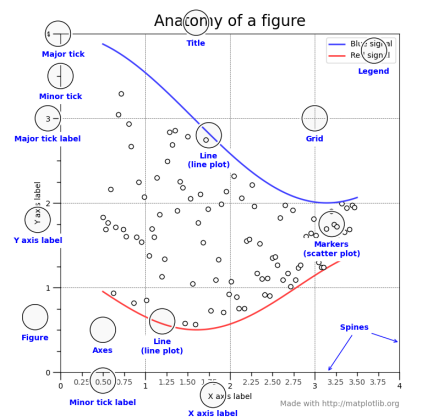
MatPLotLib Cheat Sheet

by [deleted] via cheatography.com/121124/cs/22057/

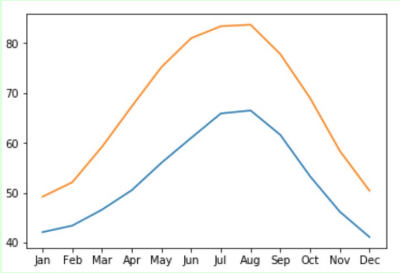
Import

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

Anatomy of a figure



Main principle




```
# Example
fig, ax = plt.subplots() # Create one subplot
ax.plot(x1, y1) # each ax represents one plot on the figure object
ax.plot(x2, y2) # another plot is added to the figure object (with another color)
plt.show()
```

Cutomizing data appearance

ax.plot(x,y, marker = "")	# indicate each data point on the line	https://matplotlib.org/3.2.0/gallery/lines_bars_and_markers/marker_reference.html#sphx-glr-gallery-lines-bars-and-markers-marker-reference-py
ax.plot(x,y, linestyle = "")	# change linestyle	https://matplotlib.org/3.2.0/gallery/lines_bars_and_markers/linestyles.html#sphx-glr-gallery-lines--bars-and-markers-linestyles-py
ax.plot(x,y, color = "")	# change color	https://matplotlib.org/3.2.0/gallery/color/named_colors.html#sphx-glr-gallery-color-named-colors-py
ax.set_xlabel("")	# name the x axis	
ax.set_ylabel("")	# name the y axis	
ax.set_title("")	# give figure a title	

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Cutomizing data appearance (cont)

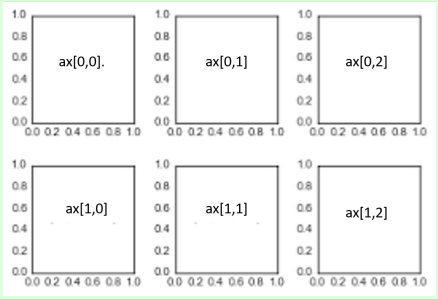
ax.tick_params("x"/"y", colors = "")	# change the color of the ticks	
ax.set_xticks(list())	# change the tick values of the X axis	Use list comprehension
ax.set_yticks(list())	# change the tick values of the y axis	Use list comprehension

scatterplot

```
fig, ax = plt.scatter(x, y, s=area, c=colors, alpha=0.5)
ax.plot(x, y, linestyle = " Non e")
plt.show()
```

Subplot

fig, axe = plt.subplots(3,2)



Create the subplots

fig, ax = plt.subplots(3, 2)

First Subplot

ax[0, 0].plot(x, y, color = "green")

Second Subplot

ax[0, 1].plot(x, y, color = "blue")

Subplot

fig, ax = plt.subplots(rows, columns, index_of_subplot)	fig = container holding one to more axes; ax = individual plot
ax.plot([x], y, color = "green")	[X] = X coordinates; Y = Y coordinates
plt.show()	Plot the figure.
plt.subplots(rows, columns, sharey = True)	All subplots have same range of Y-axis values

Time series

Once there is column with a DateTime datatype then matplotlib will recognize that this is a variable that represents time.

Time series

Plot time series	ax.plot(time_variable, variableOfInterest)
slice time variable	timeVariable["start-date":"end-date"]

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Time-series with different variables

```
fix, ax = plt.subplots()
ax.plo t(t ime _va riable, variable1, color = " blu e")
ax.set _xl abel()
ax.set _yl abel()
ax2 = ax.twinx() # same x-axis but different y-axis
ax2.pl ot( tim e_v ari able, variable2, color = " red ")
ax2.se t_x label()
ax2.se t_y label()
plt.show()
```

Add annotations

```
# First argument is the text of the annotation
# xy argument is the xy of the dataset to which the annotation has to refer (pandas object)
# xytext argument is the xy coordinate of the text
# arrowprops a dictionary that defines the properties of the arrow we would like to use
ax.ann ota te( " ", xy = , xytext = , arrowprops = {})
# the arguments for the arrowprops
https: //m atp lot lib.or g/t uto ria ls/ tex t/a nno tat ion s.html
```

Annotations are small pieces of text refering to a particular part of the graph.

Bar chart

```
fig, ax = plt.subplots()
ax.bar (x- axis, y-axis)
plt.show()
```

barchart

ax.set_xticklabels(names)	change the names on the x axis
ax.set_ylabel("")	Change name of the y axis
ax.bar(x,y, bottom = , label = ""))	Important that you use the same x values, set bottom= equal to the pd.series containing the data whereon you want to stack.
ax.legend()	
ax.set_xticklabels(x, rotation = 90)	If you want to turn the x labels 90 degrees.

You can keep adding bars to eachother by calling ax.bar(bottom) multiple times.However, you have to add the different series in bottom: "medals["Gold"] + medals["Silver"]"

Histogram

```
fix, ax = plt.subplots()
ax.hist(x, label = " ", bins = value/ list, histtype = , label = " ")
ax.set _xl abe l("")
ax.set _yl abe l("")
```


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Boxplot

```
fig, ax = plt.subplots()
ax.box plot(x)
ax.set _yl abel()
# Create multiple boxplots
fig, ax = plt.su bpl ots()
ax.box plo t([ men s_r owi ng[ " Hei ght "], mens_g ymn ast ics ["He igh t"]])
ax.set _xt ick lab els (["R owi ng", " Gym nas tic s"])
```

Scatterplot

```
fix, ax = plt.subplots()
ax.sca tter(x, y, color = " " , label = " ")
# create mutiple scatters on the same plot with different colors
fix, ax = plt.su bpl ots()
ax.sca tter(x, y, color = " red ", label ="")
ax.sca tter(x, y, color = " blu e", label = " ")
ax.leg end()
ax.set _xl abel()
ax.set _yl abel()
# encoding a third variable by color
fig, ax = plt.su bpl ots()
ax.sca tter(x, y, c = )
```

Changing plot style

```
# This has to be before the subplots method
plt.st yle.us e("g gpl ot")
# The available styles
https: //m atp lot lib.or g/g all ery /st yle _sh eet s/s tyl e_s hee ts_ ref ere nce.html
```

Sharing your visualizations

```
# save figure
fig.sa vef ig( " nam e.p ng")
```


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