Cheatography

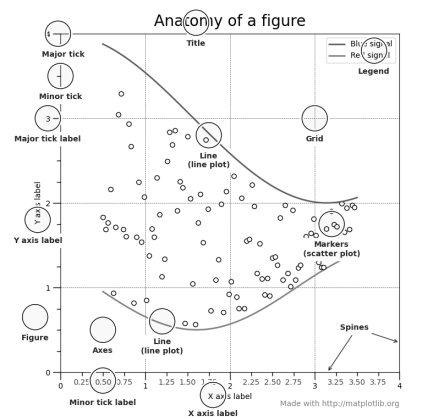
# MatPLotLib Cheat Sheet

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

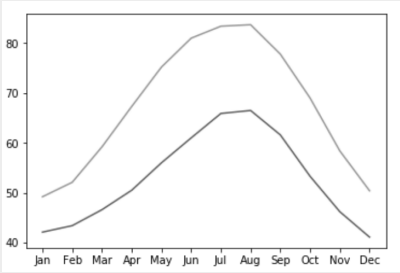
## Import

```
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)

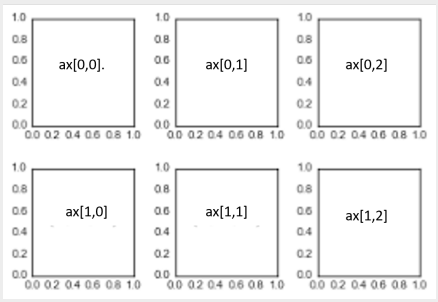
| | | |
|---|---|---|
| ax.tick_params("x"/"y", colors = "") | # change the color of the ticks | |
| ax.set_xticks(list()) | # change the tick values of the X axis | Use list comprehension |
| ax.set_yticks(list()) | # change the tick values of the y axis | Use list comprehension |

## 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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