fontname="Comic Sans MS")

      plt.ylabel("Y eksenini", fontsize = 25, color = "blue" , loc = "top", fontname = "Comic Sans MS")

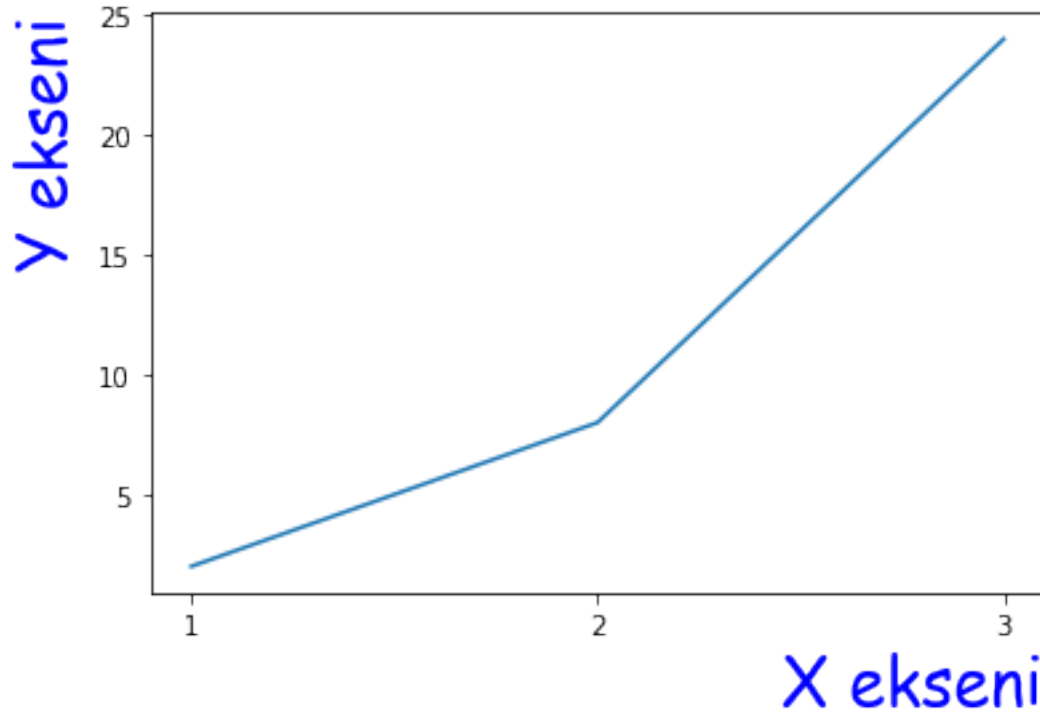
      plt.xticks([1,2,3])
      plt.show()
```



Mühendisin Blogu

Hüseyin Averbek

İlk Grafik



Bunu Yapmayın

```
[32]: x = [1,2,3]
      y = [2,8,24]

      plt.plot(x,y)

      plt.title("İlk Grafik", fontsize = 25, color = "blue" , loc = "right", pad = 50, fontname="Comic Sans MS")

      plt.xlabel("X eksenini" , fontsize = 25, color = "blue" , loc = "right", fontname="Comic Sans MS")

      plt.ylabel("Y eksenini", fontsize = 25, color = "blue" , loc = "top", fontname = "Comic Sans MS")

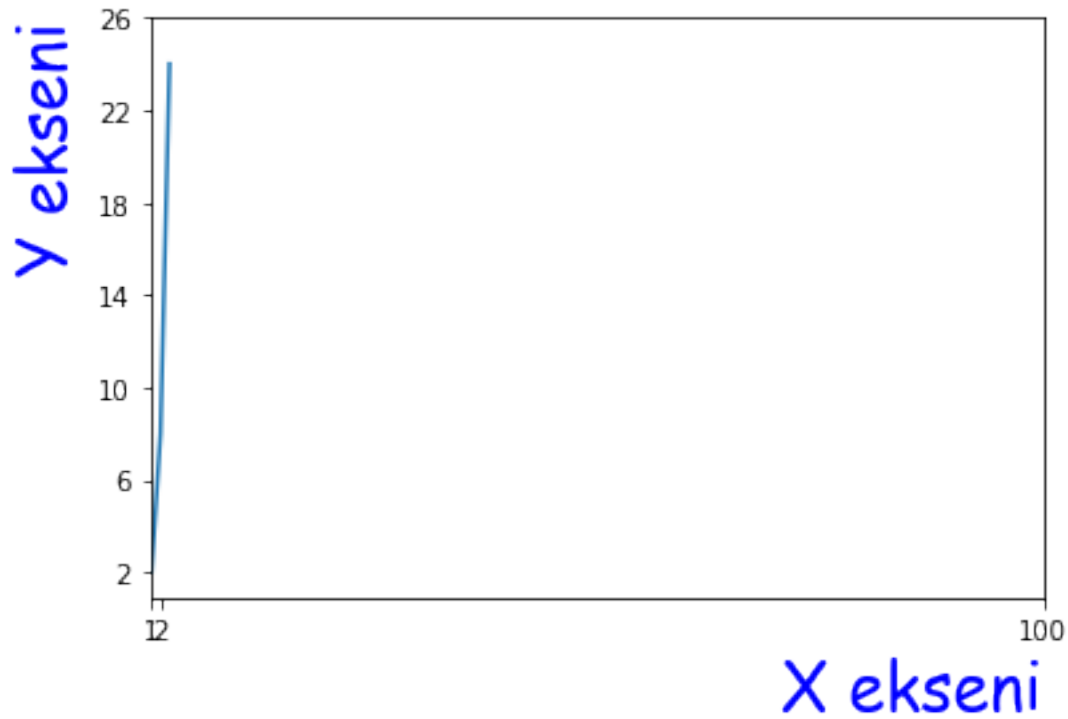
      plt.xticks([1,2,100])
      plt.yticks([2,6,10,14,18,22,26])
      plt.show()
```



Mühendisin Blogu

Hüseyin Averbek

İlk Grafik



0.4.1 Legend

```
[35]: x = [1,2,3]
      y = [2,8,24]

      plt.plot(x,y, label= "Label1")

      plt.title("İlk Grafik", fontsize = 25, color = "blue" , loc = "right", pad = 50, fontname="Comic Sans MS")

      plt.xlabel("X eksenı" , fontsize = 25, color = "blue" , loc = "right", fontname="Comic Sans MS")

      plt.ylabel("Y eksenı", fontsize = 25, color = "blue" , loc = "top", fontname="Comic Sans MS")

      plt.xticks([1,2,3])
      plt.yticks([2,6,10,14,18,22,26])
```

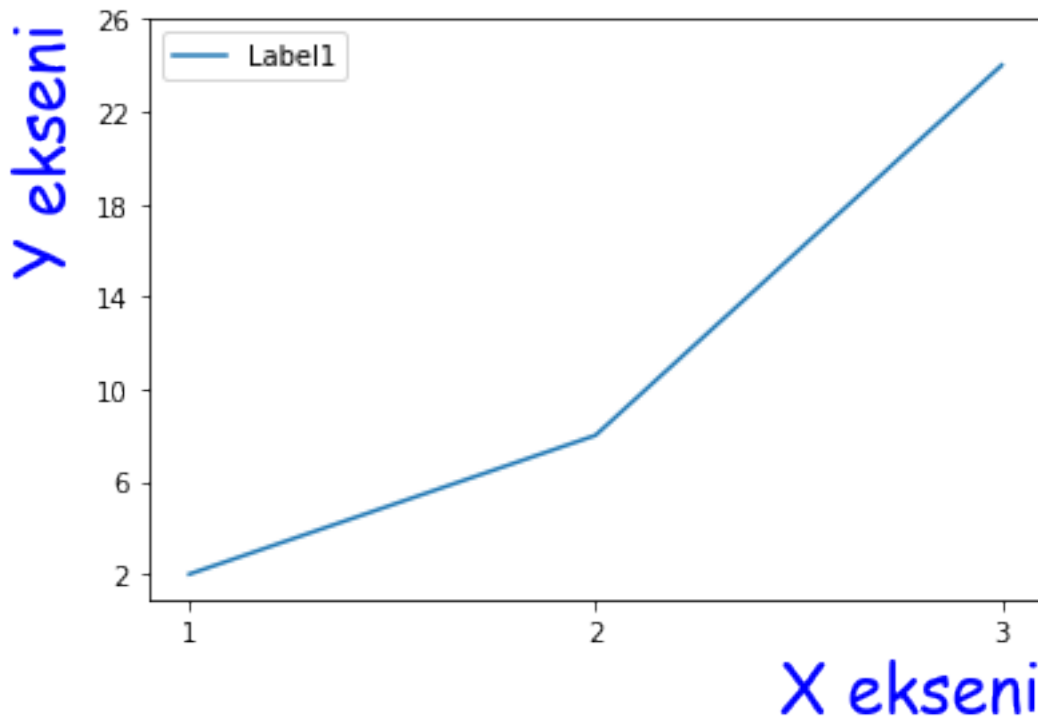


Mühendisin Blogu

Hüseyin Averbek

```
plt.legend()  
plt.show()
```

İlk Grafik



Background deęiřtirmenin bir yolu:

```
[41]: x = [1,2,3]  
      y = [2,8,24]  
  
      plt.plot(x,y, label= "Label1", color = "blue")  
      gca = plt.gca()  
      gca.set_facecolor("black")  
  
      plt.title("İlk Grafik", fontsize = 25, color = "blue" , loc = "right", pad = 50,  
                fontname="Comic Sans MS")  
  
      plt.xlabel("X eksenı" , fontsize = 25, color = "blue" , loc = "right", fontname=  
                "Comic Sans MS")
```



Mühendisin Blogu

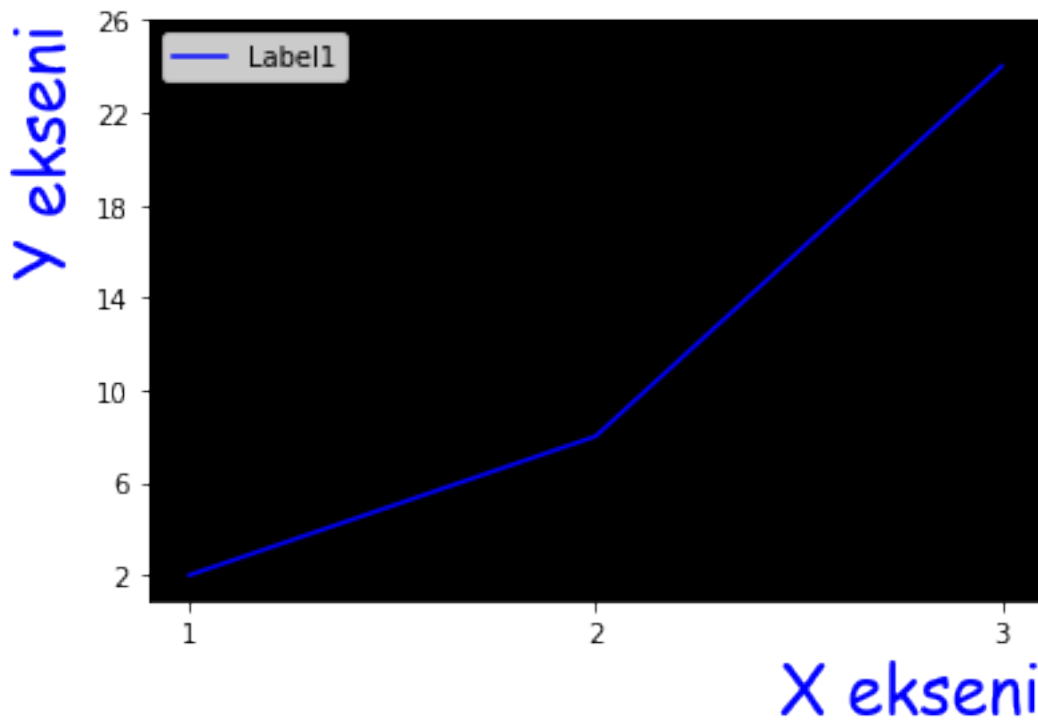
Hüseyin Averbek

```
plt.ylabel("Y eksenini", fontsize = 25, color = "blue" , loc = "top", fontname = "Comic Sans MS")

plt.xticks([1,2,3])
plt.yticks([2,6,10,14,18,22,26])

plt.legend()
plt.show()
```

İlk Grafik



```
[45]: x = [1,2,3]
      y = [2,8,24]

      plt.plot(x,y, label= "Label1", color = "blue")

      plt.title("İlk Grafik", fontsize = 25, color = "blue" , loc = "right", pad = 50, fontname="Comic Sans MS")
```



Mühendisin Blogu

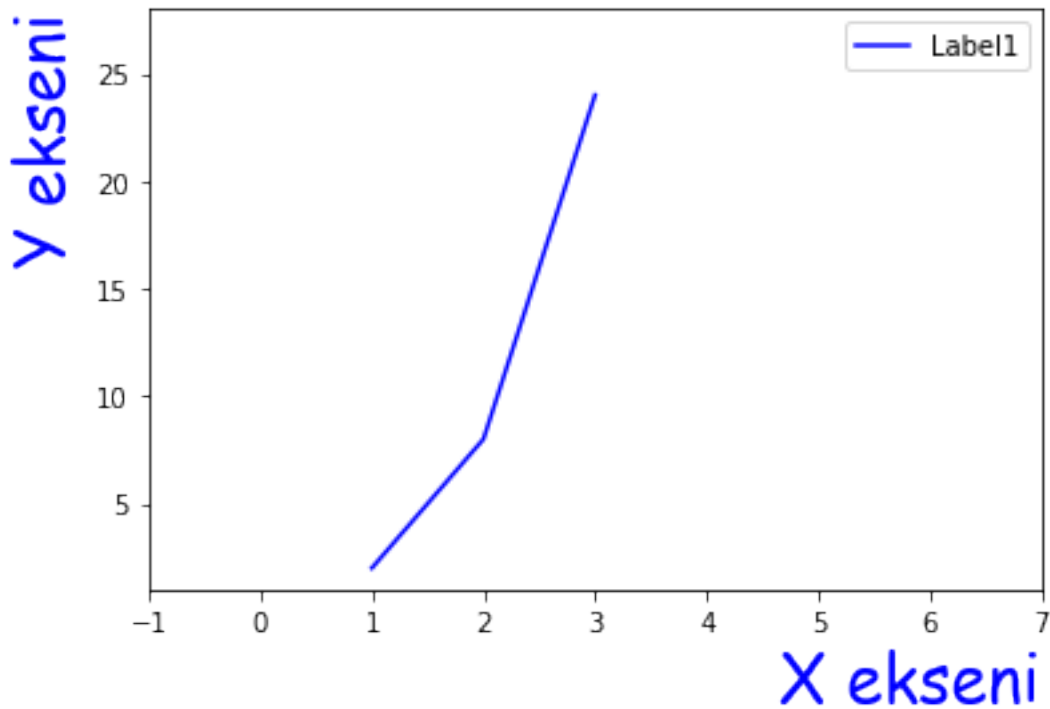
Hüseyin Averbek


```
plt.xlabel("X eksenı" , fontsize = 25, color = "blue" , loc = "right", fontname="Comic Sans MS")
plt.ylabel("Y eksenı", fontsize = 25, color = "blue" , loc = "top", fontname="Comic Sans MS")

plt.xlim([-1,7])
plt.ylim([1,28])

plt.legend()
plt.show()
```

İlk Grafik



0.4.2 Linewidth (Kalınlık)

```
[48]: x = [1,2,3]
      y = [2,8,24]

      plt.plot(x,y, label= "Label1", color = "blue", linewidth = 5)
```



Mühendisin Blogu

Hüseyin Averbek

```
plt.title("İlk Grafik", fontsize = 25, color = "blue" , loc = "right", pad = 50, fontname="Comic Sans MS")

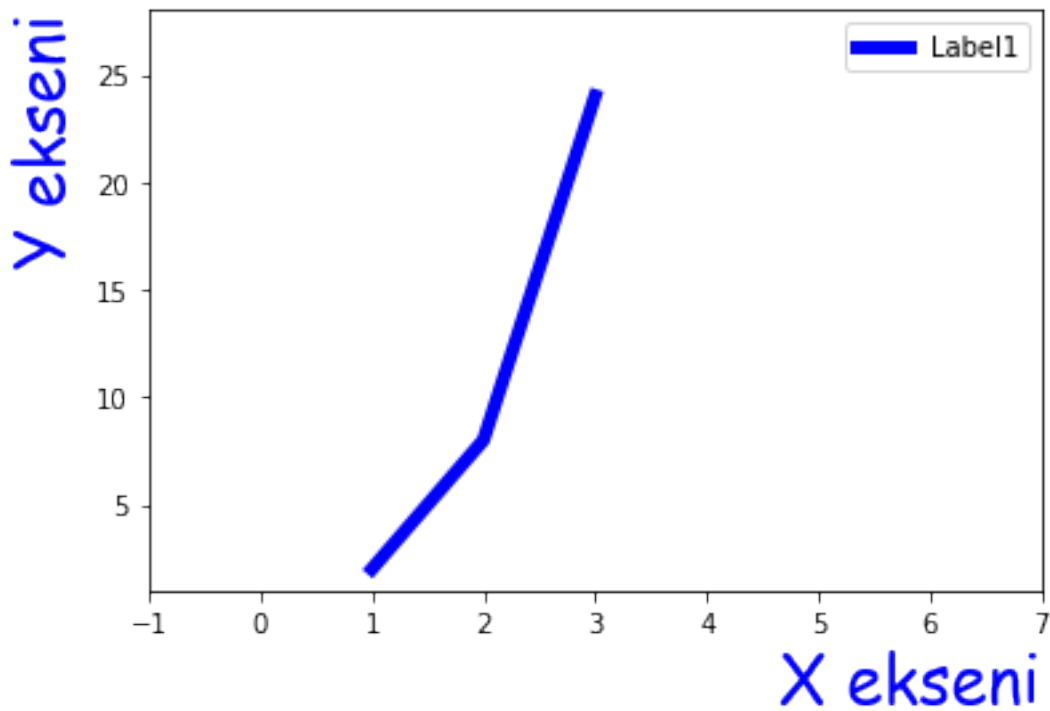
plt.xlabel("X eksenini" , fontsize = 25, color = "blue" , loc = "right", fontname="Comic Sans MS")

plt.ylabel("Y eksenini", fontsize = 25, color = "blue" , loc = "top", fontname = "Comic Sans MS")

plt.xlim([-1,7])
plt.ylim([1,28])

plt.legend()
plt.show()
```

İlk Grafik



Mühendisin Blogu

Hüseyin Averbek

0.4.3 Marker

```
[51]: x = [1,2,3]
      y = [2,8,24]

      plt.plot(x,y, label= "Label1", color = "blue", linewidth = 2.5, marker = "o")

      plt.title("İlk Grafik", fontsize = 25, color = "blue" , loc = "right", pad = 50, fontname="Comic Sans MS")

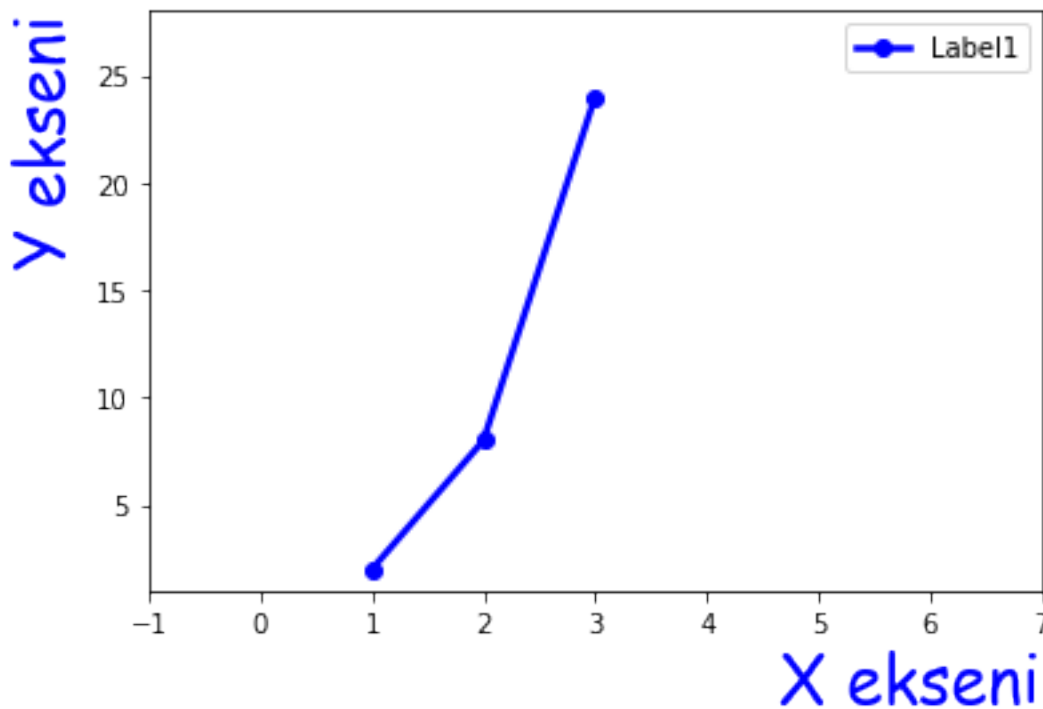
      plt.xlabel("X eksenini" , fontsize = 25, color = "blue" , loc = "right", fontname="Comic Sans MS")

      plt.ylabel("Y eksenini", fontsize = 25, color = "blue" , loc = "top", fontname = "Comic Sans MS")

      plt.xlim([-1,7])
      plt.ylim([1,28])

      plt.legend()
      plt.show()
```

İlk Grafik



Mühendisin Blogu

Hüseyin Averbek

```
[52]: x = [1,2,3]
y = [2,8,24]

plt.plot(x,y, label= "Label1", color = "blue", linewidth = 2.5, marker = "*")

plt.title("İlk Grafik", fontsize = 25, color = "blue" , loc = "right", pad = 50, fontname="Comic Sans MS")

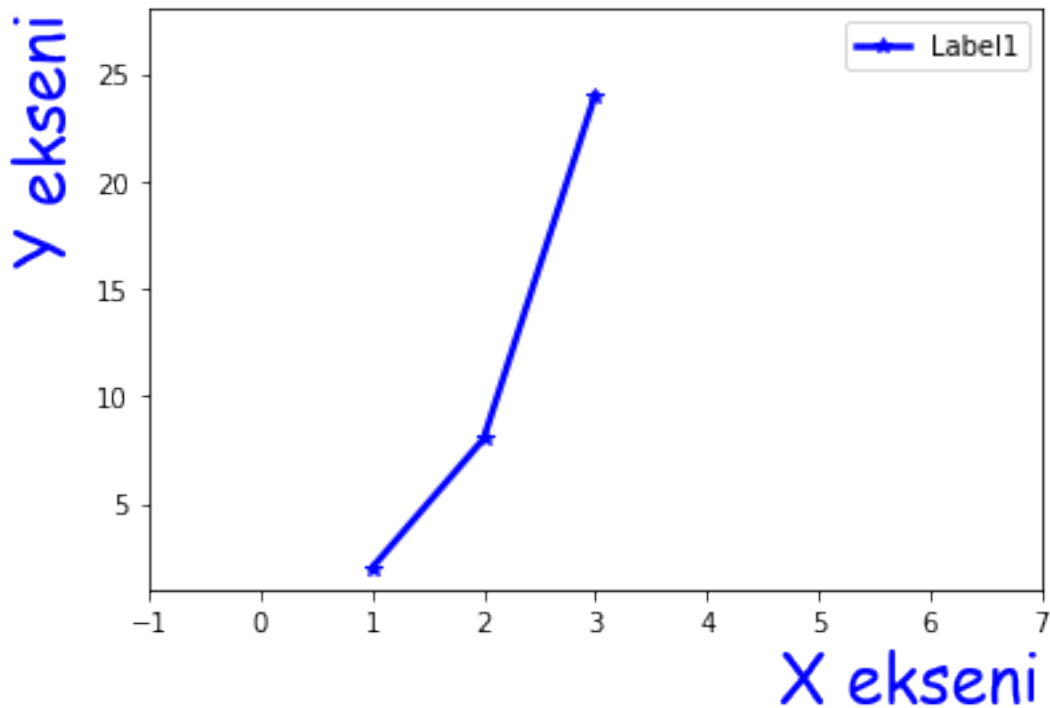
plt.xlabel("X eksenı", fontsize = 25, color = "blue" , loc = "right", fontname="Comic Sans MS")

plt.ylabel("Y eksenı", fontsize = 25, color = "blue" , loc = "top", fontname = "Comic Sans MS")

plt.xlim([-1,7])
plt.ylim([1,28])

plt.legend()
plt.show()
```

İlk Grafik



Mühendisin Blogu

Hüseyin Averbek

0.4.4 Markersize ve Markeredgecolor

```
[56]: x = [1,2,3]
      y = [2,8,24]

      plt.plot(x,y, label= "Label1", color = "red", linewidth = 2.5, marker = "s",
      ↪markersize = 10, markeredgecolor = "yellow")

      plt.title("İlk Grafik", fontsize = 25, color = "blue" , loc = "right", pad =
      ↪50, fontname="Comic Sans MS")

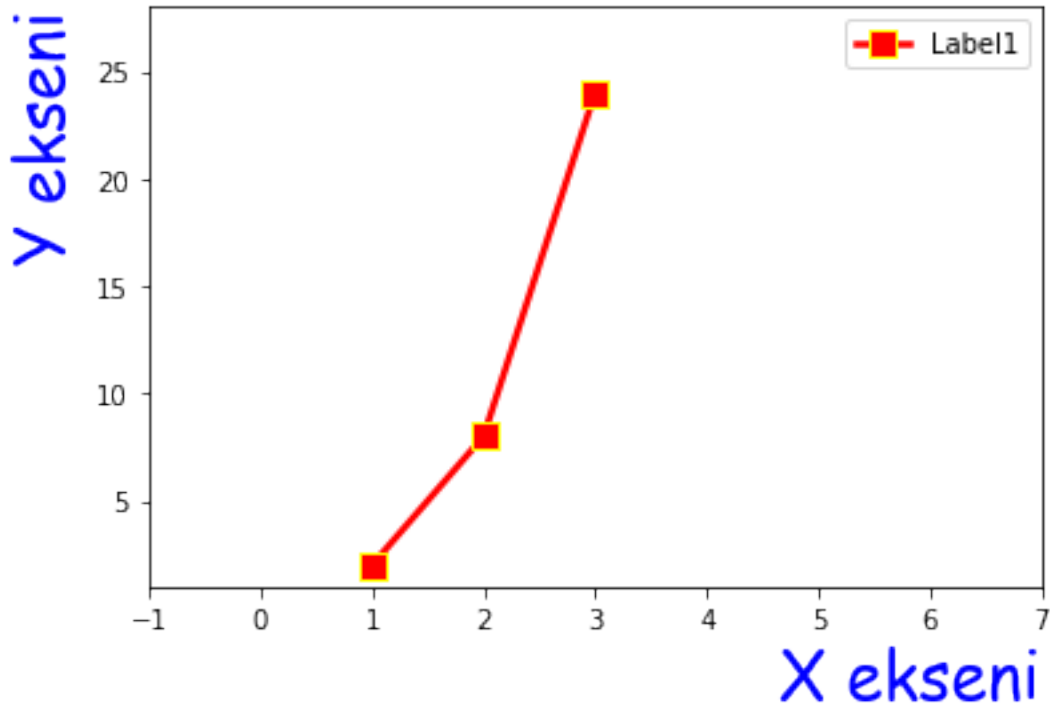
      plt.xlabel("X eksenini" , fontsize = 25, color = "blue" , loc = "right", fontname=
      ↪"Comic Sans MS")
      plt.ylabel("Y eksenini", fontsize = 25, color = "blue" , loc = "top", fontname =
      ↪"Comic Sans MS")

      plt.xlim([-1,7])
      plt.ylim([1,28])

      plt.legend()
      plt.show()
```



İlk Grafik



0.4.5 Linestyle

```
[58]: x = [1,2,3]
      y = [2,8,24]

      plt.plot(x,y, label= "Label1", color = "red", linewidth = 2.5,linestyle="--",
      ↪marker = "s", markersize = 10, markeredgecolor = "yellow")

      plt.title("İlk Grafik", fontsize = 25, color = "blue" , loc = "right", pad =
      ↪50, fontname="Comic Sans MS")

      plt.xlabel("X eksenı" , fontsize = 25, color = "blue" , loc = "right", fontname
      ↪= "Comic Sans MS")
      plt.ylabel("Y eksenı", fontsize = 25, color = "blue" , loc = "top", fontname =
      ↪"Comic Sans MS")

      plt.xlim([-1,7])
      plt.ylim([1,28])
```

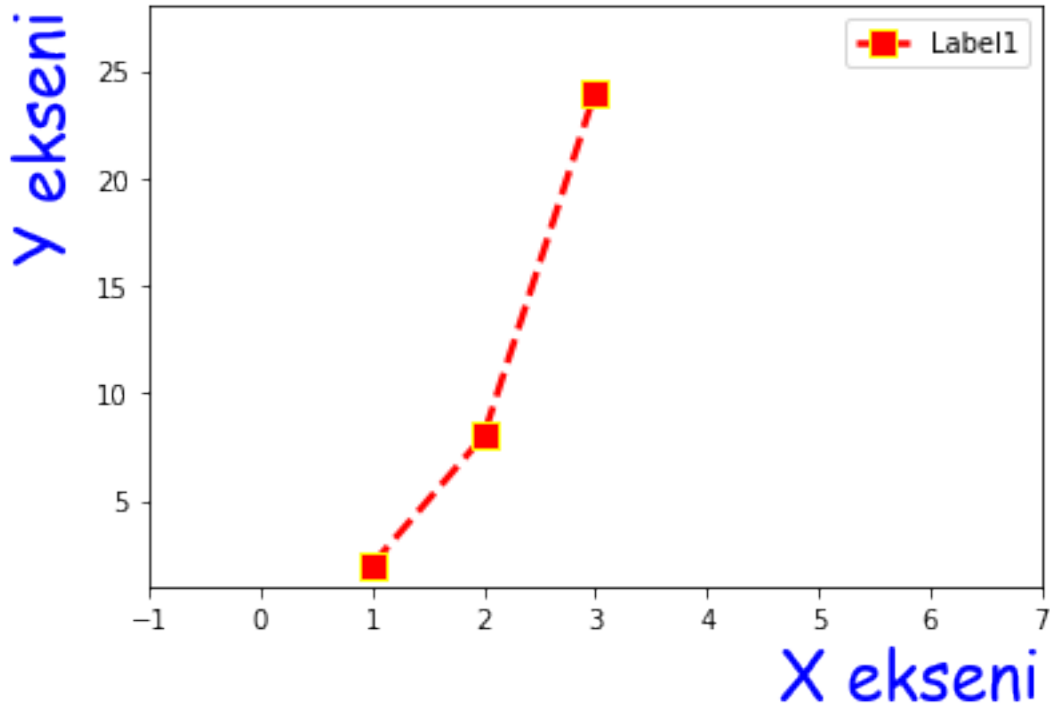


Mühendisin Blogu

Hüseyin Averbek

```
plt.legend()  
plt.show()
```

İlk Grafik



0.4.6 İkinci Line

```
[61]: x = [1,2,3]  
      y = [2,8,24]  
  
      x2 = np.arange(0,3)  
      y2 = np.arange(5,30,9)  
  
      plt.plot(x2,y2, label = "Label2")  
  
      plt.plot(x,y, label= "Label1", color = "red", linewidth = 2.5,linestyle="--",  
      ↪marker = "s", markersize = 10, markeredgcolor = "yellow")
```



Mühendisin Blogu

Hüseyin Averbek

```
plt.title("İlk Grafik", fontsize = 25, color = "blue" , loc = "right", pad = 50, fontname="Comic Sans MS")

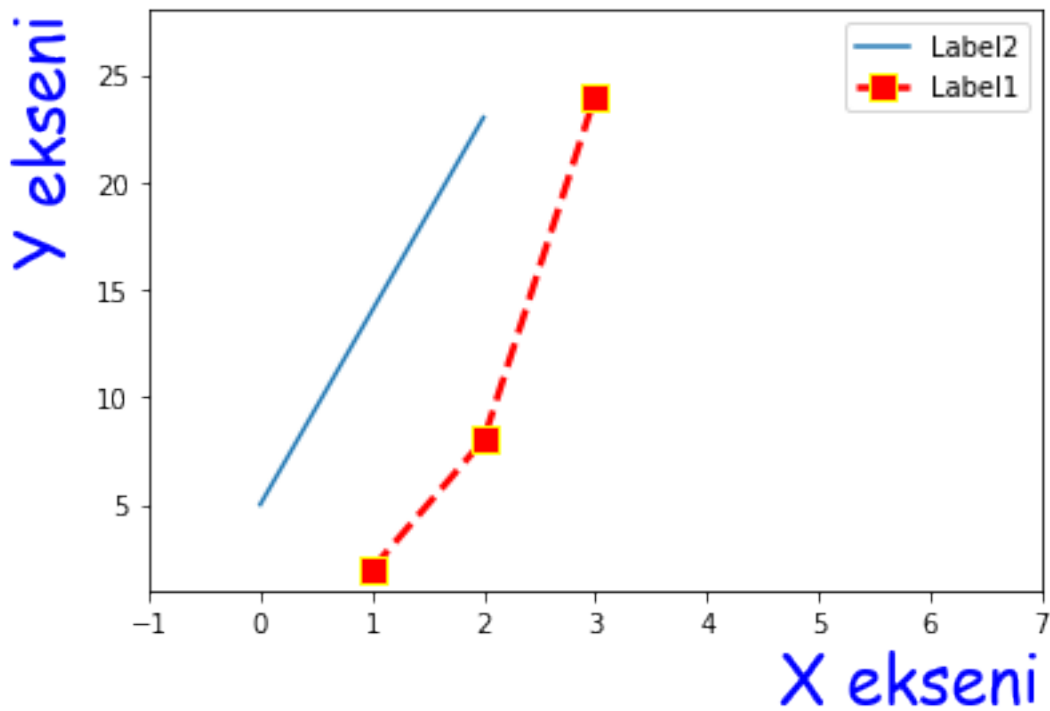
plt.xlabel("X eksenini" , fontsize = 25, color = "blue" , loc = "right", fontname="Comic Sans MS")

plt.ylabel("Y eksenini", fontsize = 25, color = "blue" , loc = "top", fontname = "Comic Sans MS")

plt.xlim([-1,7])
plt.ylim([1,28])

plt.legend()
plt.show()
```

İlk Grafik



Mühendisin Blogu

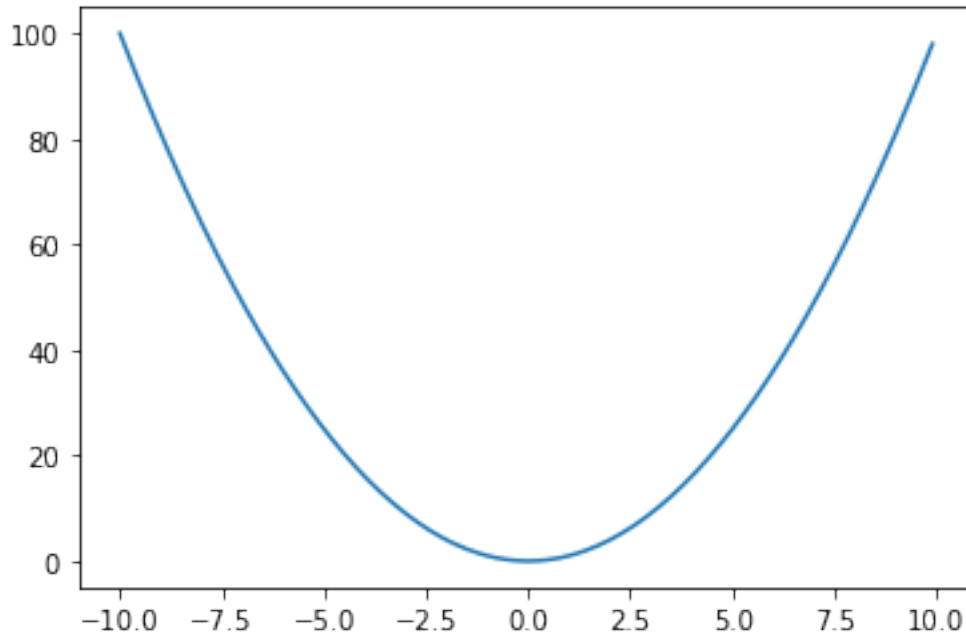
Hüseyin Averbek

0.4.7 Neden Numpy Arraylerini Tercih Etmeliyiz?

```
[62]: x = np.arange(-10,10,0.1)

plt.plot(x, x**2)

plt.show()
```



0.4.8 Bir plotu bölme

```
[73]: x = [1,2,3]
y = [2,8,24]

x2 = np.arange(-3,3,0.1)
print(len(x2))
plt.plot(x2[:30],x2[:30]**2, linestyle = "dotted")
plt.plot(x2[20:],x2[20:]**2, linestyle = "dashed")
plt.plot(x,y, label= "Label1", color = "red", linewidth = 2.5,linestyle="--",
↪marker = "s", markersize = 10, markeredgcolor = "yellow")

plt.title("İlk Grafik", fontsize = 25, color = "blue" , loc = "right", pad =
↪50, fontname="Comic Sans MS")

plt.xlabel("X eksenini" , fontsize = 25, color = "blue" , loc = "right", fontname
↪= "Comic Sans MS")
```

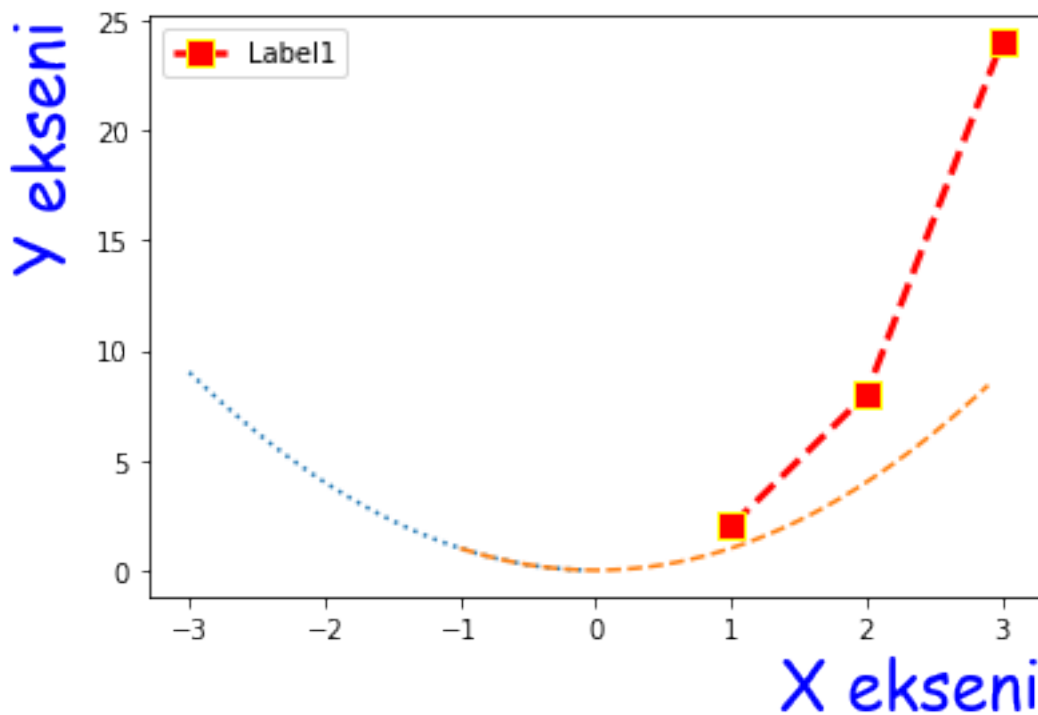


```
plt.ylabel("Y eksenı", fontsize = 25, color = "blue" , loc = "top", fontname = "Comic Sans MS")

plt.legend()
plt.show()
```

60

İlk Grafik



0.5 Figure, figsize, dpi

```
[85]: plt.figure(figsize= (8,4), dpi = 100, facecolor = "darkgray")

x = [1,2,3]
y = [2,8,24]

x2 = np.arange(-3,3,0.1)

plt.plot(x2[:30],x2[:30]**2, linestyle = "dotted")
```



Mühendisin Blogu

Hüseyin Averbek

```

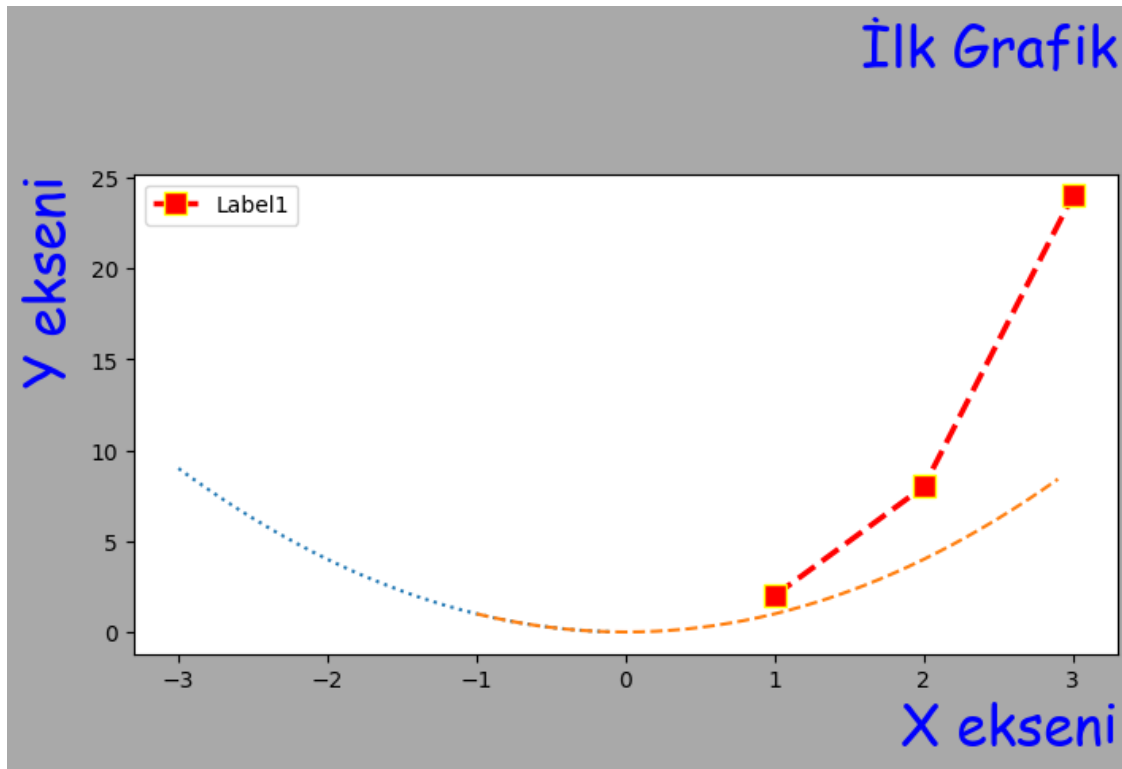
plt.plot(x2[20:],x2[20:]**2, linestyle = "dashed")
plt.plot(x,y, label= "Label1", color = "red", linewidth = 2.5,linestyle="--",
↪marker = "s", markersize = 10, markeredgecolor = "yellow")

plt.title("İlk Grafik", fontsize = 25, color = "blue" , loc = "right", pad =
↪50, fontname="Comic Sans MS")

plt.xlabel("X eksenı", fontsize = 25, color = "blue" , loc = "right", fontname=
↪"Comic Sans MS")
plt.ylabel("Y eksenı", fontsize = 25, color = "blue" , loc = "top", fontname =
↪"Comic Sans MS")

plt.legend()
plt.show()

```



0.5.1 Sinüs Grafiği

```

[87]: plt.figure(figsize= (10,5), dpi =100)

x = np.arange(0,np.pi*2,0.01)
y = np.sin(x)

```

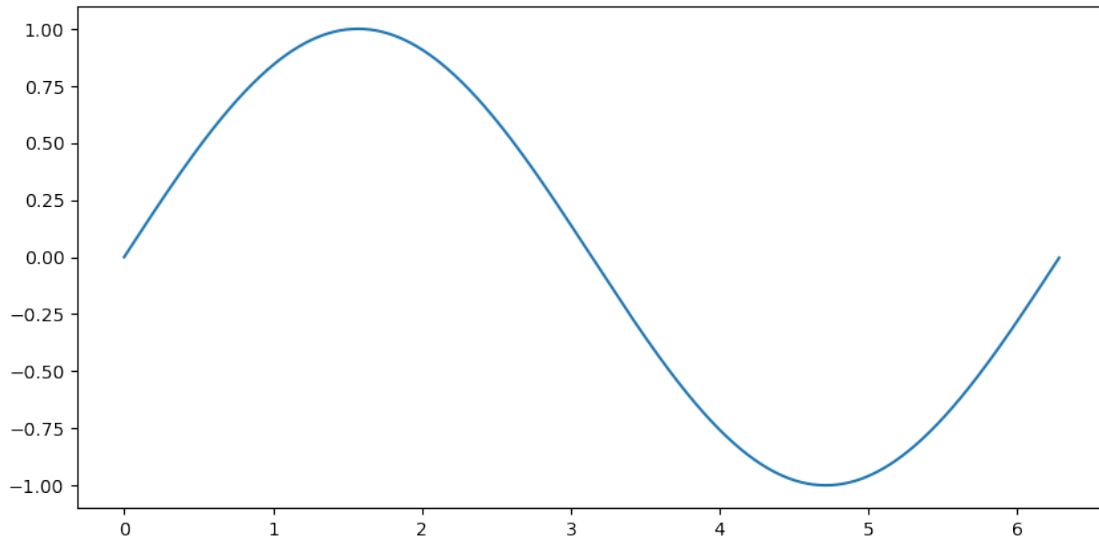


Mühendisin Blogu

Hüseyin Averbek

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

```
plt.show()
```



0.5.2 Cosinüs Grafiği

```
[88]: plt.figure(figsize= (10,5), dpi =100)
```

```
x = np.arange(0,np.pi*2,0.01)
```

```
y = np.cos(x)
```

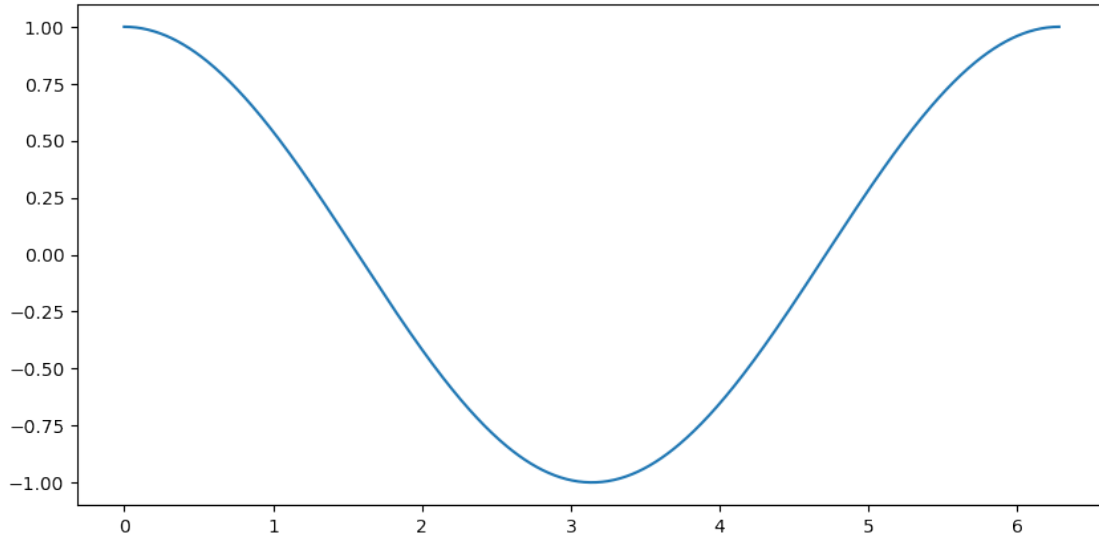
```
plt.plot(x,y)
```

```
plt.show()
```



Mühendisin Blogu

Hüseyin Averbek



0.5.3 Sinüs ve Cosinüs Grafiği

```
[18]: plt.figure(figsize= (10,5), dpi =100)
```

```
x = np.arange(0,np.pi*2,0.01)
y1 = np.sin(x)
y2 = np.cos(x)

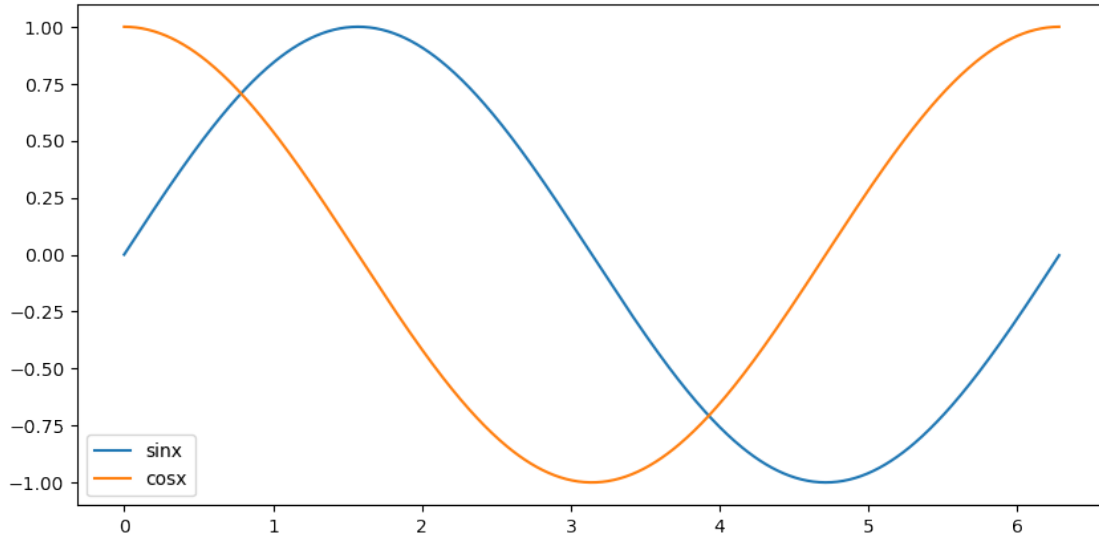
plt.plot(x,y1, label ="sinx")
plt.plot(x,y2, label = "cosx")

plt.legend()
plt.show()
```



Mühendisin Blogu

Hüseyin Averbek



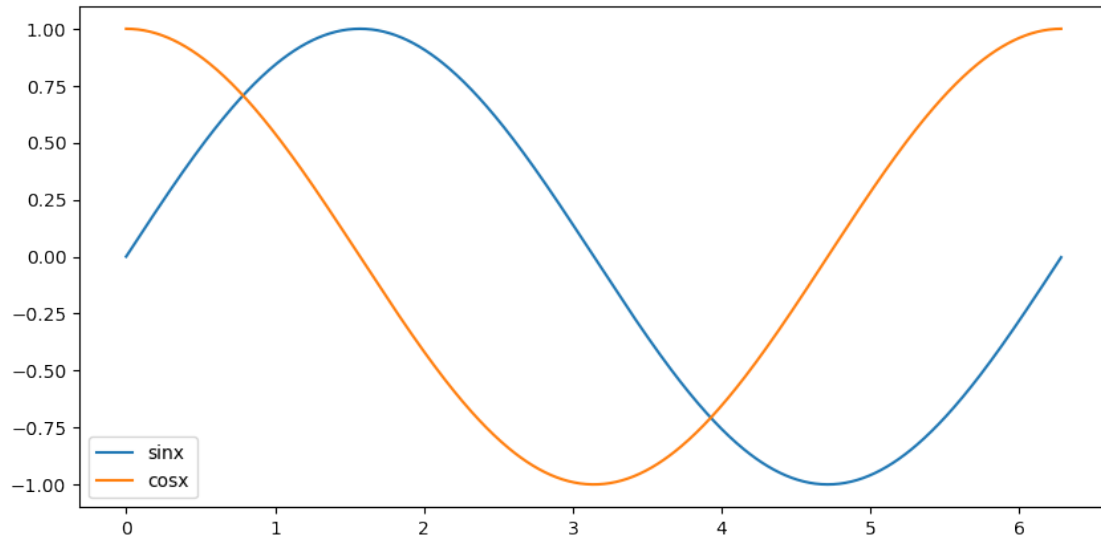
0.5.4 Grafikleri kaydetme

```
[19]: plt.figure(figsize= (10,5), dpi =100)

x = np.arange(0,np.pi*2,0.01)
y1 = np.sin(x)
y2 = np.cos(x)

plt.plot(x,y1, label ="sinx")
plt.plot(x,y2, label = "cosx")
plt.savefig("sincos.png")
plt.legend()
plt.show()
```

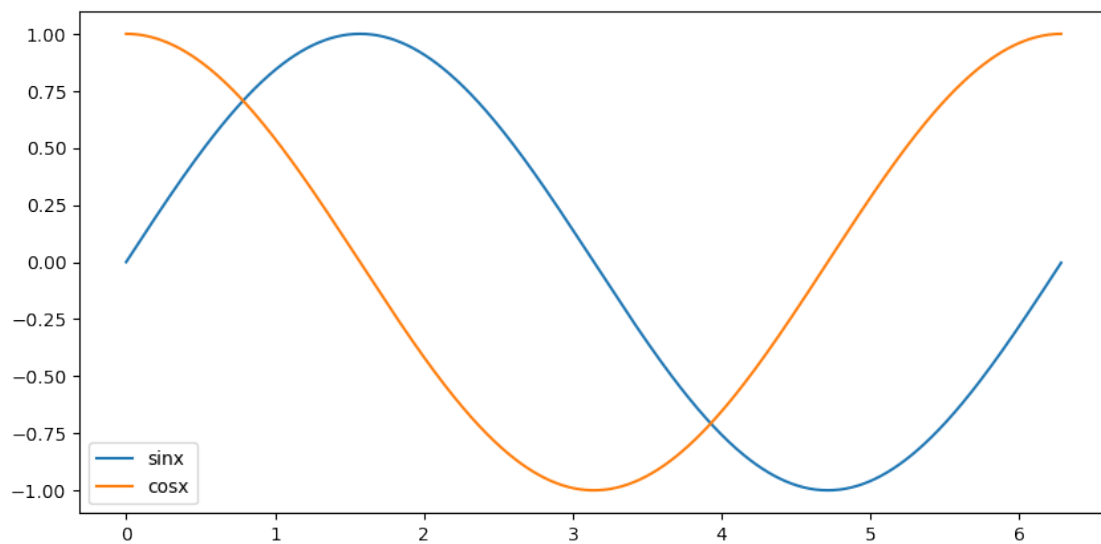




```
[20]: plt.figure(figsize= (10,5), dpi =100)
```

```
x = np.arange(0,np.pi*2,0.01)
y1 = np.sin(x)
y2 = np.cos(x)

plt.plot(x,y1, label = "sinx")
plt.plot(x,y2, label = "cosx")
plt.savefig("sincos.svg")
plt.legend()
plt.show()
```



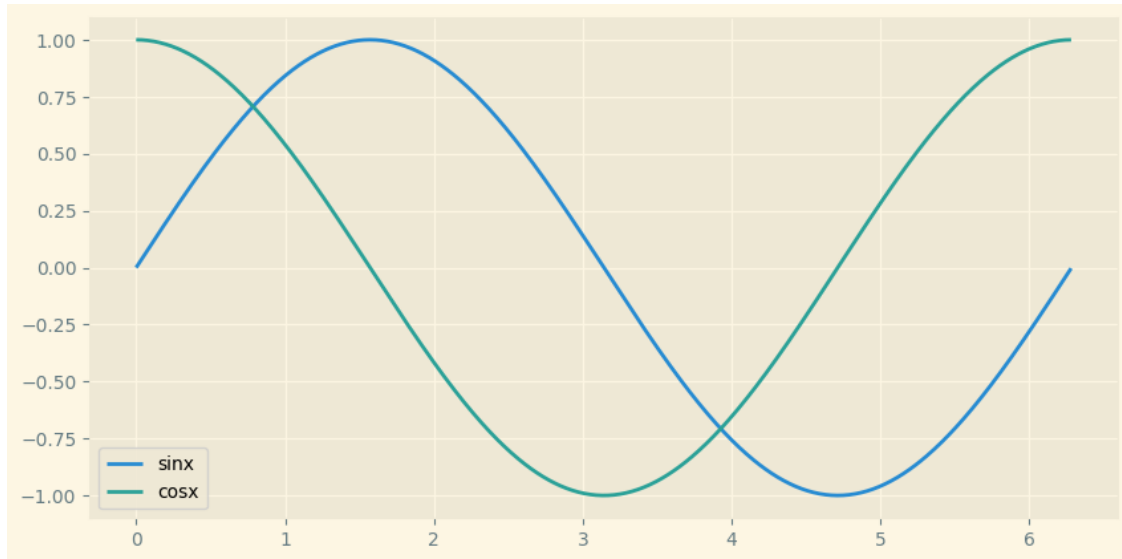
0.6 plt.styles()

```
[21]: plt.style.available
```

```
[21]: ['Solarize_Light2',  
      '_classic_test_patch',  
      'bmh',  
      'classic',  
      'dark_background',  
      'fast',  
      'fivethirtyeight',  
      'ggplot',  
      'grayscale',  
      'seaborn',  
      'seaborn-bright',  
      'seaborn-colorblind',  
      'seaborn-dark',  
      'seaborn-dark-palette',  
      'seaborn-darkgrid',  
      'seaborn-deep',  
      'seaborn-muted',  
      'seaborn-notebook',  
      'seaborn-paper',  
      'seaborn-pastel',  
      'seaborn-poster',  
      'seaborn-talk',  
      'seaborn-ticks',  
      'seaborn-white',  
      'seaborn-whitegrid',  
      'tableau-colorblind10']
```

```
[22]: plt.style.use('Solarize_Light2')  
plt.figure(figsize= (10,5), dpi =100)  
  
x = np.arange(0,np.pi*2,0.01)  
y1 = np.sin(x)  
y2 = np.cos(x)  
  
plt.plot(x,y1, label ="sinx")  
plt.plot(x,y2, label = "cosx")  
plt.savefig("sincos.png")  
plt.legend()  
plt.show()
```

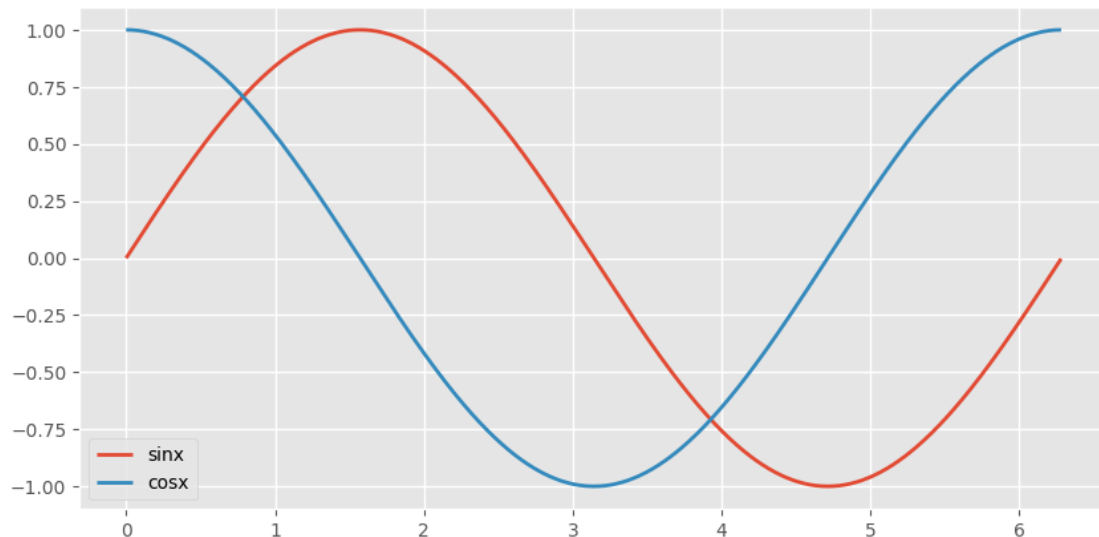




```
[23]: plt.style.use( 'ggplot')
plt.figure(figsize= (10,5), dpi =100)

x = np.arange(0,np.pi*2,0.01)
y1 = np.sin(x)
y2 = np.cos(x)

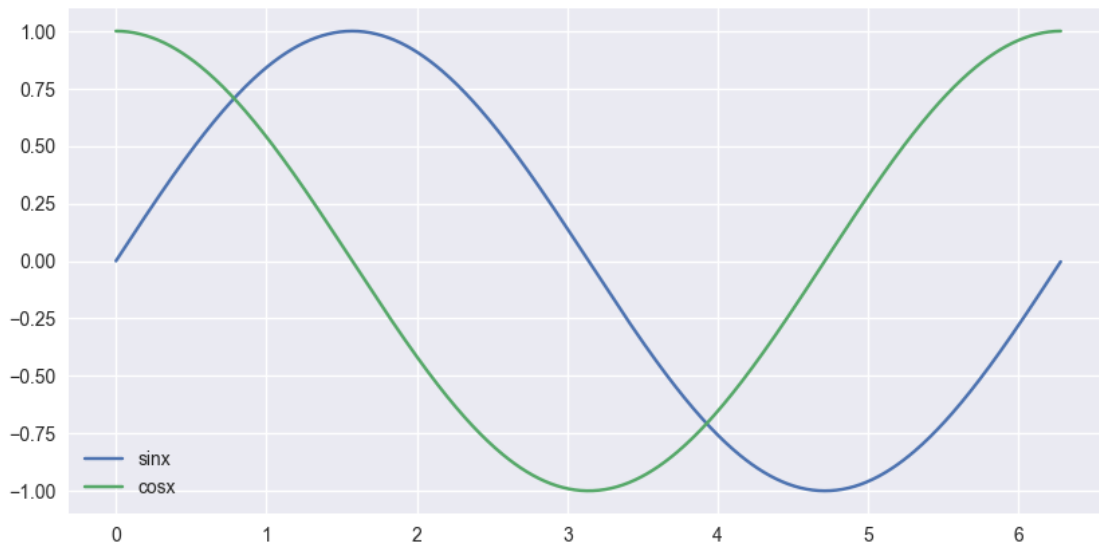
plt.plot(x,y1, label ="sinx")
plt.plot(x,y2, label = "cosx")
plt.savefig("sincos.png")
plt.legend()
plt.show()
```



```
[24]: plt.style.use( 'seaborn')
plt.figure(figsize= (10,5), dpi =100)

x = np.arange(0,np.pi*2,0.01)
y1 = np.sin(x)
y2 = np.cos(x)

plt.plot(x,y1, label ="sinx")
plt.plot(x,y2, label = "cosx")
plt.savefig("sincos.png")
plt.legend()
plt.show()
```



0.7 Annotation

```
[25]: plt.style.use( 'seaborn')
plt.figure(figsize= (10,5), dpi =100)

x = np.arange(0,np.pi*6,0.1)
y1 = np.sin(x)

plt.plot(x,y1)

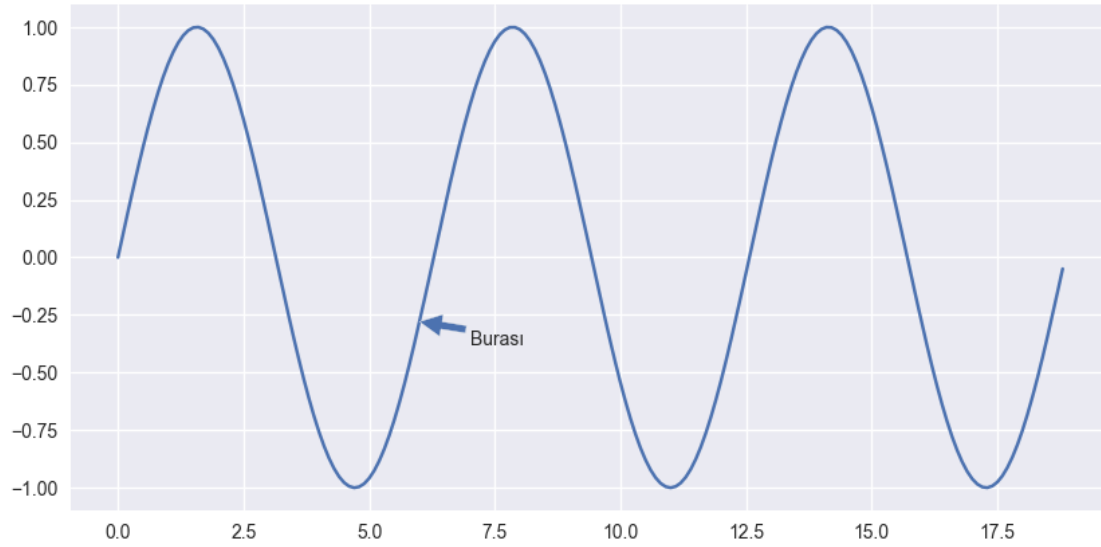
p = 6
plt.annotate("Burası", (p,np.sin(p)), (p+1,np.sin(p)-0.1), arrowprops= {})
```



Mühendisin Blogu

Hüseyin Averbek

```
plt.show()
```



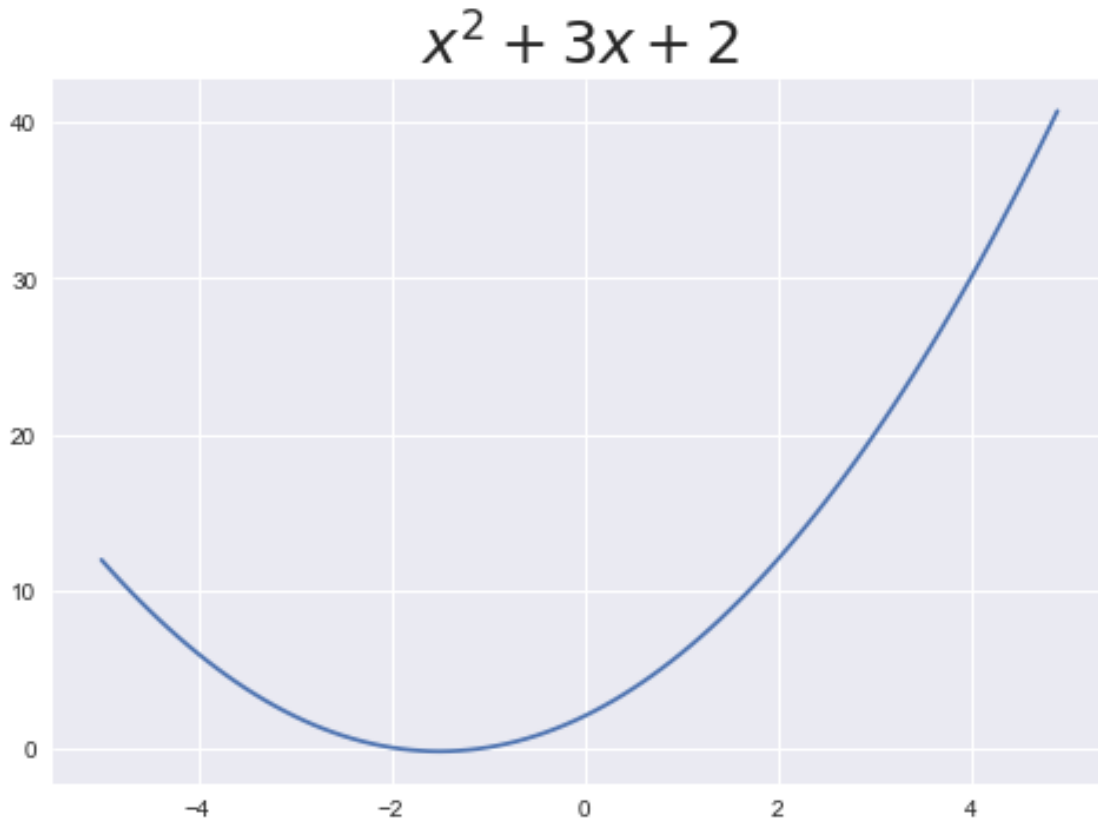
0.7.1 Matematiksel İfadeler

```
[26]: x = np.arange(-5,5,0.1)
      y = x**2 + x*3 + 2

      plt.plot(x,y)

      plt.title("$x^2+3x+2$", fontsize = 25)
      plt.show()
```





```
[27]: plt.figure(figsize= (10,5), dpi =100)

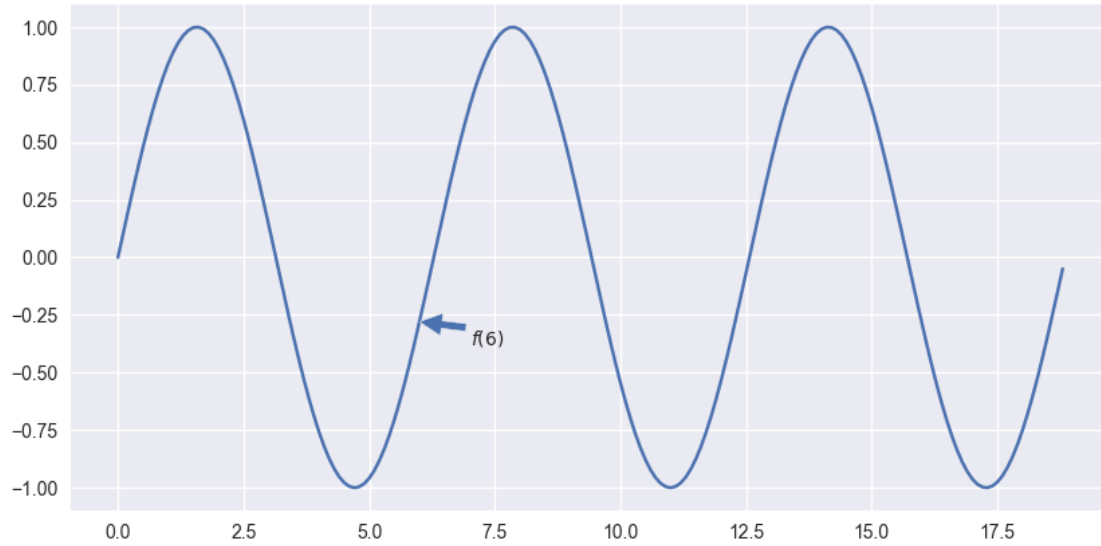
x = np.arange(0,np.pi*6,0.1)
y1 = np.sin(x)

plt.plot(x,y1)

p = 6
plt.annotate("$f(6)$", (p,np.sin(p)), (p+1,np.sin(p)-0.1), arrowprops= {})

plt.show()
```





```
[28]: plt.style.use( 'classic') # Normal grafik temamıza dönüyoruz.
```

0.7.2 Grid

```
[132]: plt.figure(figsize= (10,5), dpi =100)

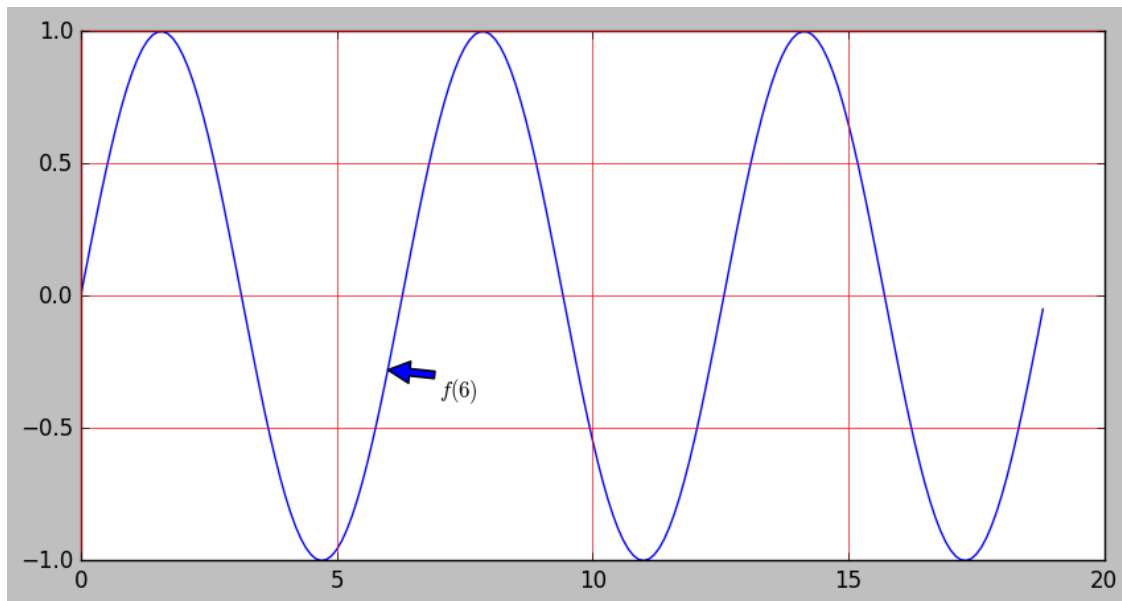
x = np.arange(0,np.pi*6,0.1)
y1 = np.sin(x)

plt.plot(x,y1)

p = 6
plt.annotate("$f(6)$", (p,np.sin(p)), (p+1,np.sin(p)-0.1), arrowprops= {})

plt.grid(color = "r", linestyle="--", linewidth=0.5)
plt.show()
```





0.7.3 Subplots

```
[29]: # Alt alta

fig = plt.figure(figsize= (10,5), dpi =100)

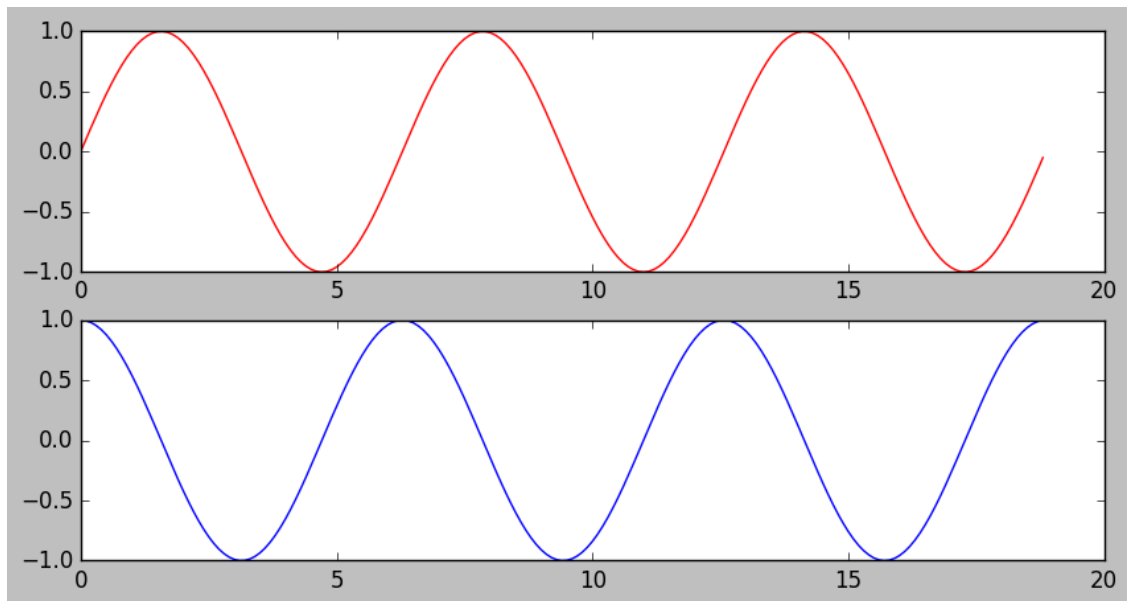
ax1 = fig.add_subplot(211)
ax2 = fig.add_subplot(212)

x = np.arange(0,np.pi*6,0.1)
y1 = np.sin(x)
y2 = np.cos(x)

ax1.plot(x,y1, color = "r")
ax2.plot(x,y2)

plt.show()
```





```
[31]: # Yan yana
fig = plt.figure(figsize= (10,5), dpi =100)

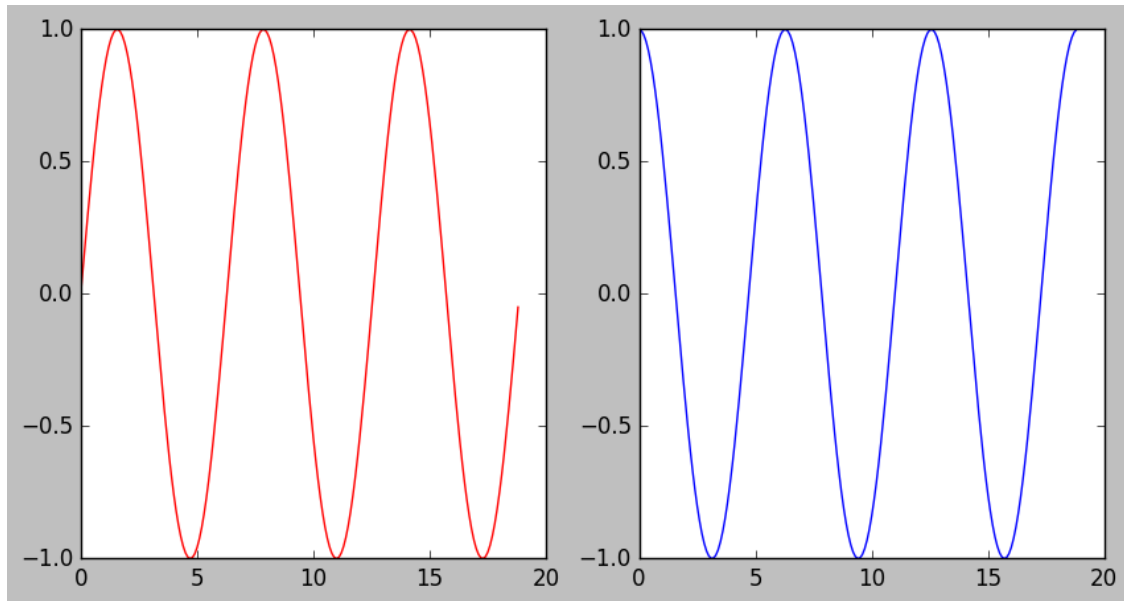
ax1 = fig.add_subplot(121)
ax2 = fig.add_subplot(122)

x = np.arange(0,np.pi*6,0.1)
y1 = np.sin(x)
y2 = np.cos(x)

ax1.plot(x,y1, color = "r")
ax2.plot(x,y2)

plt.show()
```





```
[32]: # İç içe
fig = plt.figure(figsize= (10,5), dpi =100)

ax1 = fig.add_axes([1,1,1,1])
ax2 = fig.add_axes([1.7,1.7,0.25,0.25])

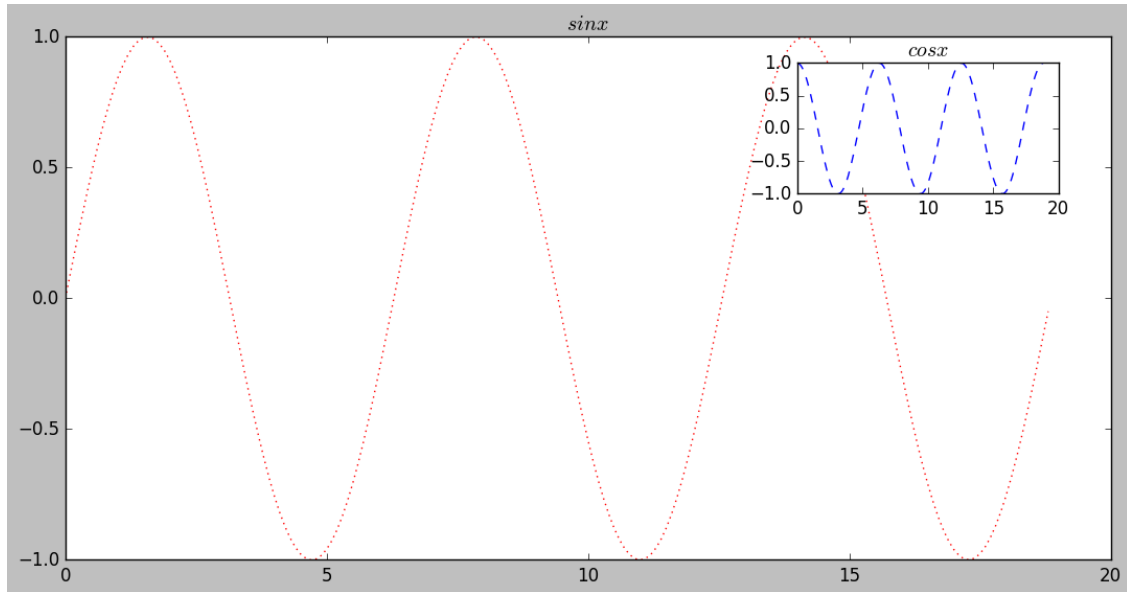
x = np.arange(0,np.pi*6,0.1)
y1 = np.sin(x)
y2 = np.cos(x)

ax1.plot(x,y1, color = "r", linestyle ="dotted")
ax1.set_title("$\sin x$")

ax2.plot(x,y2,linestyle ="dashed")
ax2.set_title("$\cos x$")

plt.show()
```





0.8 CSV ve Google Trends

```
[148]: data = pd.read_csv("multiTimeline.csv")
data
```

```
[148]:
```

	Zaman	Taylor Swift: (Türkiye)	İbrahim Tatlıses: (Türkiye)
0	2021-04-05T11	2	8
1	2021-04-05T12	2	10
2	2021-04-05T13	3	10
3	2021-04-05T14	2	9
4	2021-04-05T15	2	10
..
163	2021-04-12T06	2	11
164	2021-04-12T07	1	10
165	2021-04-12T08	1	9
166	2021-04-12T09	2	8
167	2021-04-12T10	1	18

[168 rows x 3 columns]

```
[145]: fig = plt.figure(figsize = (10,5), dpi =100)

taylor = data["Taylor Swift: (Türkiye)"]
taylor
```

KeyError

Traceback (most recent call last)



Mühendisin Blogu

Hüseyin Averbek

```

c:
→ \users\husey\appdata\local\programs\python\python38\lib\site-packages\pandas\core\indexes\
→ py in get_loc(self, key, method, tolerance)
    3079         try:
-> 3080             return self._engine.get_loc(casted_key)
    3081         except KeyError as err:

```

```

pandas\_libs\index.pyx in pandas._libs.index.IndexEngine.get_loc()

```

```

pandas\_libs\index.pyx in pandas._libs.index.IndexEngine.get_loc()

```

```

pandas\_libs\hashtable_class_helper.pxi in pandas._libs.hashtable.
→ PyObjectHashTable.get_item()

```

```

pandas\_libs\hashtable_class_helper.pxi in pandas._libs.hashtable.
→ PyObjectHashTable.get_item()

```

KeyError: 'Taylor Swift: (Türkiye)'

The above exception was the direct cause of the following exception:

KeyError Traceback (most recent call last)

```

<ipython-input-145-322cea55b437> in <module>
    1 fig = plt.figure(figsize = (10,5), dpi =100)
    2
----> 3 taylor = data["Taylor Swift: (Türkiye)"]
    4 taylor

```

```

c:
→ \users\husey\appdata\local\programs\python\python38\lib\site-packages\pandas\core\frame.
→ py in __getitem__(self, key)
    3022         if self.columns.nlevels > 1:
    3023             return self._getitem_multilevel(key)
-> 3024         indexer = self.columns.get_loc(key)
    3025         if is_integer(indexer):
    3026             indexer = [indexer]

```

```

c:
→ \users\husey\appdata\local\programs\python\python38\lib\site-packages\pandas\core\indexes\
→ py in get_loc(self, key, method, tolerance)
    3080             return self._engine.get_loc(casted_key)
    3081         except KeyError as err:
-> 3082             raise KeyError(key) from err
    3083
    3084         if tolerance is not None:

```

KeyError: 'Taylor Swift: (Türkiye)'



Mühendisin Blogu

Hüseyin Averbek

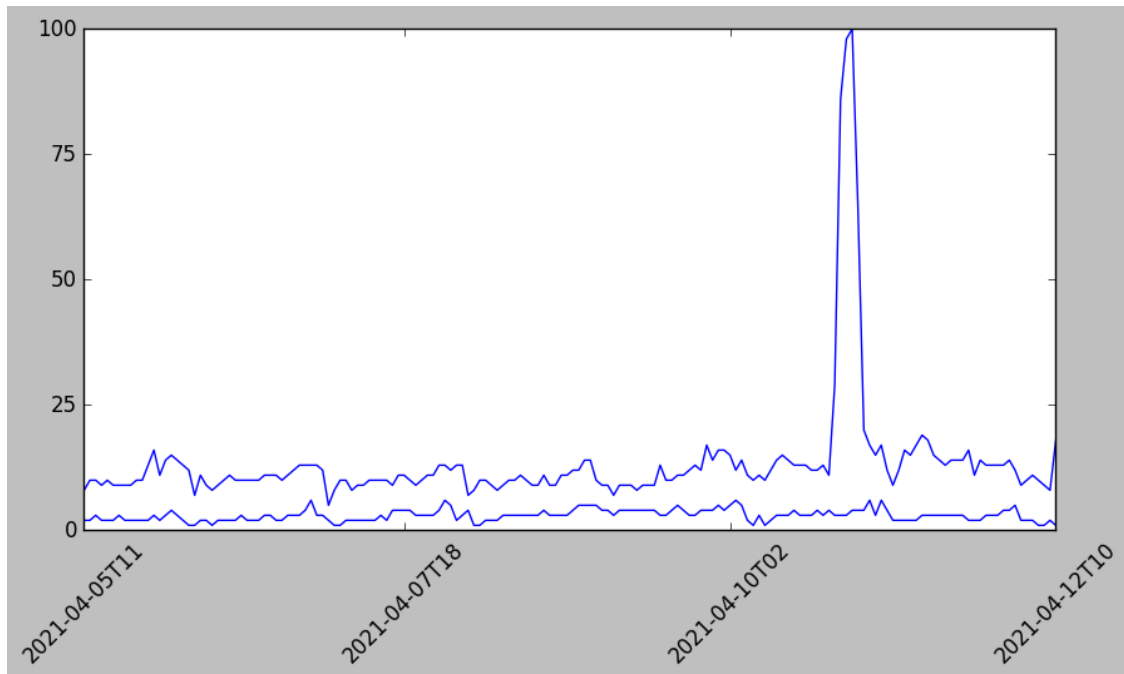
<Figure size 1000x500 with 0 Axes>

```
[146]: data.columns
```

```
[146]: Index(['Kategori: Tüm kategoriler'], dtype='object')
```

```
[154]: taylor = data["Taylor Swift: (Türkiye)"]  
       ibrahim = data["İbrahim Tatlıses: (Türkiye)"]  
       time = data["Zaman"]
```

```
[158]: fig = plt.figure(figsize = (10,5), dpi =100)  
  
       plt.plot(time, taylor, color = "blue")  
       plt.plot(time, ibrahim)  
  
       plt.xticks([time[0],time[55],time[111],time[167]], rotation = 45)  
       plt.yticks([0,25,50,75,100])  
  
       plt.show()
```



```
[168]: fig = plt.figure(figsize = (10,5), dpi =100)  
  
       plt.plot(time, taylor, color = "blue")  
       plt.plot(time, ibrahim, color = "r")  
  
       plt.xticks([time[0],time[55],time[111],time[167]])
```

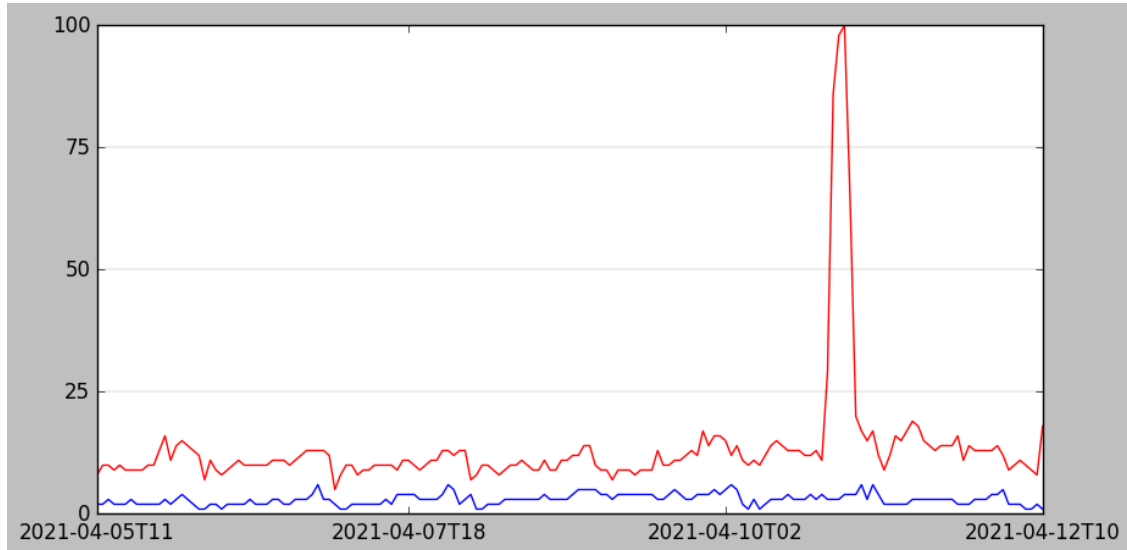


Mühendisin Blogu

Hüseyin Averbek

```
plt.yticks([0,25,50,75,100])

plt.grid(linestyle = "-", linewidth = 0.1, axis = "y")
plt.show()
```



0.9 Canlı Grafik

```
[169]: from matplotlib.animation import FuncAnimation
```

```
[170]: from random import randint
```

```
[171]: FuncAnimation?
```

```
[187]: %matplotlib notebook
```

```
[188]: x, y = [], []
```

```
def animate(i):
    x.append(len(x))
    y.append(randint(1,5))

    plt.cla()
    plt.plot(x,y)

ani =FuncAnimation(plt.gcf(),animate, interval = 1000)
```

<IPython.core.display.Javascript object>

<IPython.core.display.HTML object>



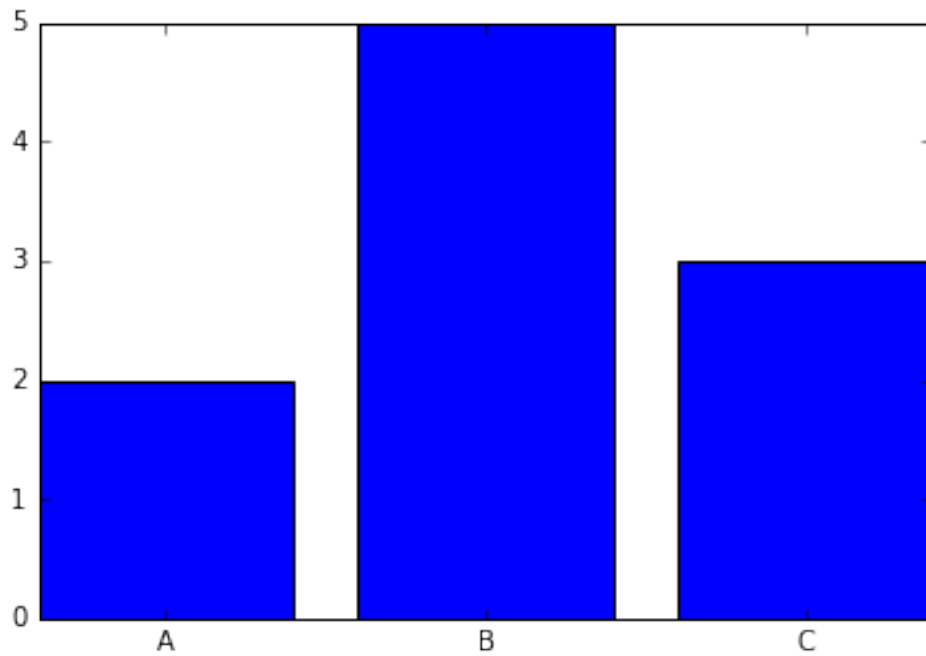
Mühendisin Blogu

Hüseyin Averbek

```
[189]: %matplotlib inline
```

0.10 Sütun Grafiği

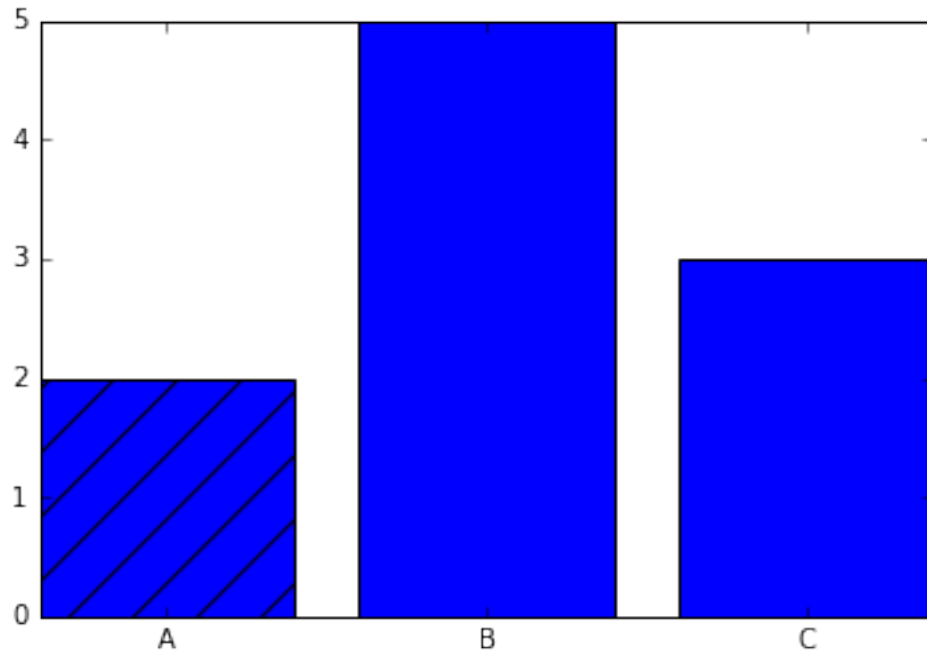
```
[179]: labels = ["A","B","C"]  
values = [2,5,3]  
  
plt.bar(labels,values)  
  
plt.show()
```



0.10.1 set_hatch()

```
[180]: labels = ["A","B","C"]  
values = [2,5,3]  
  
bar = plt.bar(labels,values)  
  
bar[0].set_hatch("/")  
  
plt.show()
```



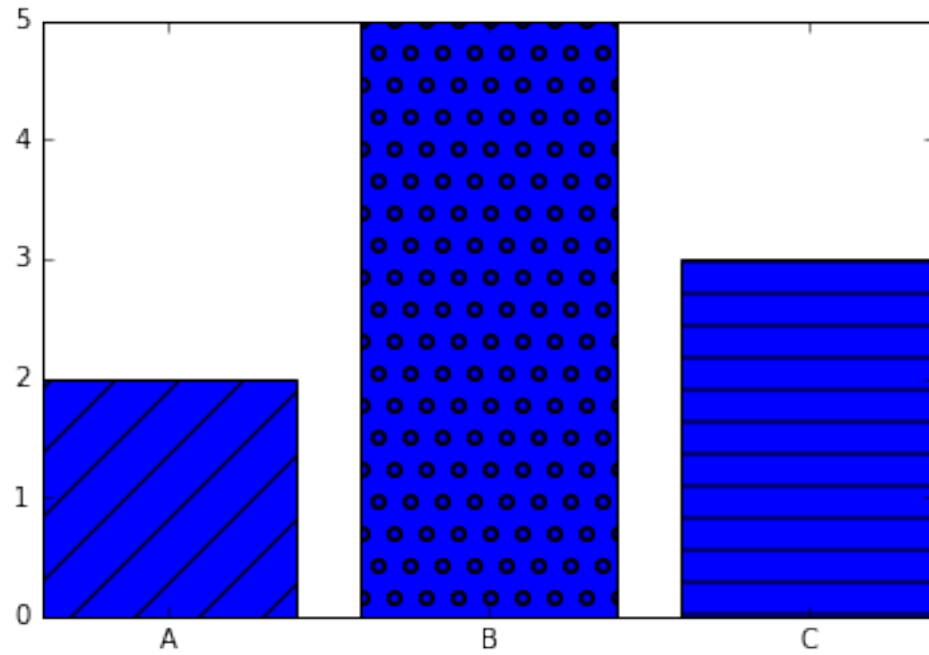


```
[184]: labels = ["A","B","C"]  
       values = [2,5,3]  
  
       bar = plt.bar(labels,values)  
  
       bar[0].set_hatch("/")  
       bar[1].set_hatch("o")  
       bar[2].set_hatch("-")  
  
       plt.show()
```



Mühendisin Blogu

Hüseyin Averbek



```
[186]: labels = ["A","B","C"]
values = [2,5,3]

bar = plt.bar(labels,values)

list1 = ["/","o","-"]

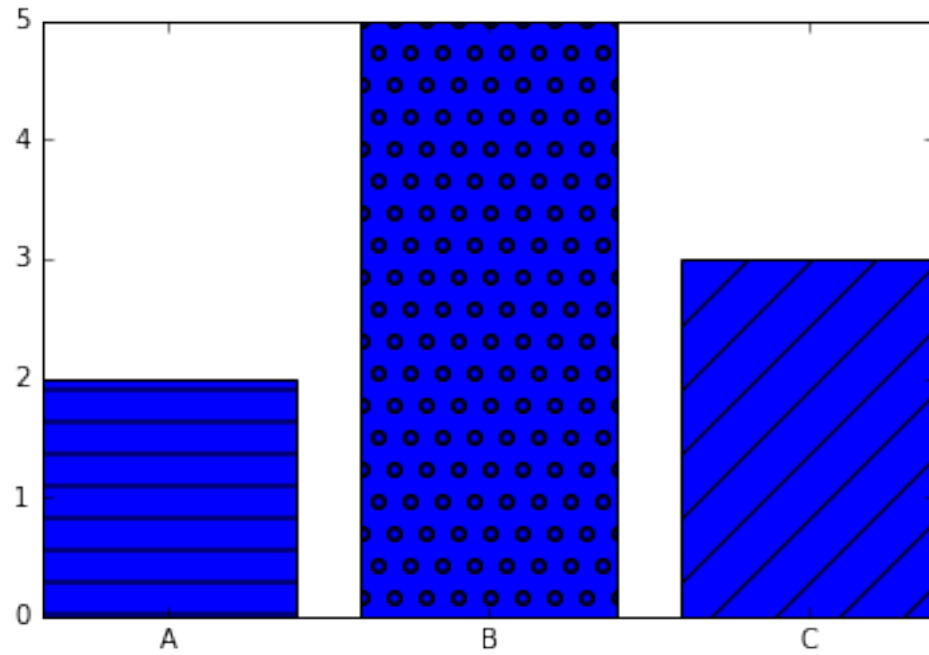
for i in range(len(list1)):
    bar[i].set_hatch(list1.pop())

plt.show()
```



Mühendisin Blogu

Hüseyin Averbek



0.11 Yatay Sütun Grafiği

```
[190]: labels = ["A","B","C"]
       values = [2,5,3]

       bar = plt.barh(labels,values)

       list1 = ["/","o","-"]

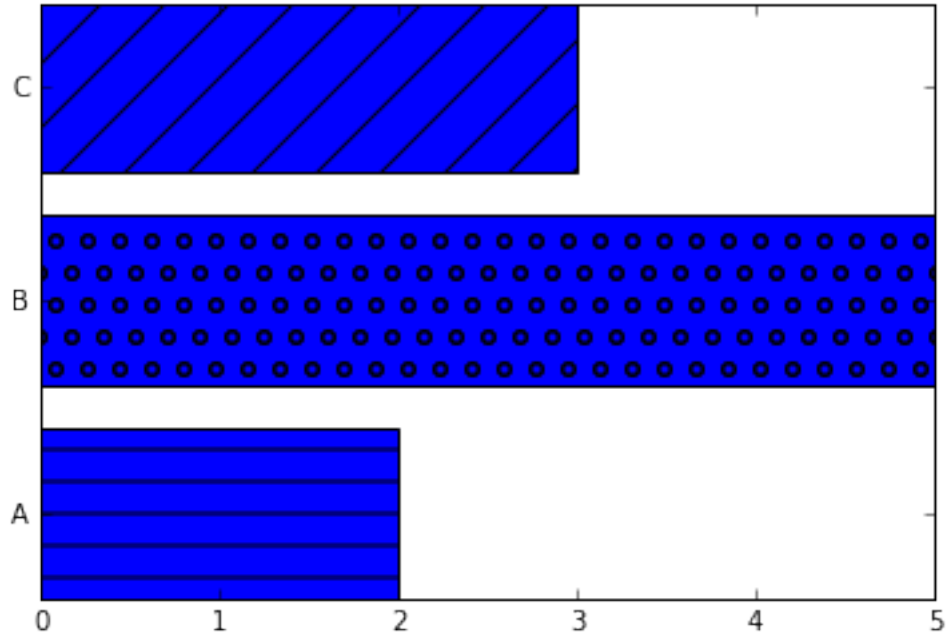
       for i in range(len(list1)):
           bar[i].set_hatch(list1.pop())

       plt.show()
```



Mühendisin Blogu

Hüseyin Averbek



0.11.1 Birden Fazla Sütun

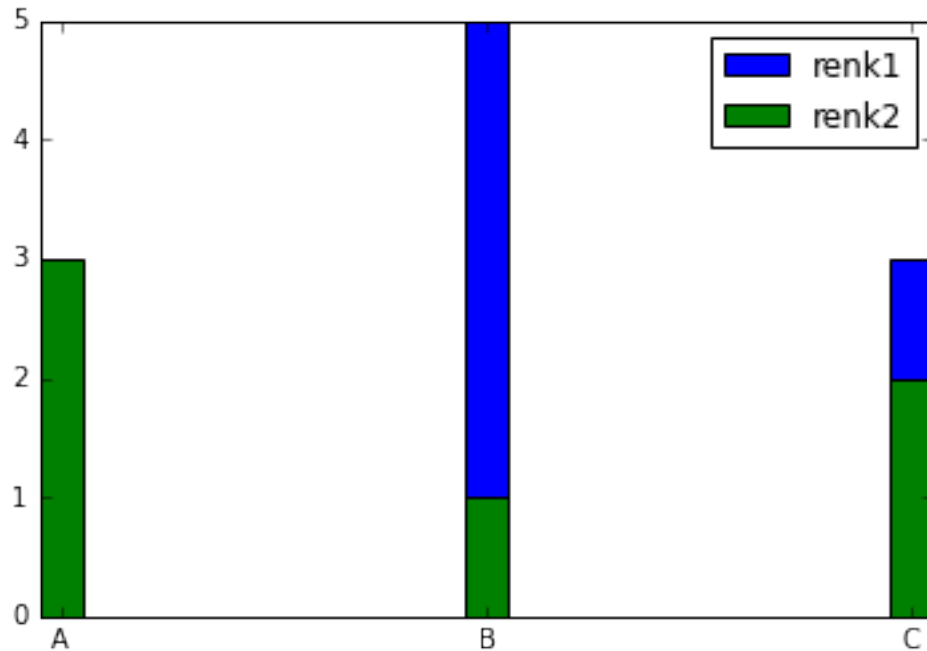
```
[198]: labels = ["A","B","C"]

values1 = [2,5,3]
values2 = [3,1,2]

plt.bar(labels,values1, label = "renk1", width = 0.1)
plt.bar(labels,values2, label = "renk2",width = 0.1)

plt.legend()
plt.show()
```





```
[201]: data = pd.read_csv("languages.csv", usecols=["C/C++", "Python", "Java"])
```

```
[202]: data
```

```
[202]:
```

	C/C++	Java	Python
0	10.08	30.37	2.53
1	9.81	29.99	2.64
2	9.63	29.71	2.72
3	9.50	29.12	2.92
4	9.52	29.59	2.84
...
193	5.68	16.86	31.73
194	5.62	16.89	31.60
195	5.76	16.55	31.21
196	5.88	17.12	30.80
197	6.11	17.23	30.34

```
[198 rows x 3 columns]
```

```
[218]: plt.figure(figsize = (10,5),dpi = 100)
```

```
time = ["2004","2009","2014","2019"]
xler = np.arange(len(time))

cpp = data["C/C++"]
```



Mühendisin Blogu

Hüseyin Averbek

```

data1 = [cpp[i] for i in range(len(cpp)) if i % 60 == 0]

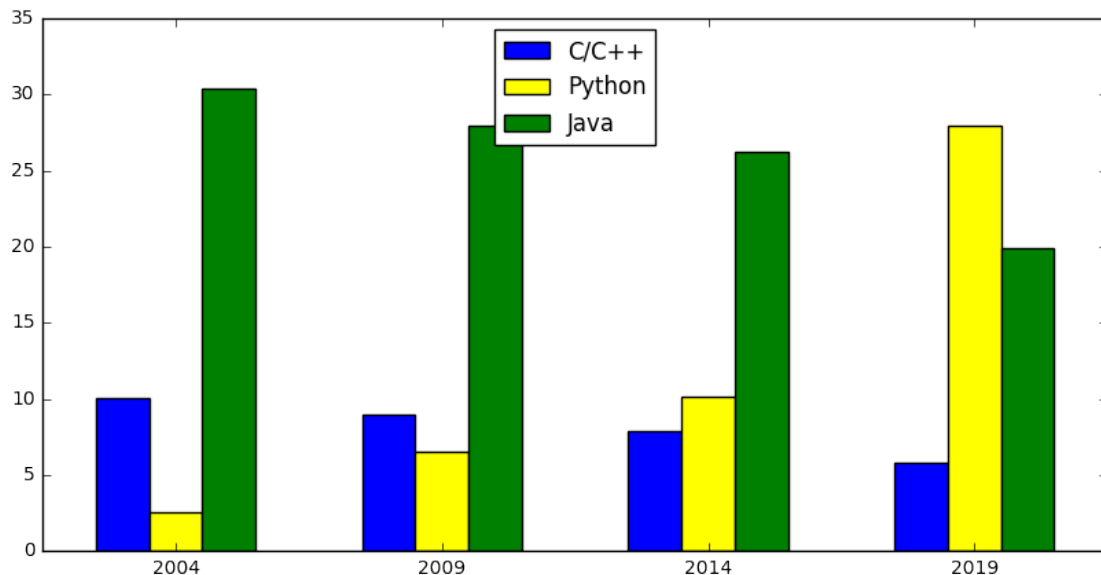
python = data["Python"]
data2 = [python[i] for i in range(len(python)) if i % 60 == 0]

java = data["Java"]
data3 = [java[i] for i in range(len(java)) if i % 60 == 0]

w = 0.2
plt.bar(xler-w,data1,label = "C/C++", width = w)
plt.bar(xler,data2,label = "Python",width = w, color = "yellow")
plt.bar(xler+w,data3,label = "Java",width = w)

plt.xticks(xler,time)
plt.legend(loc = "upper center")
plt.show()

```



0.12 Scatter

```

[226]: x = np.array([5,7,8,7,2,17,2,9,11,12,9])
y = np.array([90,45,68,88,111,100,87,94,78,80,49])

colors = [randint(1,9) for i in range(11)]
plt.scatter(x,y, c = colors, marker = "v", s = 100, cmap="Greens")

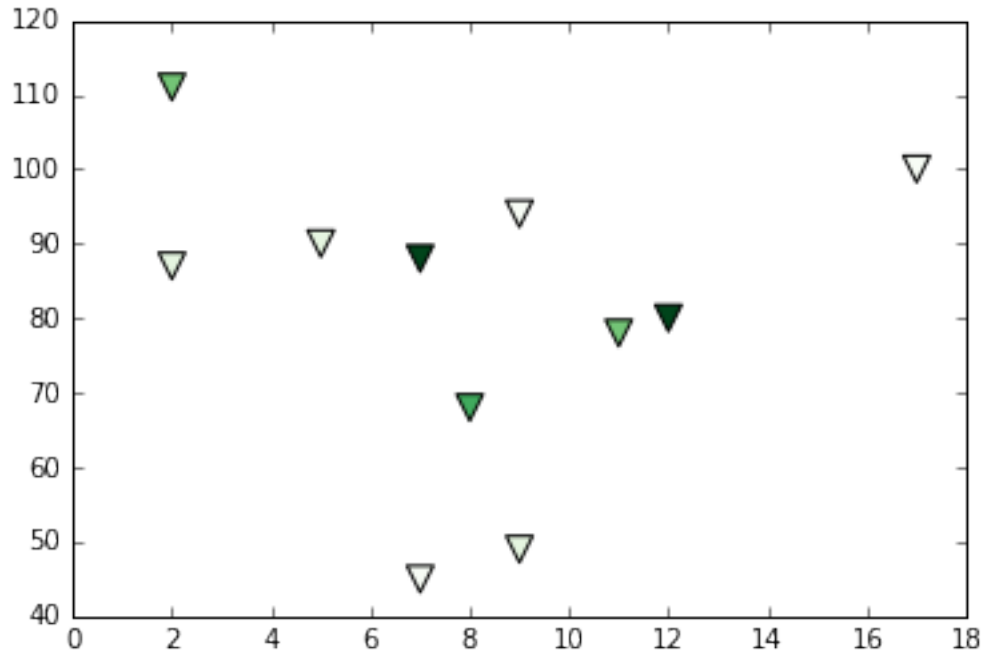
plt.show()

```



Mühendisin Blogu

Hüseyin Averbek



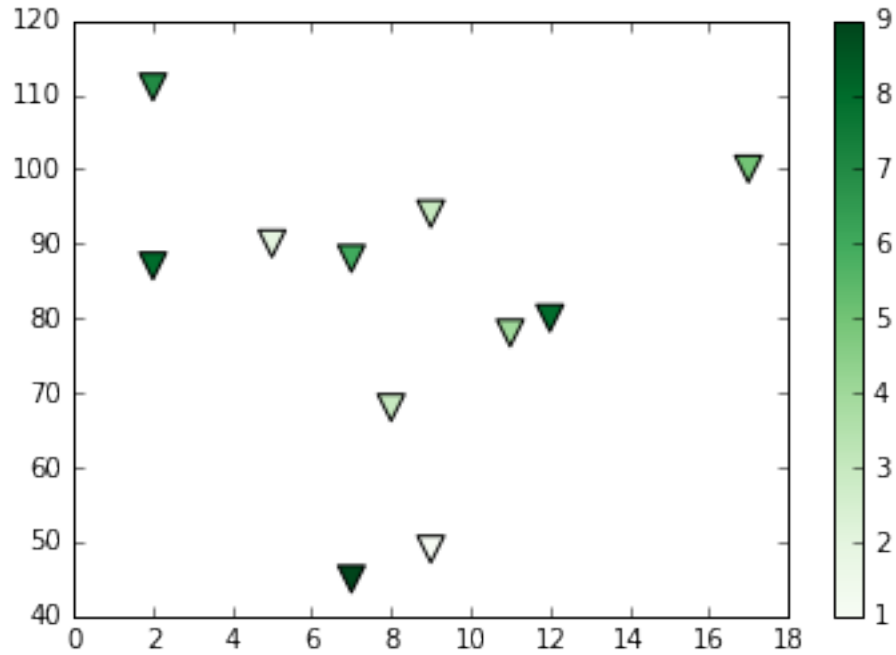
0.13 Colorbar

```
[228]: x = np.array([5,7,8,7,2,17,2,9,11,12,9])
y = np.array([90,45,68,88,111,100,87,94,78,80,49])

colors = [randint(1,9) for i in range(11)]
plt.scatter(x,y, c = colors, marker = "v", s = 100, cmap="Greens")

plt.colorbar()
plt.show()
```



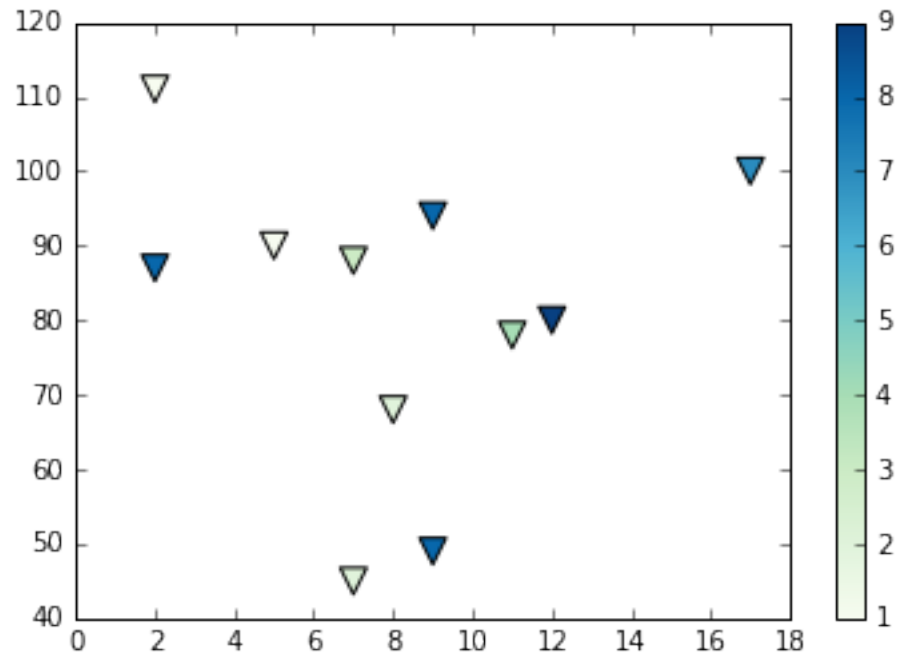


```
[229]: x = np.array([5,7,8,7,2,17,2,9,11,12,9])
y = np.array([90,45,68,88,111,100,87,94,78,80,49])

colors = [randint(1,9) for i in range(11)]
plt.scatter(x,y, c = colors, marker = "v", s = 100, cmap="GnBu")

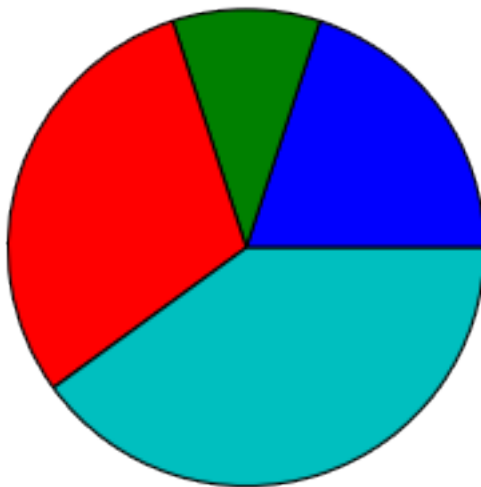
plt.colorbar()
plt.show()
```





0.14 Pie Chart

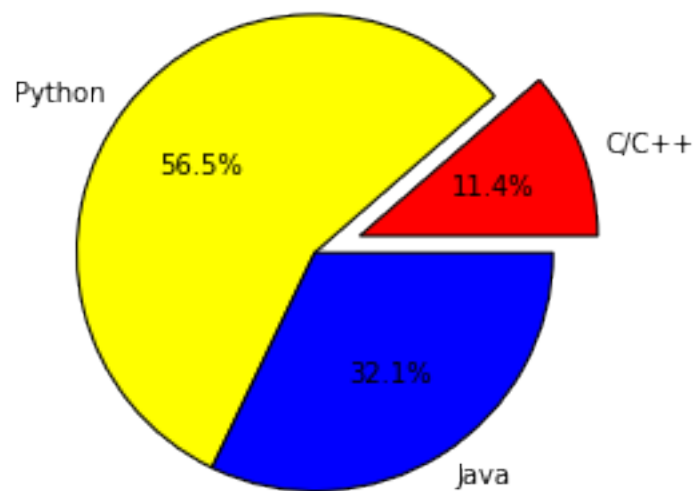
```
[231]: x = np.array([20,10,30,40])  
  
plt.pie(x)  
  
plt.show()
```



```
[239]: langs = [cpp[197], python[197], java[197]]
labels = ["C/C++", "Python", "Java"]
colors = ["Red", "Yellow", "Blue"]
ex = [0.2, 0, 0]

plt.pie(langs, labels = labels, colors = colors, autopct = "%1.1f%%", explode=ex)

plt.show()
```

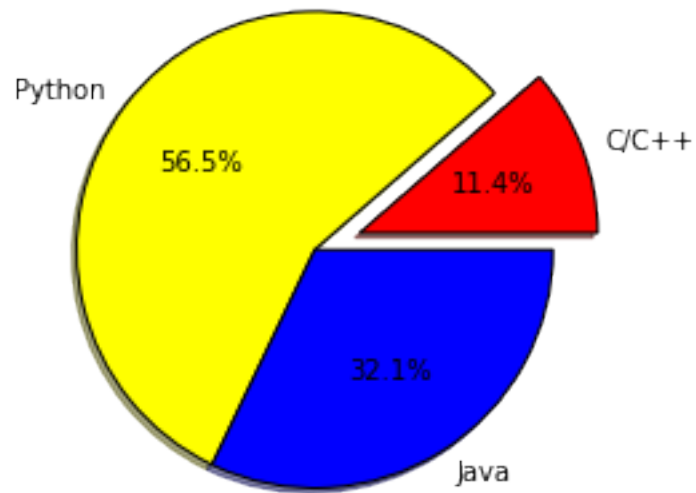


```
[241]: langs = [cpp[197], python[197], java[197]]
labels = ["C/C++", "Python", "Java"]
colors = ["Red", "Yellow", "Blue"]
ex = [0.2, 0, 0]

plt.pie(langs, labels = labels, colors = colors, autopct = "%1.1f%%", explode=ex,
        shadow = True)

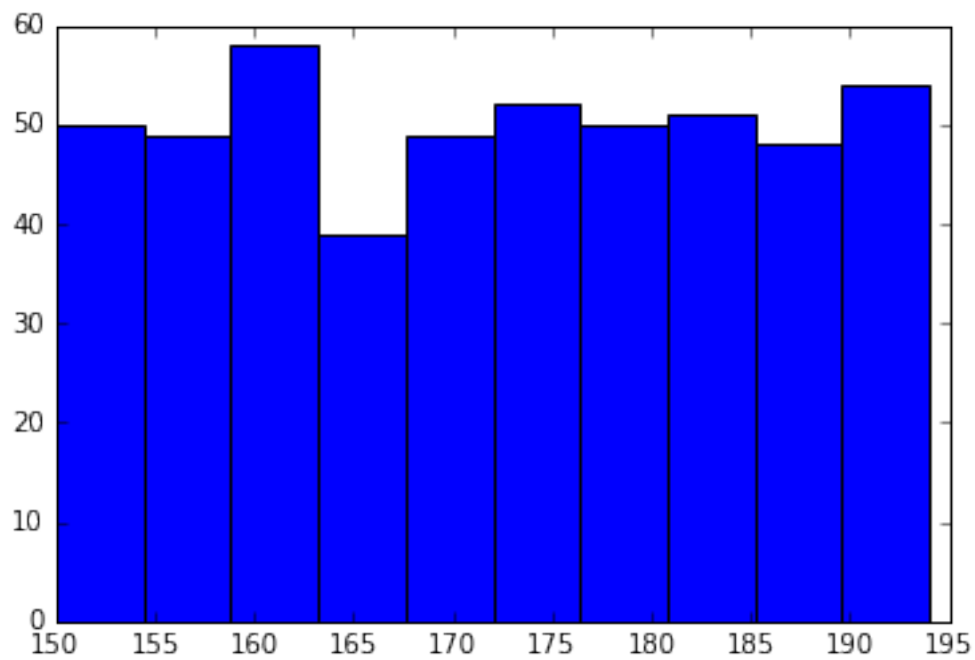
plt.show()
```





0.15 Histogram

```
[243]: boylar = np.random.randint(150,195,500)  
  
plt.hist(boylar)  
  
plt.show()
```



Mühendisin Blogu

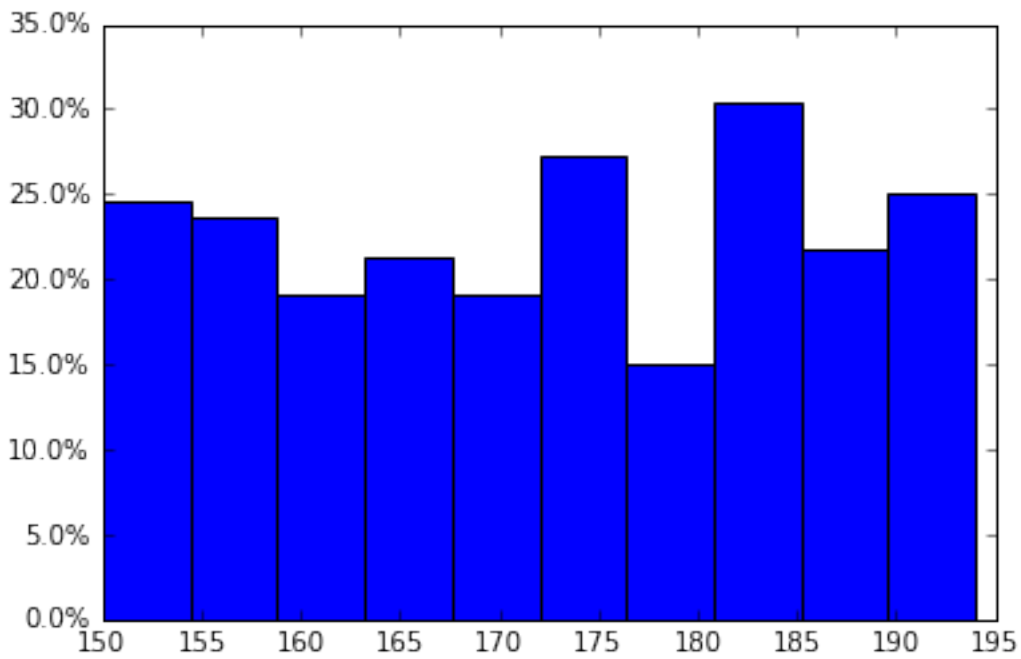
Hüseyin Averbek


```
[246]: from matplotlib.ticker import PercentFormatter
```

```
[248]: boylar = np.random.randint(150,195,500)

plt.hist(boylar, density = True)

plt.gca().yaxis.set_major_formatter(PercentFormatter(0.1))
plt.show()
```



0.16 Stackplot

```
[252]: days = [1,2,3,4,5]

Çalışma = [7,8,6,11,7]
Oynama = [8,5,7,8,13]
Uyuma = [9,11,11,5,4]

plt.stackplot(days,Çalışma,Oynama,Uyuma, colors = ["red","blue","yellow"])

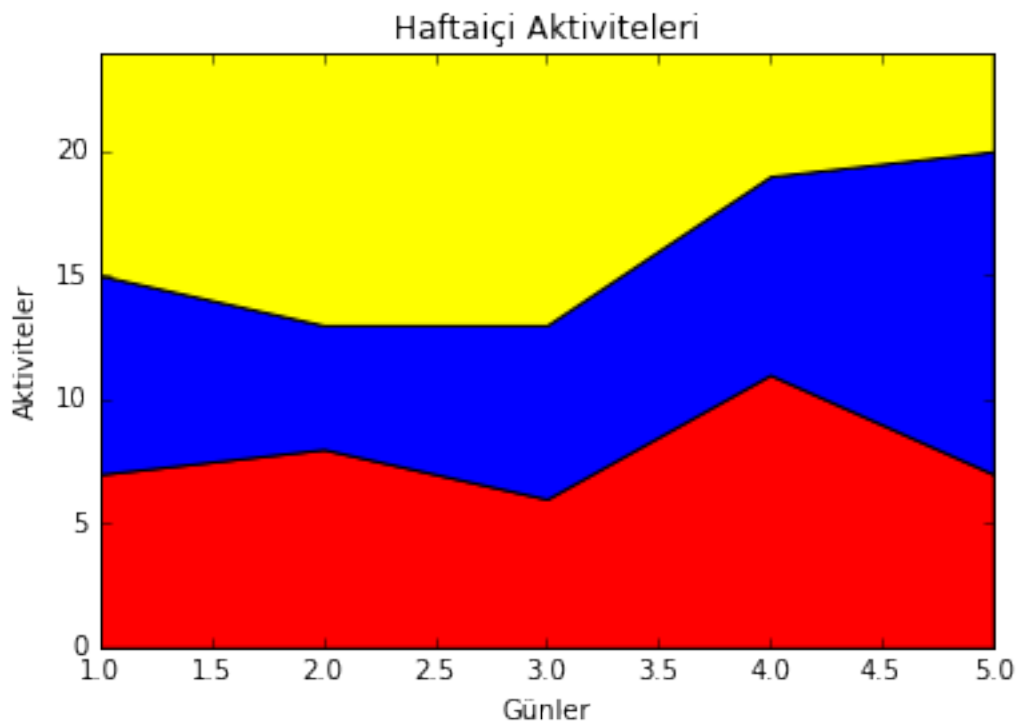
plt.title("Hafta içi Aktiviteleri")
plt.xlabel("Günler")
plt.ylabel("Aktiviteler")
```



Mühendisin Blogu

Hüseyin Averbek

```
plt.ylim([0,24])
plt.show()
```



0.17 3D Grafikler

```
[253]: from mpl_toolkits.mplot3d import Axes3D
```

```
[257]: fig = plt.figure()

ax = fig.add_subplot(111, projection = "3d")

x = np.array([1,2,3,4,5,6,7,8,9,10])
y = np.array([5,6,2,3,8,4,5,1,3,9])
z = np.array([2,3,3,3,5,7,11,10,2,5])

ax.scatter(x,y,z, marker = "v")

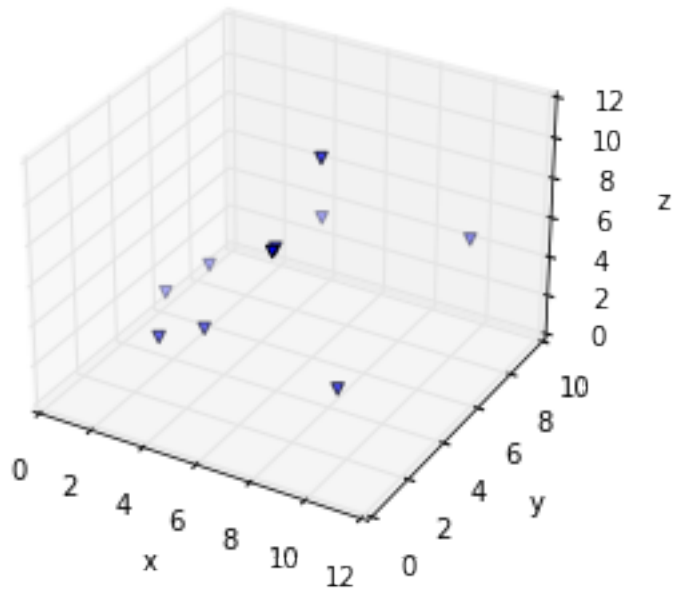
ax.set_xlabel("x")
ax.set_ylabel("y")
ax.set_zlabel("z")

plt.show()
```



Mühendisin Blogu

Hüseyin Averbek



```
[263]: fig = plt.figure()

ax = fig.add_subplot(111, projection = "3d")

x = np.array([1,2,3,4,5,6,7,8,9,10])
y = np.array([5,6,2,3,8,4,5,1,3,9])
z = np.array([0,0,0,0,0,0,0,0,0,0])

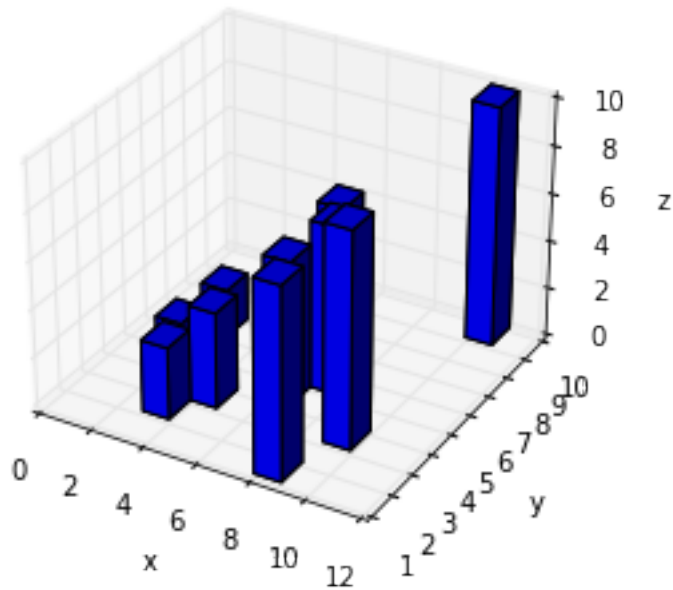
dx = np.ones(10)
dy = np.ones(10)
dz = np.array([1,2,3,4,5,6,7,8,9,10])

ax.bar3d(x,y,z,dx,dy,dz)

ax.set_xlabel("x")
ax.set_ylabel("y")
ax.set_zlabel("z")

plt.show()
```





```
[264]: fig = plt.figure()

ax = fig.add_subplot(111, projection = "3d")

x = np.array([1,2,3,4,5,6,7,8,9,10])
y = np.array([5,6,2,3,8,4,5,1,3,9])
z = np.array([3,0,0,0,0,0,0,0,0,0])

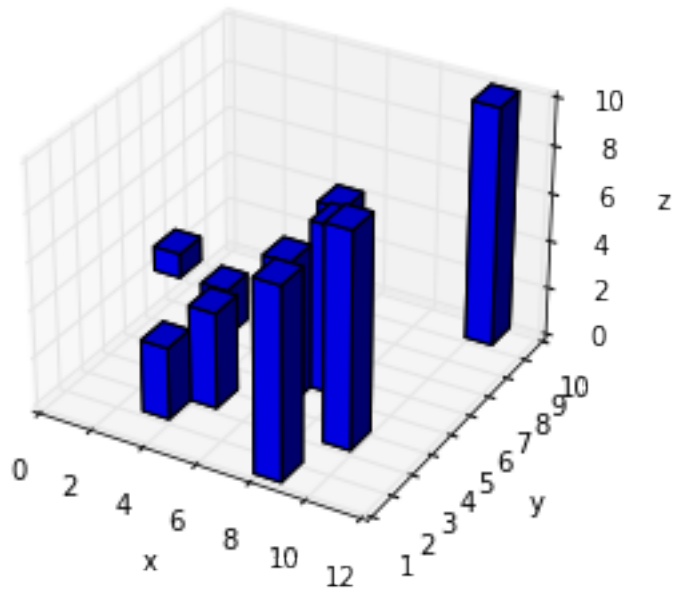
dx = np.ones(10)
dy = np.ones(10)
dz = np.array([1,2,3,4,5,6,7,8,9,10])

ax.bar3d(x,y,z,dx,dy,dz)

ax.set_xlabel("x")
ax.set_ylabel("y")
ax.set_zlabel("z")

plt.show()
```





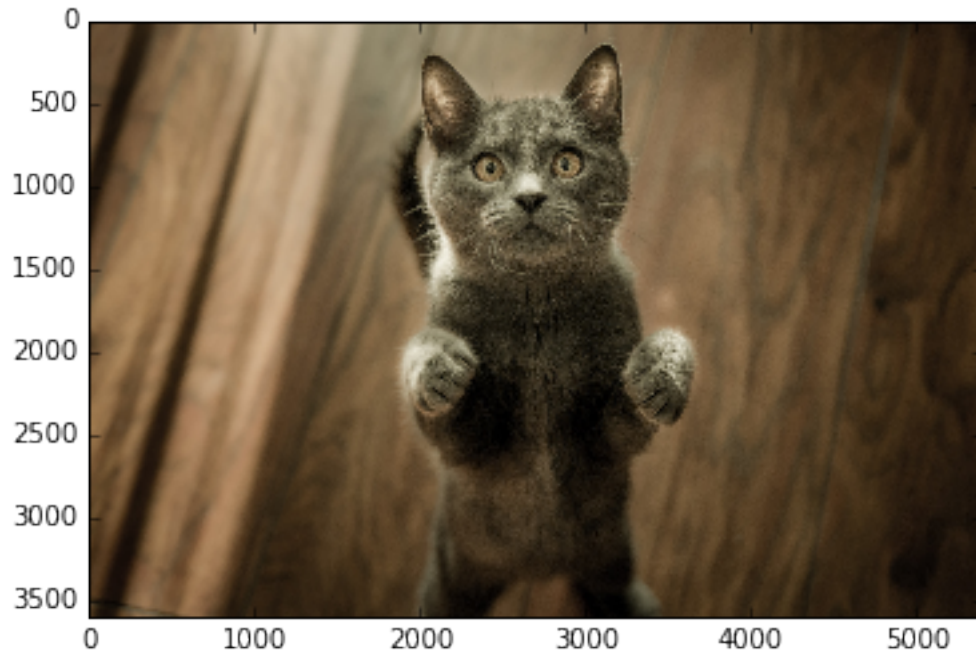
0.18 Images

```
[265]: img = plt.imread("cat.jpg")
```

```
[266]: plt.imshow(img)
```

```
[266]: <matplotlib.image.AxesImage at 0x1dac3fc2d30>
```





```
[267]: plt.axis("off")  
plt.imshow(img)
```

[267]: <matplotlib.image.AxesImage at 0x1dac3fa7190>



Mühendisin Blogu
Hüseyin Averbek

```
[268]: type(img)
```

```
[268]: numpy.ndarray
```

```
[269]: img.shape
```

```
[269]: (3602, 5403, 3)
```

```
[270]: train = plt.imread("train.jpg")
```

```
[271]: plt.axis("off")  
plt.imshow(train)
```

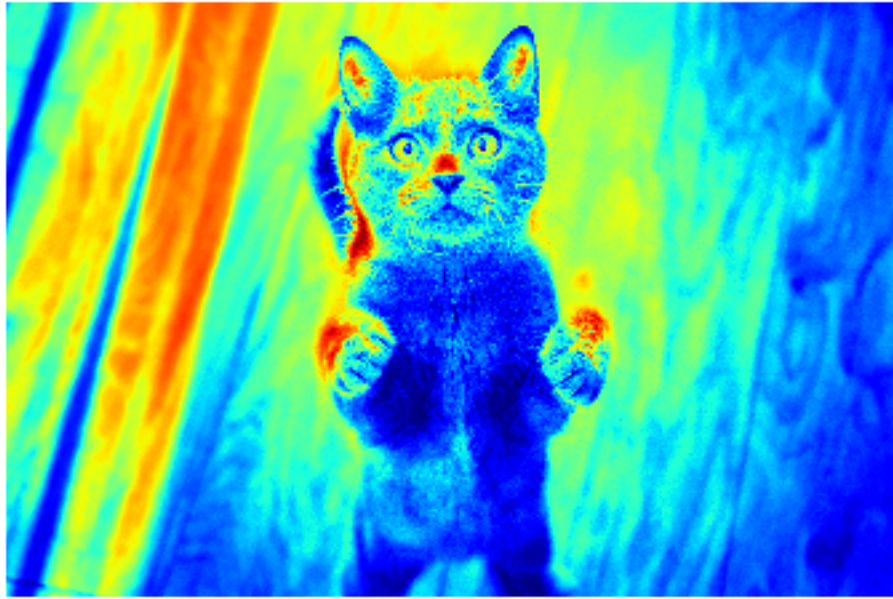
```
[271]: <matplotlib.image.AxesImage at 0x1dac429c100>
```



```
[272]: grayscale = img[:, :, 0]  
plt.axis("off")  
plt.imshow(grayscale)
```

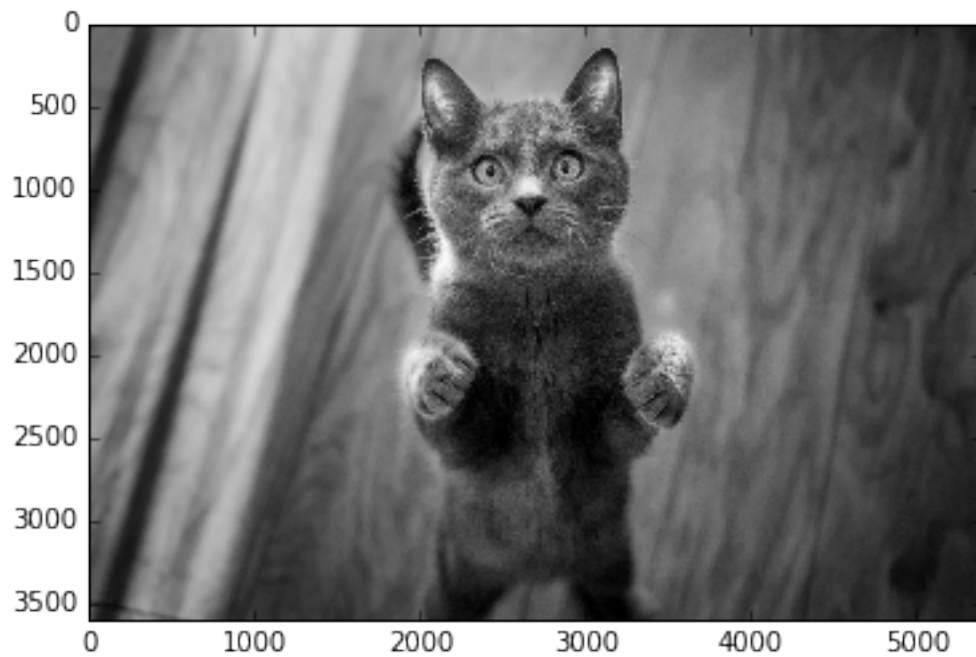
```
[272]: <matplotlib.image.AxesImage at 0x1dac2a19b80>
```





```
[274]: plt.imshow( grayscale, cmap = "gray")
```

```
[274]: <matplotlib.image.AxesImage at 0x1dac1833d30>
```



```
[275]: plt.imshow( grayscale, cmap = "hot")
```

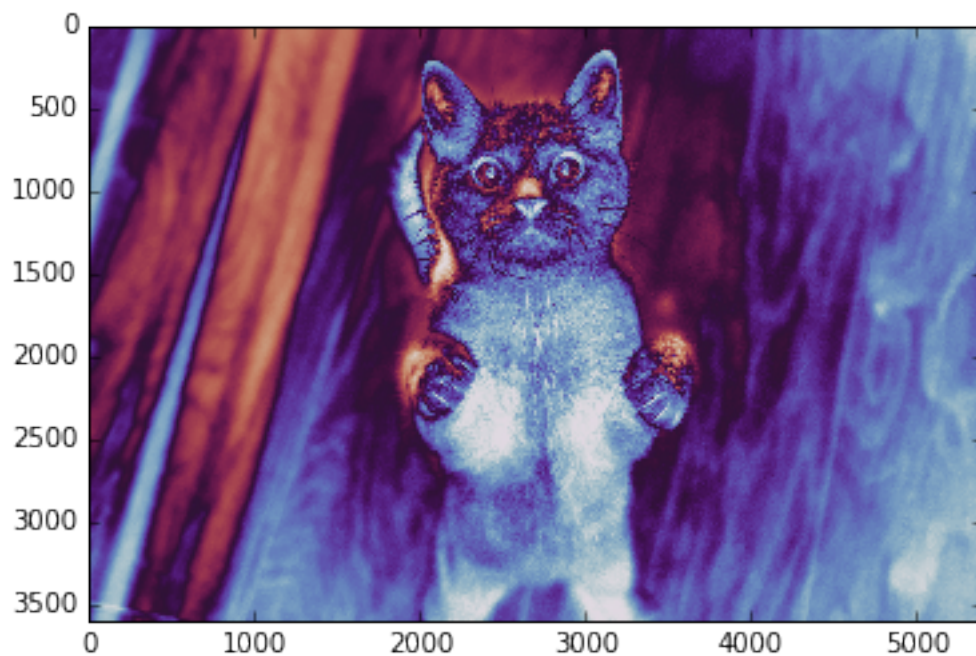


[275]: <matplotlib.image.AxesImage at 0x1dac20b4ac0>



```
[276]: plt.imshow(gray, cmap = "twilight")
```

[276]: <matplotlib.image.AxesImage at 0x1dac23744c0>



Mühendisin Blogu

Hüseyin Averbek