https://kusmat.com

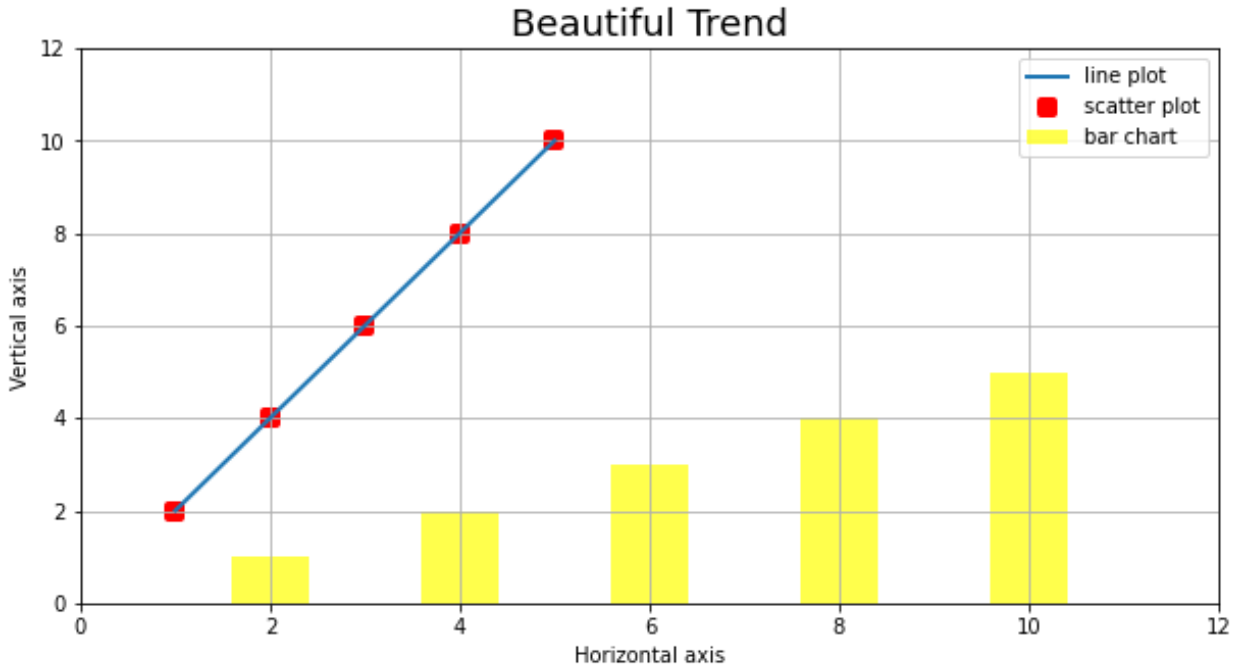
Matplotlib in Python

'It's easier than you think ...'

This short step by step guide is to allow anyone to create useful trends in Matplotlib

Note: This guide can be used as reference or learning tool. Installation is not the topic so external links are posted.

We will create trend like this, step by step:



Step 0
Installing Matplotlib and Jupyter
(it is not so scary, just get **Anaconda** or start editor **online**, below are the options)

Explained in installation guide:

- From real python, few options: https://realpython.com/pandas-plot-python/#set-up-your-environment
- From matplotlib, one option: https://matplotlib.org/stable/users/installing/index.html

Step 1:
Importing necessary packages and apply formatting

- Matplotlib

```
import matplotlib.pyplot as plt
%matplotlib inline
```

Step 2:
Getting data:

- Creating own data

```
x = [1, 2, 3, 4, 5]
y = [2, 4, 6, 8, 10]
```

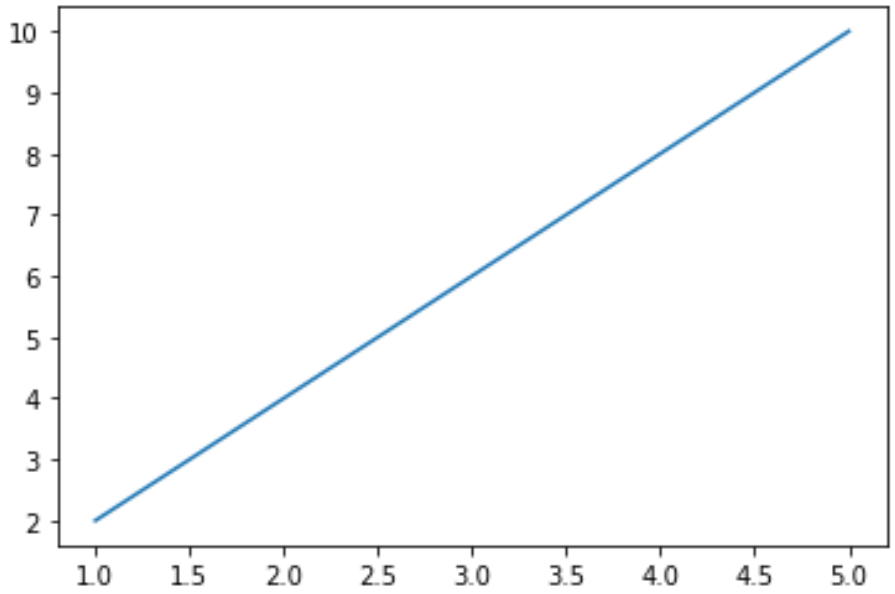
Notes:

* It is possible to use Pandas Dataframe to get data to trend

* It is possible to use numpy library to create data automatically

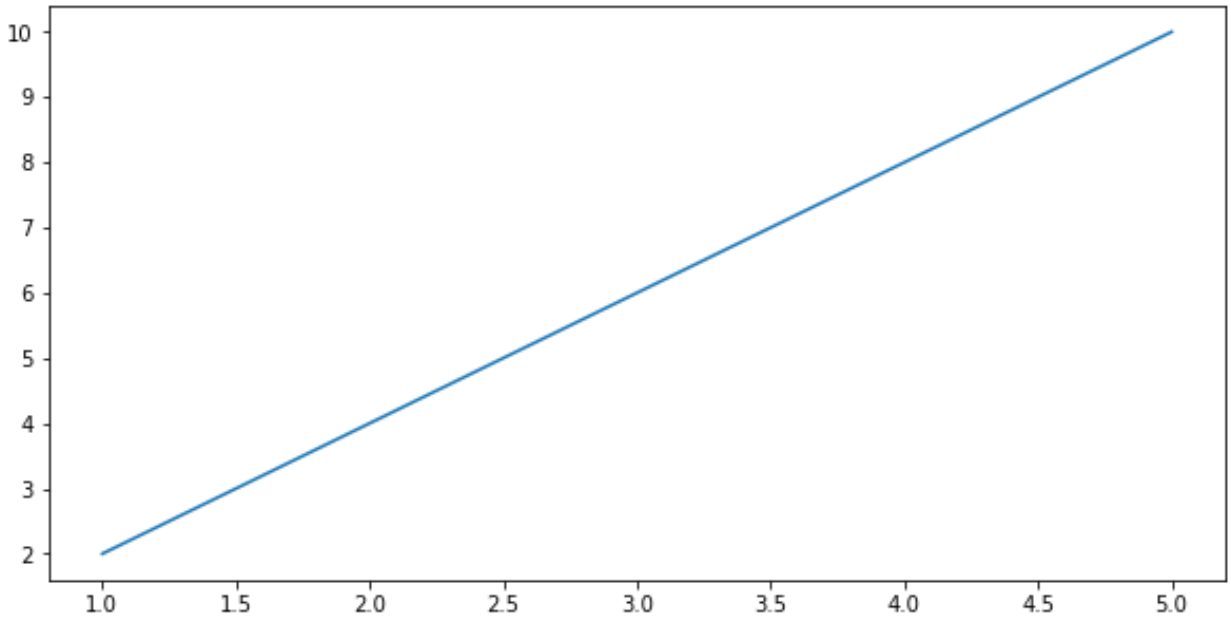
Step 3
Making a plot

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



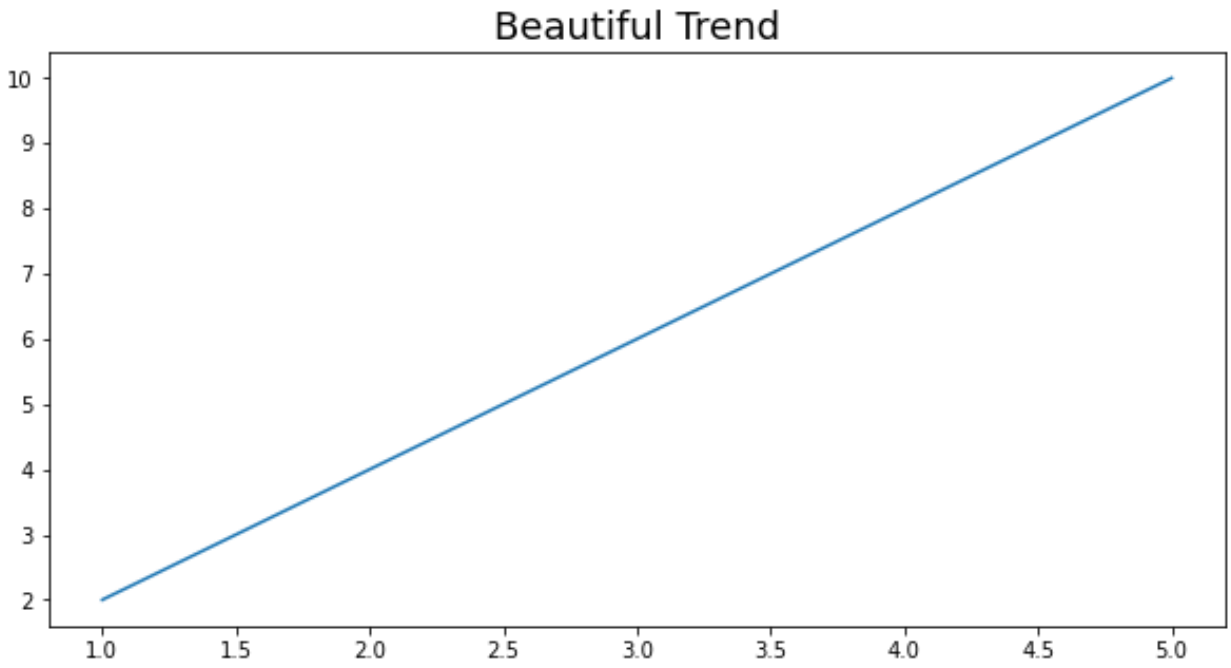
Step 4
Making trend bigger

```
plt.figure(figsize = (10, 5)) #new line
plt.plot(x, y)
```



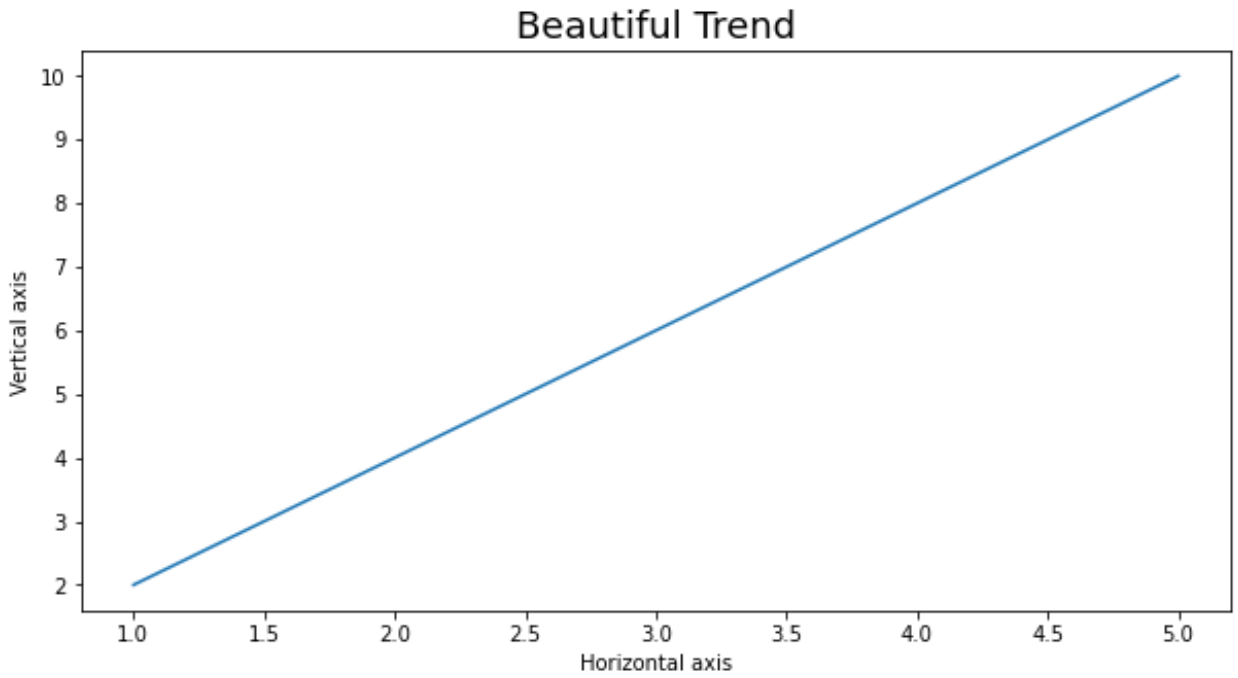
Step 5.
Adding title

```
plt.figure(figsize = (10, 5))
plt.title('Beautiful Trend', size=18) # new line
plt.plot(x, y)
```



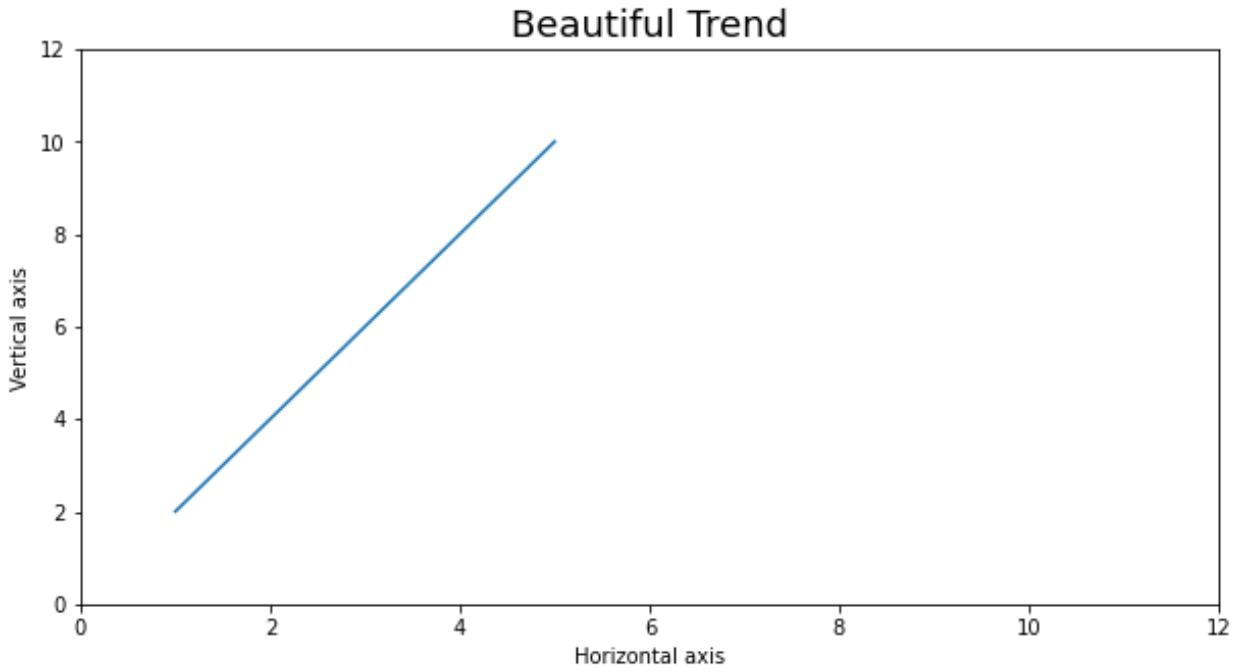
Step 6
Adding axis titles

```
plt.figure(figsize = (10, 5))
plt.title('Beautiful Trend', size=18)
plt.xlabel('Horizontal axis') #new line
plt.ylabel('Vertical axis') #new line
plt.plot(x, y)
```



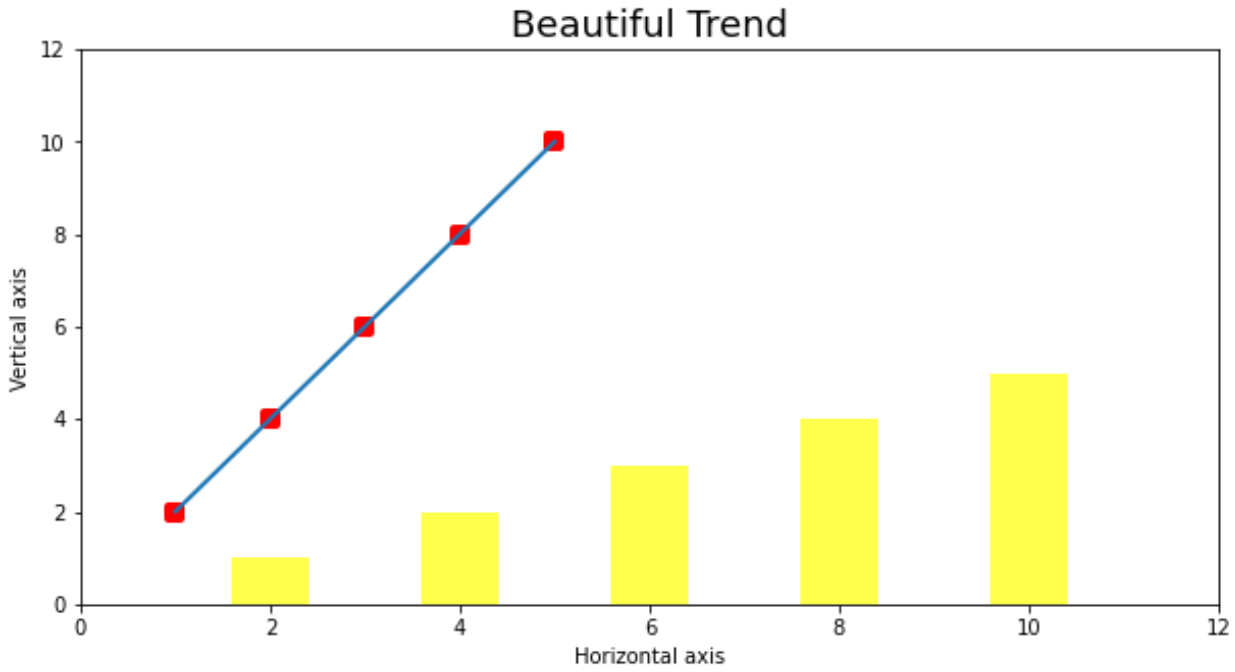
Step 7
Adjusting trend scales

```
plt.figure(figsize = (10, 5))
plt.title('Beautiful Trend', size=18)
plt.xlabel('Horizontal axis')
plt.ylabel('Vertical axis')
plt.axis (xmin = 0, xmax =12, ymin = 0, ymax = 12) #new line
plt.plot(x, y)
```



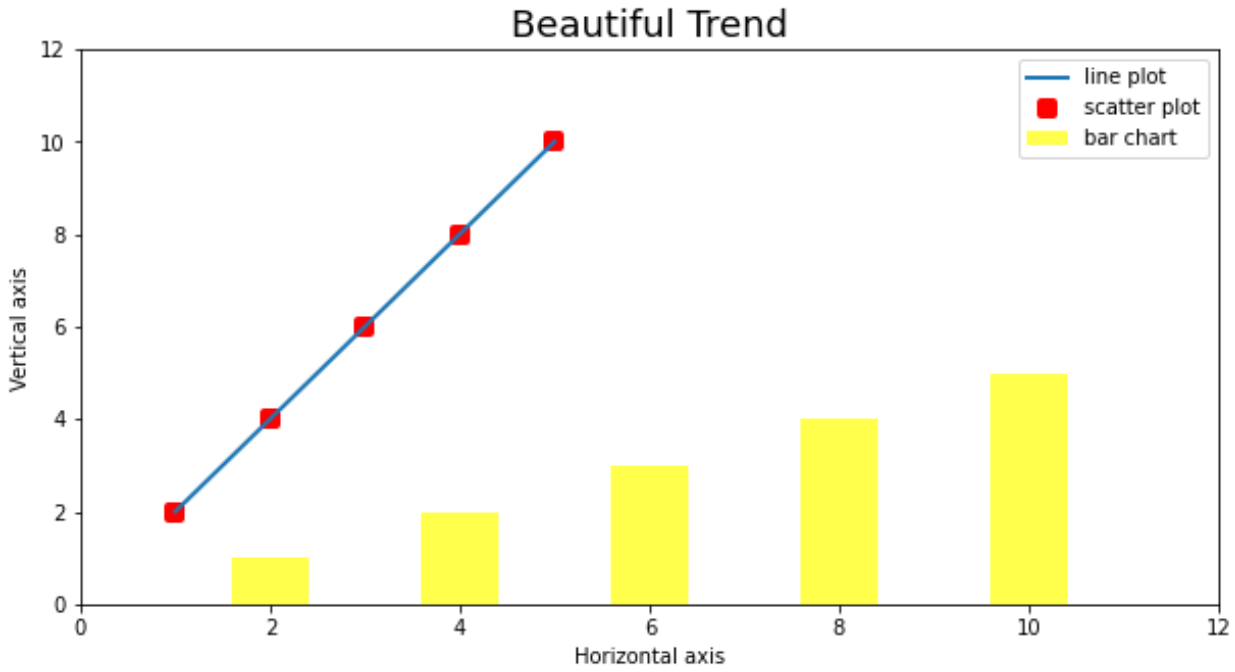
Step 8
Adding more trend types and trend formatting

```
plt.figure(figsize = (10, 5))
plt.title('Beautiful Trend', size=18)
plt.xlabel('Horizontal axis')
plt.ylabel('Vertical axis')
plt.axis (xmin = 0, xmax =12, ymin = 0, ymax = 12)
plt.plot(x, y, linewidth = 2) #modified line making line wider
plt.bar(y, x, color = 'yellow', alpha = 0.7 ) #new line
plt.scatter(x, y, linewidth = 4, color = 'red', marker = 's') #new line
```



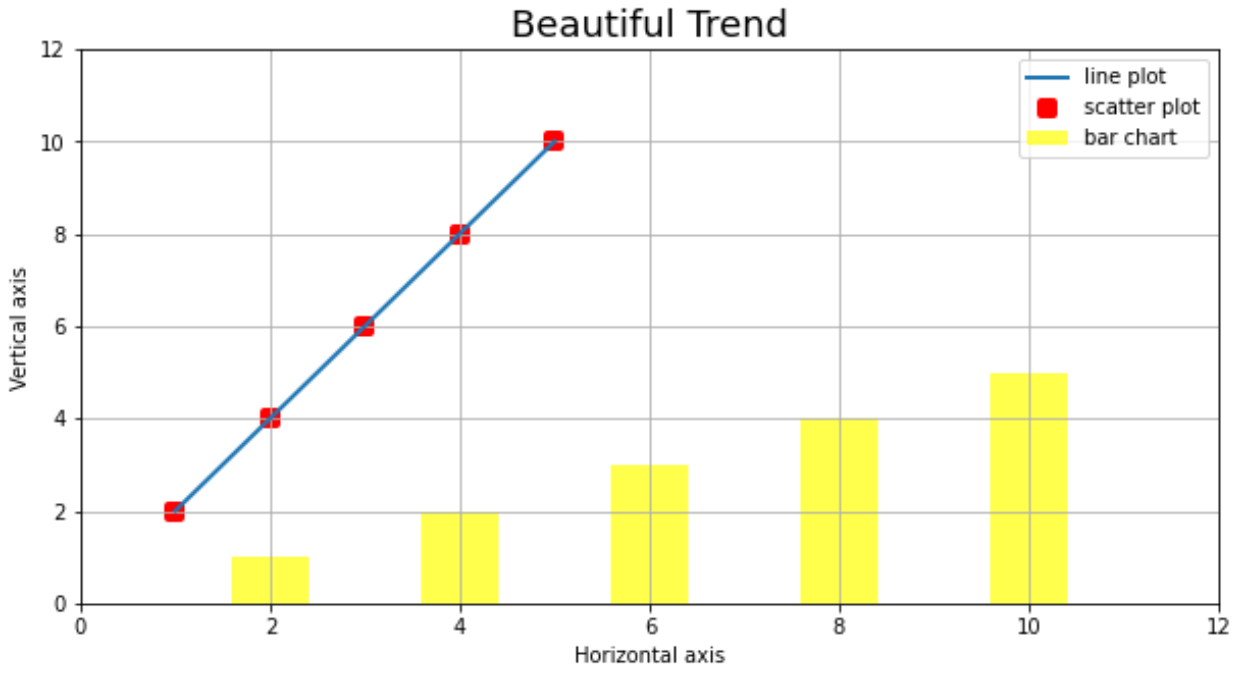
Step 9
Adding trend labels and legend

```
plt.figure(figsize = (10, 5))
plt.title('Beautiful Trend', size=18)
plt.xlabel('Horizontal axis')
plt.ylabel('Vertical axis')
plt.axis (xmin = 0, xmax =12, ymin = 0, ymax = 12)
plt.plot(x, y, linewidth = 2, label = 'line plot') #modified line, added
label
plt.bar(y, x, color = 'yellow', alpha = 0.7, label = 'bar chart' ) #modified
line, added label
plt.scatter(x, y, linewidth = 4, color = 'red', marker = 's', label =
'scatter plot') #modified line, added label
plt.legend() #new line
```



Step 10
Adding grid

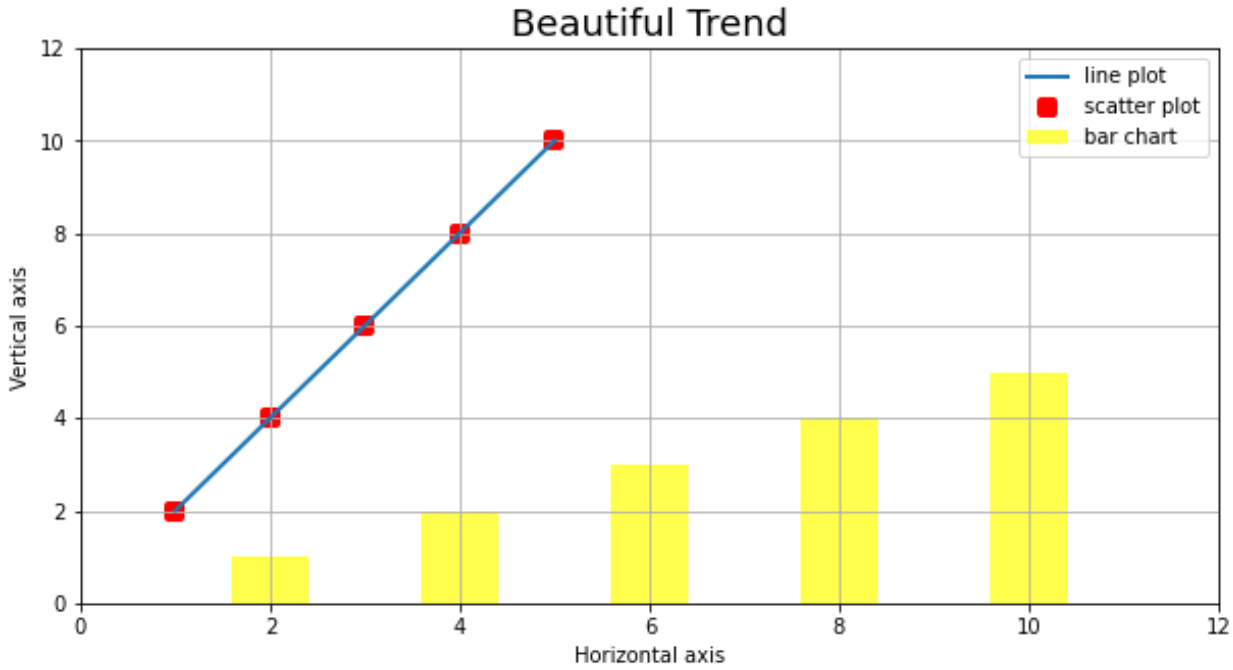
```
plt.figure(figsize = (10, 5))
plt.title('Beautiful Trend', size=18)
plt.xlabel('Horizontal axis')
plt.ylabel('Vertical axis')
plt.axis (xmin = 0, xmax = 12, ymin = 0, ymax = 12)
plt.plot(x, y, linewidth = 2, label = 'line plot')
plt.bar(y, x, color = 'yellow', alpha = 0.7, label = 'bar chart' )
plt.scatter(x, y, linewidth = 4, color = 'red', marker = 's', label =
'scatter plot')
plt.legend(loc ='upper right')
plt.grid (axis = 'both') #new line
```



PUTTING IT ALL TOGETHER

Feel free to modify any of the parameters in the cell below to see what happens, add own data, adjust formatting, add more trends, etc.

```
#Importing necessary packages and apply formatting
import matplotlib.pyplot as plt
%matplotlib inline

#Getting data
x = [1, 2, 3, 4, 5]
y = [2, 4, 6, 8, 10]

#Changing trend size
plt.figure(figsize = (10, 5))

#Adding title
plt.title('Beautiful Trend', size=18)

#Adding axis titles
plt.xlabel('Horizontal axis')
plt.ylabel('Vertical axis')

#Changing trend scales
plt.axis (xmin = 0, xmax = 12, ymin = 0, ymax = 12)

#Creating line plot
plt.plot(x, y, linewidth = 2, label = 'line plot')

#Creating bar plot
plt.bar(y, x, color = 'yellow', alpha = 0.7, label = 'bar chart' )

#Creating scatter plot
plt.scatter(x, y, linewidth = 4, color = 'red', marker = 's', label =
'scatter plot')

#Adding legend
plt.legend(loc ='upper right')

#Adding grid
plt.grid (axis = 'both')
```



REFERENCES:
Markers: https://matplotlib.org/stable/api/markers_api.html
Colors: https://matplotlib.org/stable/gallery/color/named_colors.html
Cheat sheet: http://datacamp-community-prod.s3.amazonaws.com/e1a8f39d-71ad-4d13-9a6b-618fe1b8c9e9