

PLOTTING

1

working with Matplotlib import `matplotlib.pyplot` as `plt`

A plot can be created by:

```
# line plot
plt.plot(x,y)
plt.show()
```

The plot is shown by using `plt.show()`

methods that lets you **customize your plot**

```
# gives a title to your plot
plt.title(title)

# gives a label to your X-axis
plt.xlabel(label)

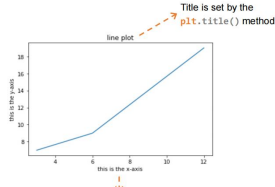
# gives a label to your Y-axis
plt.ylabel(label)

# adds a legend to your plot
plt.legend(loc)
```

styling of the plot itself

```
plt.figure(figsize=(5, 3))
plt.plot(data_x, data_y, "g", color="green", markersize=10)
plt.show()
```

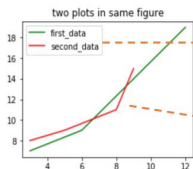
The marker's symbol is defined by the `"g"`, the color is defined by the `color` parameter and the size is defined by the `markersize` parameter



28

You can plot **multiple plots** in the same figure:

```
plt.figure(figsize=(4, 3))
plt.plot(data_x, data_y, color="green", label="first_data")
plt.plot(data_x_2, data_y_2, color="red", label="second_data")
plt.title("two plots in same figure")
plt.legend(loc="upper left")
plt.show()
```



The legend is created by the `plt.legend()` method and its location is defined by its `loc` parameter. The labels are defined by the `label` parameter of the `plt.plot()` function

Green and red colors are set by the `color` parameters of the `plt.plot()` function

plot **multiple plots** in the same canvas
`plt.subplot(nrows, ncols, index)`



BAR PLOTS

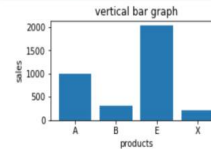
X coordinates of the bars will be set at 0, 1, 2 and 3

X tickers will be changed from 0, 1, 2, 3 to the names of the products

```
# create data
products = ["A", "B", "E", "X"]
sales = [1002, 304, 2034, 203]

plt.figure(figsize=(4, 2))
plt.bar(range(4), sales)
plt.xticks(range(4), products)
plt.xlabel("products")
plt.ylabel("sales")
plt.title("vertical bar graph")
plt.show()
```

The height of the bars will be set to the amount of sales



Stacking bar plots horizontally:

Bars of first plot will be placed at coordinates 0, 1, 2 and 3

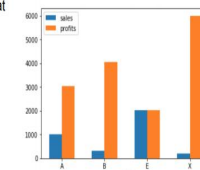
Bars of second plot will be placed at coordinates 0.3, 1.3, 2.3 and 3.3

Bars of both plots will have a width of 0.3

X tickers will be set at coordinates 0.15, 1.15, 2.15, 3.15

```
# create data
products = ["A", "B", "E", "X"]
sales = [1002, 304, 2034, 203]
profits = [3033, 4053, 2033, 4005]

plt.bar(np.arange(4), sales, 0.3, label="sales")
plt.bar(np.arange(4)+0.3, profits, 0.3, label="profits")
plt.xticks(np.arange(4) + 0.3/2, products)
plt.legend(loc="upper left")
plt.xlabel("product")
plt.show()
```



37

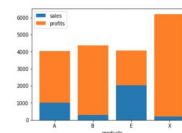
Stacking bar plots vertically:

Bars of first plot will be plotted at coordinates 0, 1, 2 and 3

Bars of second plot will be plotted at coordinates 0, 1, 2 and 3 but with the bottom of the bars being at the sales (=height of previous bars)

```
# create data
products = ["A", "B", "E", "X"]
sales = [1002, 304, 2034, 203]
profits = [3033, 4053, 2033, 4005]

plt.bar(np.arange(4), sales, label="sales")
plt.bar(np.arange(4), profits, 0.3, label="profits", bottom=sales)
plt.xticks(np.arange(4), products)
plt.legend(loc="upper left")
plt.xlabel("product")
plt.show()
```



38

PLOTTING

2

EDA: STATISTICAL DATA EXPLORATION

calculate the median of tenure

```
np.median(df["tenure"])
```

calculate the

mean of tenure