Part-1 Basics

In [46]:

```python
import matplotlib.pyplot as plt
import numpy as np
import pandas as pd
```

In [47]:

```python
x=np.arange(0,10)
```

In [48]:

```python
x
```

Out[48]:

```
array([0, 1, 2, 3, 4, 5, 6, 7, 8, 9])
```

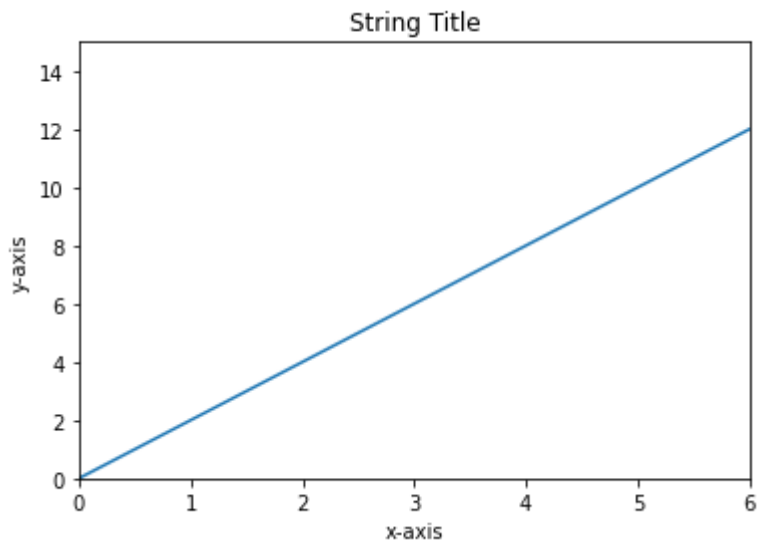In [49]:

```python
y= 2*x
```

In [50]:

```python
y
```

Out[50]:

```
array([ 0,  2,  4,  6,  8, 10, 12, 14, 16, 18])
```

In [19]:

```python
plt.plot(x,y)
plt.title("String Title")
plt.xlabel("x-axis")
plt.ylabel("y-axis")
plt.xlim(0,6)
plt.ylim(0,15)
plt.show()
#plt.savefig("myfirstplot.png")
```



```
<Figure size 432x288 with 0 Axes>
```

In [ ]:

Part-2 Understanding figure object model

In [51]:

```python
plt.figure(figsize=(10,10))
```

Out[51]:

```
<Figure size 720x720 with 0 Axes>
```

```
<Figure size 720x720 with 0 Axes>
```
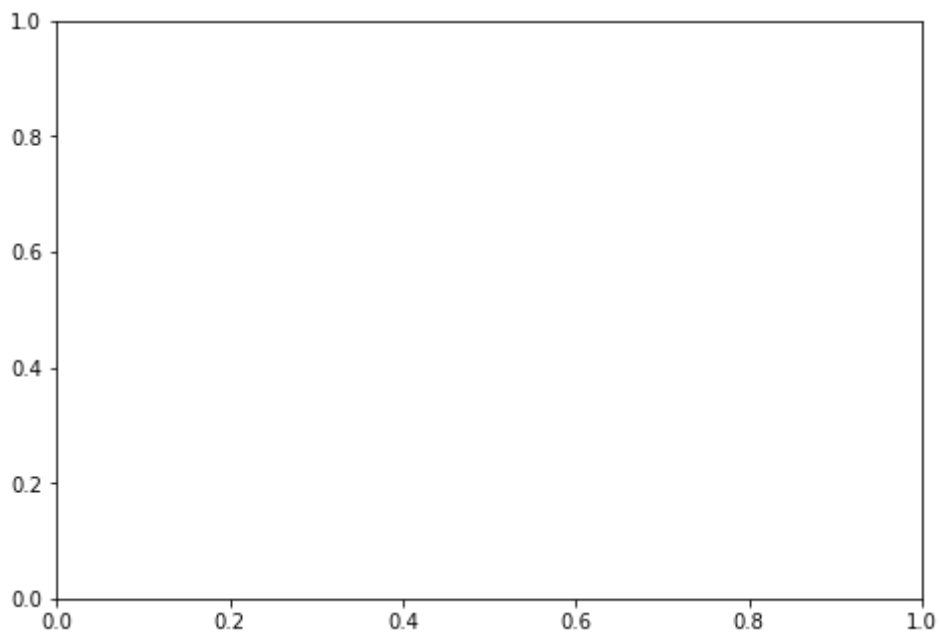
In [22]:

```python
fig = plt.figure()
axes = fig.add_axes([0,0,1,1])
```
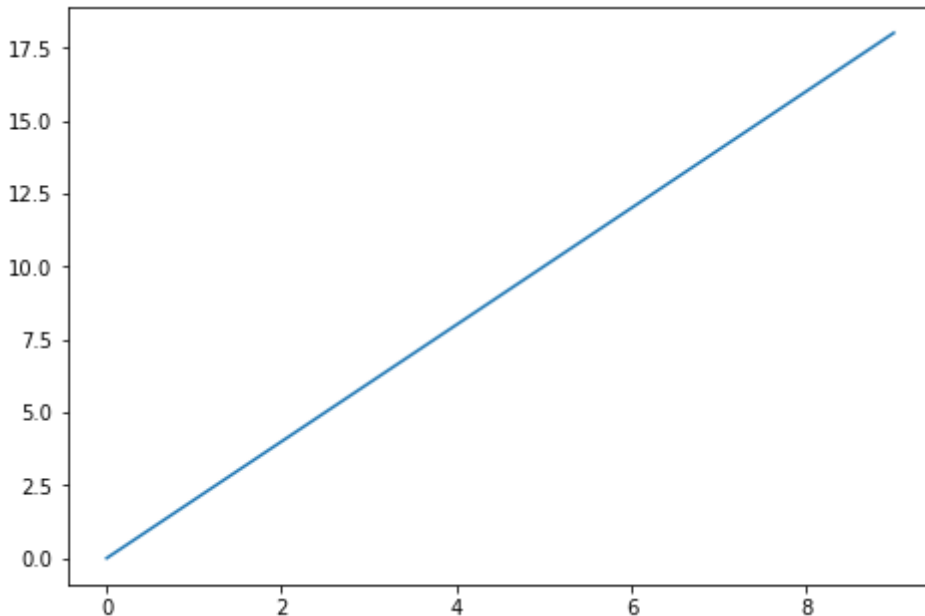
In [52]:

```python
fig = plt.figure()
axes = fig.add_axes([0,0,1,1])
axes.plot(x,y)
```

Out[52]:

```
[<matplotlib.lines.Line2D at 0x19392663610>]
```


Part-3 Implementing Figure and axes

In [24]:

```python
# Data
```

In [53]:

```python
a = np.linspace(0,10,11)
```

In [54]:

```python
b = a*4
```

In [61]:

```
a
```

Out[61]:

```
array([ 0.,  1.,  2.,  3.,  4.,  5.,  6.,  7.,  8.,  9., 10.])
```

In [56]:

```
b
```

Out[56]:

```
array([ 0.,  4.,  8., 12., 16., 20., 24., 28., 32., 36., 40.])
```

In [62]:

```
x = np.arange(0,10)
```

In [63]:

```
x
```

Out[63]:

```
array([0, 1, 2, 3, 4, 5, 6, 7, 8, 9])
```

In [64]:

```
y=2*x
```

In [65]:

```
y
```

Out[65]:

```
array([ 0,  2,  4,  6,  8, 10, 12, 14, 16, 18])
```
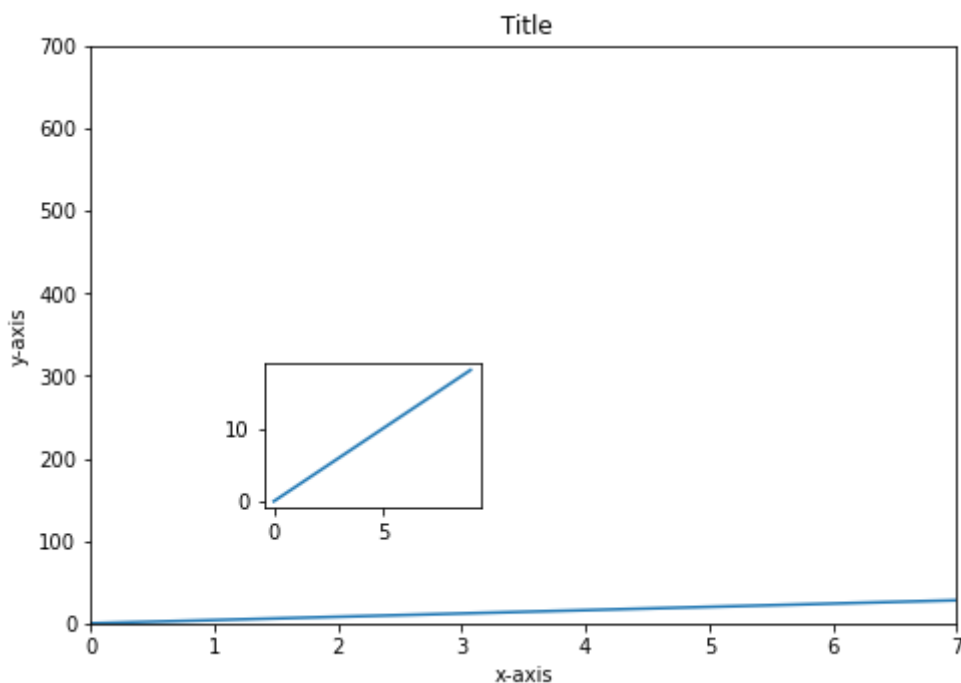
In [79]:

```python
fig = plt.figure()

# Large axes
axes=fig.add_axes([0,0,1,1])

axes.set_title(" Title")
axes.set_xlabel("x-axis")
axes.set_ylabel("y-axis")
axes.set_xlim(0,7)
axes.set_ylim(0,700)

axes.plot(a,b)
# small axes
axes=fig.add_axes([0.2,0.2,0.25,0.25])
axes.plot(x,y)
plt.show()
```


In [72]:

```python
#figure parameters
#fig=plt.figure(dpi,figsize)
"""

dpi=200
figsize=(12,8)
"""
```
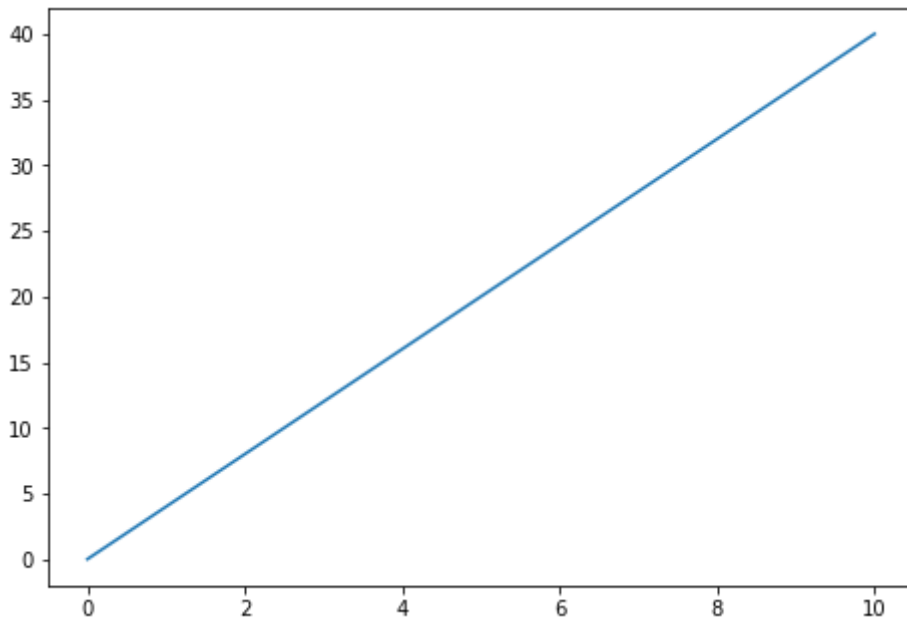
In [73]:

```python
type(fig)
```

Out[73]:

```
matplotlib.figure.Figure
```

In [75]:

```python
fig = plt.figure()
axes1= fig.add_axes([0,0,1,1])
axes1.plot(a,b)
```

Out[75]:

```
[<matplotlib.lines.Line2D at 0x19393f404f0>]
```


Part -4 Subplotting

In [42]:

```python
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt



a= np.linspace(0,10,11)
b= a*4
```

In [41]:

```python
a
```

Out[41]:

```
array([ 0.,  1.,  2.,  3.,  4.,  5.,  6.,  7.,  8.,  9., 10.])
```

In [39]:

```
b
```

Out[39]:

```
array([ 0.,  4.,  8., 12., 16., 20., 24., 28., 32., 36., 40.])
```

In [40]:

```
x=np.arange(0,10)
y=2*x
```

In [12]:

```
x
```

Out[12]:

```
array([0, 1, 2, 3, 4, 5, 6, 7, 8, 9])
```
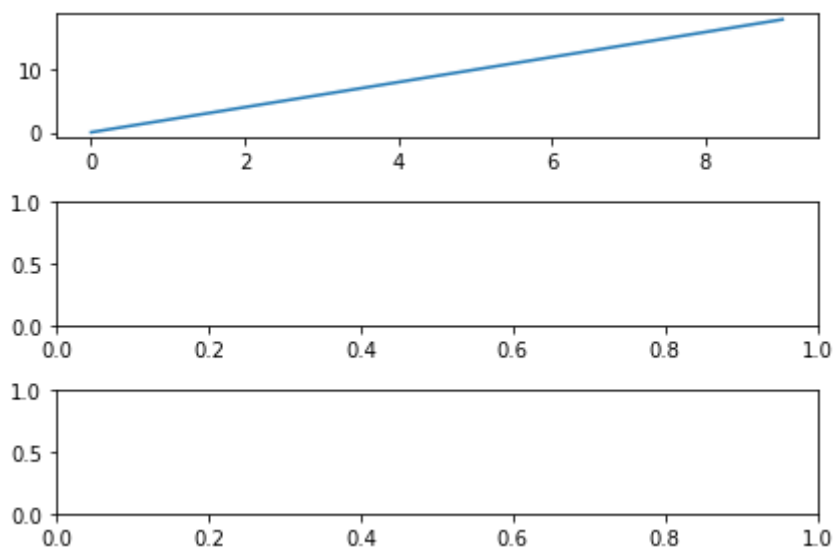
In [15]:

```
y
```

Out[15]:

```
array([ 0,  2,  4,  6,  8, 10, 12, 14, 16, 18])
```

In [43]:

```
fig,axes=plt.subplots(nrows=3,ncols=1)
axes[0].plot(x,y)
#axes[1].plot(a,b)
plt.tight_layout()
```


In [ ]:

In [35]:

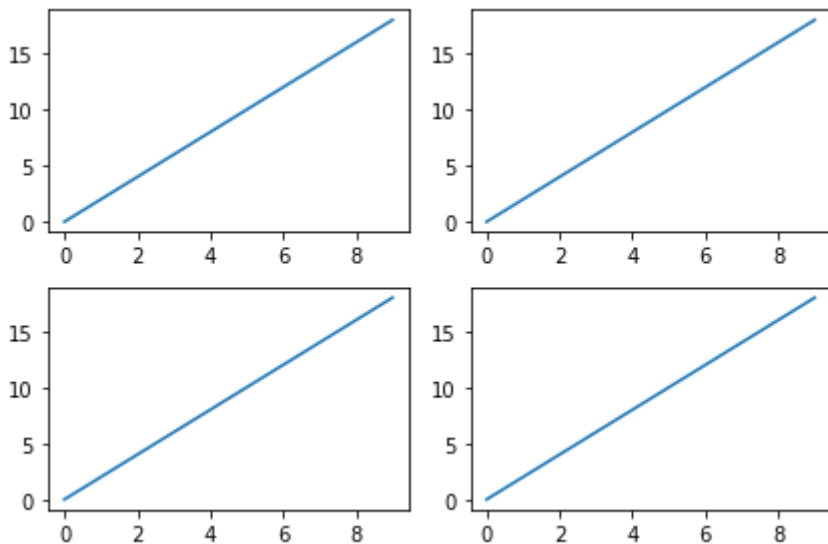```python
type(axes)
```

Out[35]:

numpy.ndarray

In [23]:

```python
axes.shape
```

Out[23]:

(2,)

In [45]:

```python
fig,axes=plt.subplots(nrows=2,ncols=2)
axes[0][0].plot(x,y)
axes[0][1].plot(x,y)
axes[1][0].plot(x,y)
axes[1][1].plot(x,y)
#axes[1].plot(a,b)
plt.tight_layout()
```


In [ ]:

Part-5 Legends

In [51]:

```python
import matplotlib.pyplot as plt
import numpy as np
```
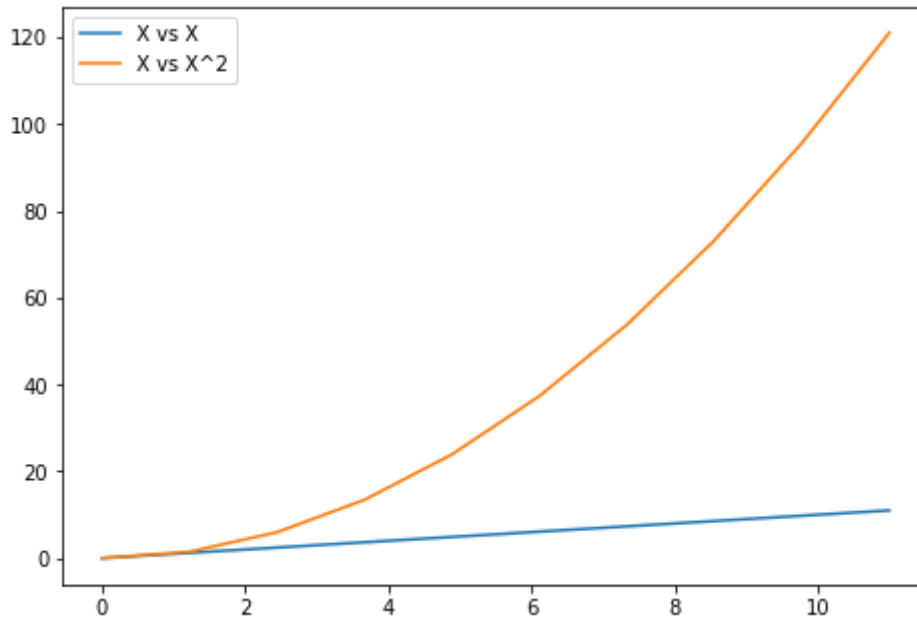
In [54]:

```python
x=np.linspace(0,11,10)
```

In [58]:

```python
fig=plt.figure()
ax=fig.add_axes([0,0,1,1])
ax.plot(x,x,label="X vs X")
ax.plot(x,x**2,label="X vs X^2")
ax.legend()
```

Out[58]:

```
<matplotlib.legend.Legend at 0x1edf7049280>
```


In [ ]:

In [ ]:

Part-6 Colors & styles

In [1]:

```python
import numpy as np
import matplotlib.pyplot as plt
```

In [2]:

```python
x=np.linspace(1,11,10)
```

In [3]:

```
x
```

Out[3]:

```
array([ 1.        ,  2.11111111,  3.22222222,  4.33333333,  5.44444444,
        6.55555556,  7.66666667,  8.77777778,  9.88888889, 11.        ])
```

In [31]:

```python
fig = plt.figure()
ax=fig.add_axes([0,0,1,1])

ax.plot(x,x,color="red",label="x vs x",lw=2,ls="--",
        marker="o",markersize=10,markerfacecolor="blue",
        markeredgewidth=4,markeredgecolor="green")

ax.plot(x,x+1,color="#e6c017",label="x vs x+1",
        lw=1.8,ls="-.",marker="+",markersize=20)
#lw=linewidth
# ls=linestyle
#(posible line styles[--,-.,:,-])
ax.legend()
```
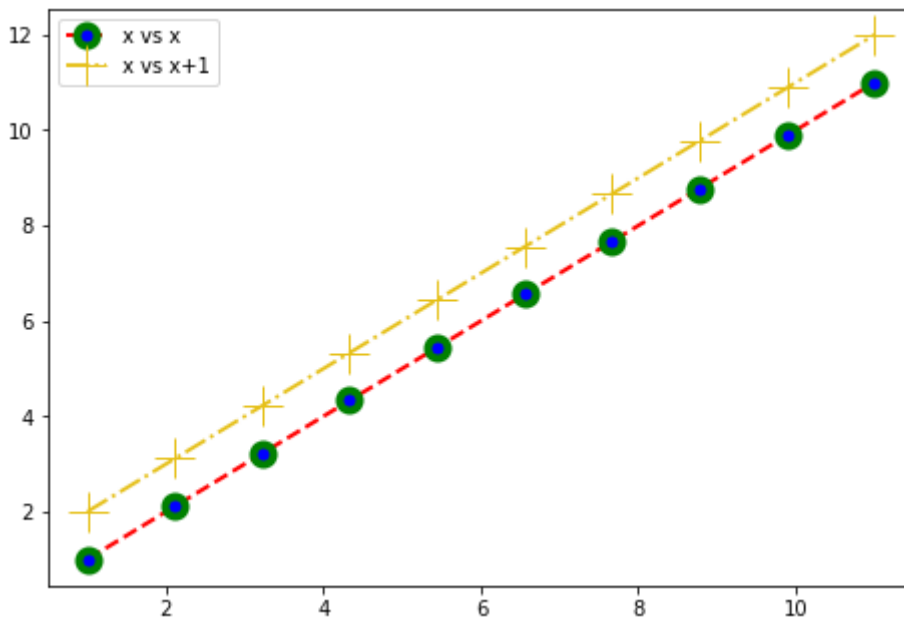
Out[31]:

```
<matplotlib.legend.Legend at 0x235617dd5e0>
```


In [ ]: