

Matplotlib Exercises

**** * NOTE: ALL THE COMMANDS FOR PLOTTING A FIGURE SHOULD ALL GO IN THE SAME CELL. SEPARATING THEM OUT INTO MULTIPLE CELLS MAY CAUSE NOTHING TO SHOW UP. * ****

Exercises

Follow the instructions to recreate the plots using this data:

Data

```
In [18]: import numpy as np
x = np.arange(0,100)
y = x*2
z = x**2
```

**** Import matplotlib.pyplot as plt and set %matplotlib inline if you are using the jupyter notebook. What command do you use if you aren't using the jupyter notebook?****

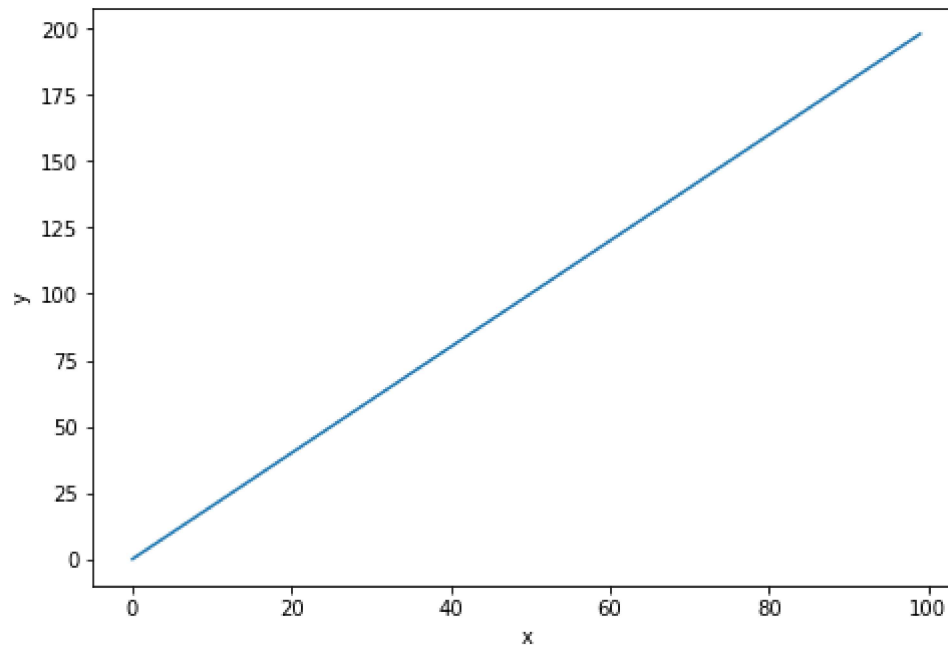
```
In [2]: import matplotlib.pyplot as plt
```

Exercise 1

**** Follow along with these steps: ****

- **** Create a figure object called fig using plt.figure() ****
- **** Use add_axes to add an axis to the figure canvas at [0,0,1,1]. Call this new axis ax. ****
- **** Plot (x,y) on that axes and set the labels and titles to match the plot below:****

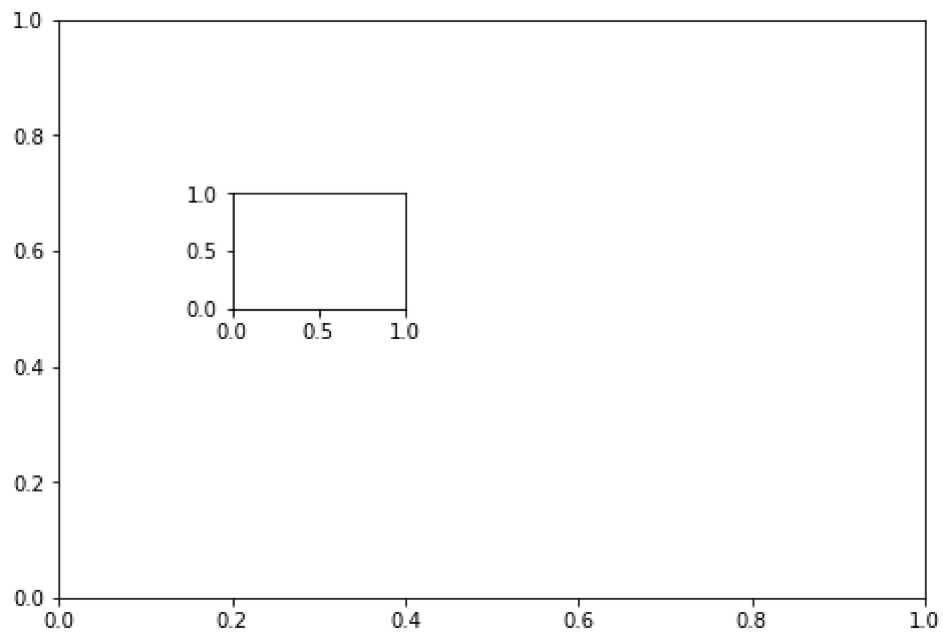
```
In [5]: fig=plt.figure()  
ax=fig.add_axes([0,0,1,1])  
ax.plot(x,y)  
plt.xlabel('x')  
plt.ylabel('y')  
plt.show()
```



Exercise 2

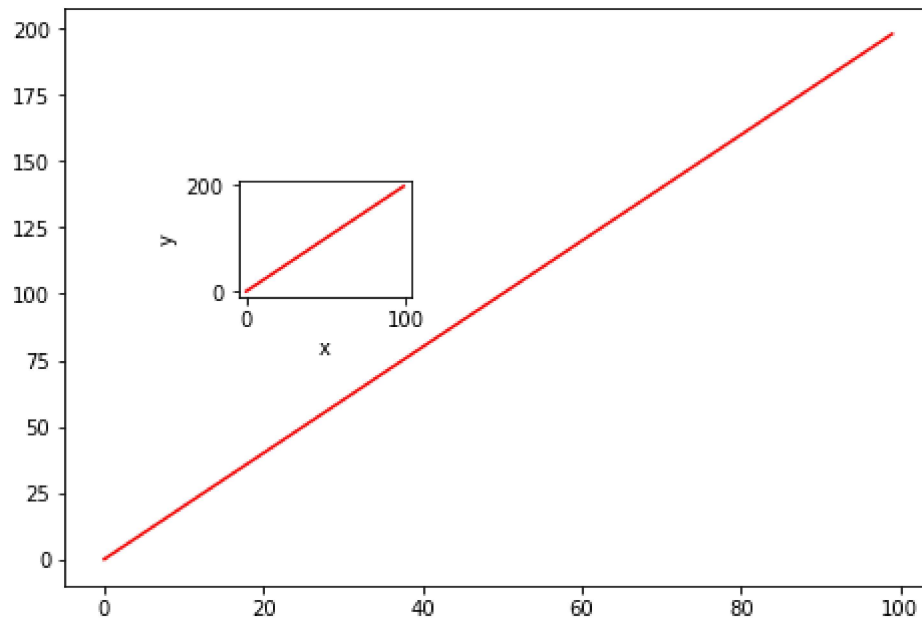
**** Create a figure object and put two axes on it, ax1 and ax2. Located at [0,0,1,1] and [0.2,0.5,.2,.2] respectively.****

```
In [11]: fig=plt.figure()  
ax1=fig.add_axes([0,0,1,1])  
ax2=fig.add_axes([0.2,0.5,0.2,0.2])  
plt.show()
```



**** Now plot (x,y) on both axes. And call your figure object to show it.****

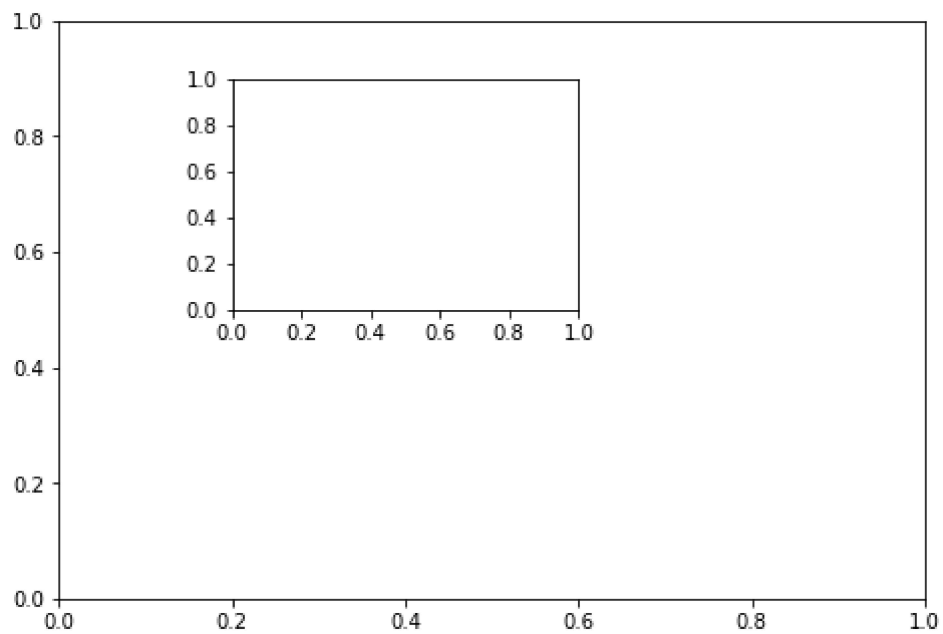
```
In [20]: fig=plt.figure()
ax1=fig.add_axes([0,0,1,1])
ax2=fig.add_axes([0.2,0.5,0.2,0.2])
ax1.plot(x,y,color='r')
ax2.plot(x,y,color='r')
plt.xlabel('x')
plt.ylabel('y')
plt.show()
```



Exercise 3

** Create the plot below by adding two axes to a figure object at [0,0,1,1] and [0.2,0.5,.4,.4]**

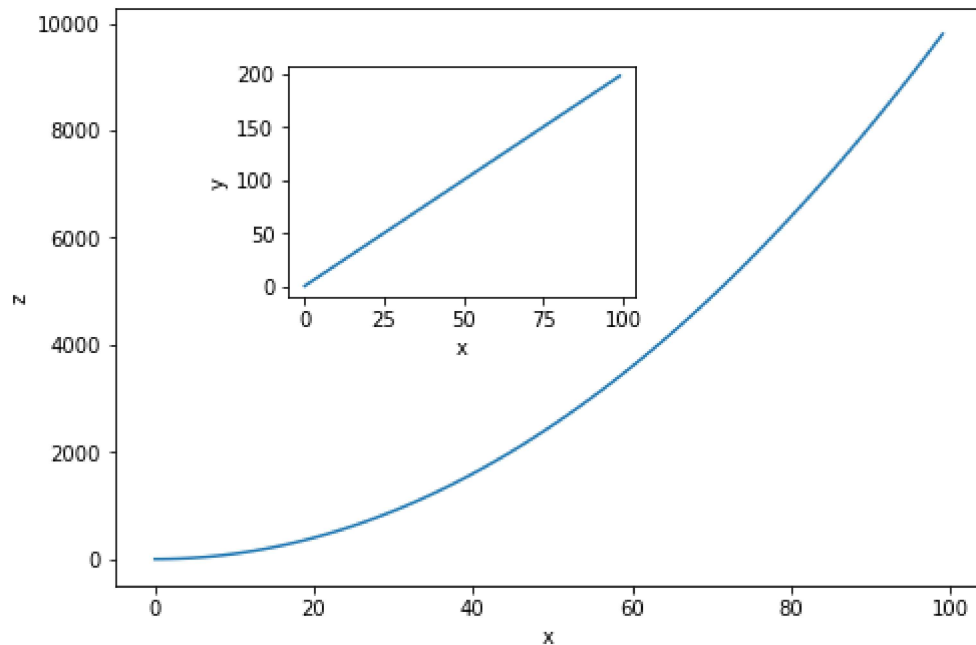
```
In [21]: fig=plt.figure()  
ax1=fig.add_axes([0,0,1,1])  
ax2=fig.add_axes([0.2,0.5,.4,.4])
```

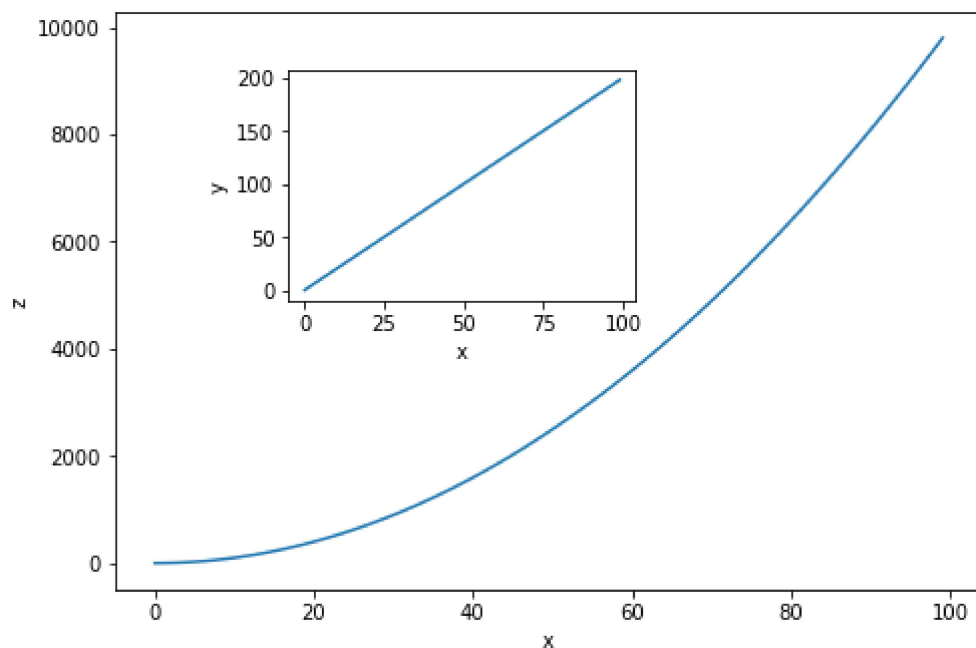


**** Now use x,y, and z arrays to recreate the plot below. Notice the xlimits and y limits on the inserted plot:****

```
In [50]: fig=plt.figure()
ax1=fig.add_axes([0,0,1,1])
plt.plot(x,z)
plt.xlabel('x')
plt.ylabel('z')
ax2=fig.add_axes([0.2,0.5,.4,.4])
plt.plot(x,y)
plt.xlabel('x')
plt.ylabel('y')
fig=plt.figure()
ax1=fig.add_axes([0,0,1,1])
plt.plot(x,z)
plt.xlabel('x')
plt.ylabel('z')
ax2=fig.add_axes([0.2,0.5,.4,.4])
plt.plot(x,y)
plt.xlabel('x')
plt.ylabel('y')
```

Out[50]: Text(0, 0.5, 'y')



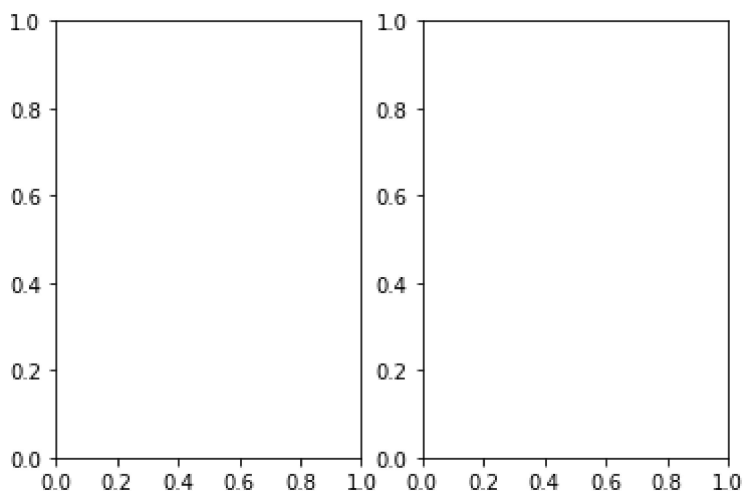


Exercise 4

**** Use `plt.subplots(nrows=1, ncols=2)` to create the plot below.****

```
In [25]: plt.subplot(1,2,1)
plt.subplot(1,2,2)
```

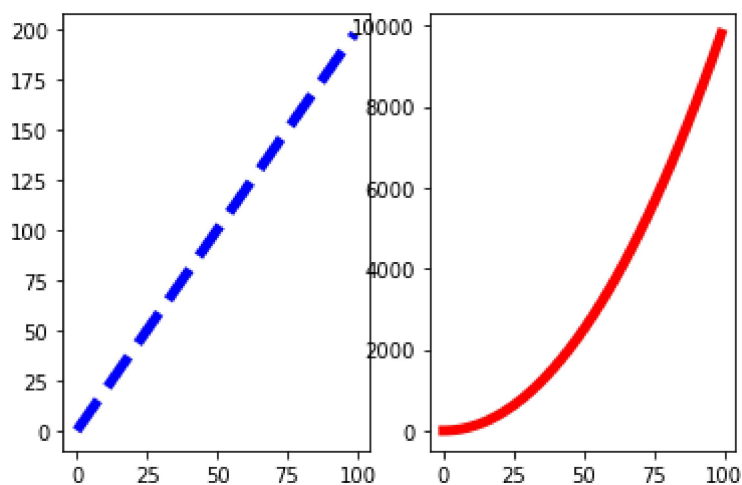
Out[25]: <AxesSubplot:>



**** Now plot (x,y) and (x,z) on the axes. Play around with the linewidth and style****

```
In [30]: plt.subplot(1,2,1)
plt.plot(x,y,linewidth='5',linestyle='dashed',color='b')
plt.subplot(1,2,2)
plt.plot(x,z,linewidth='5',color='r')
```

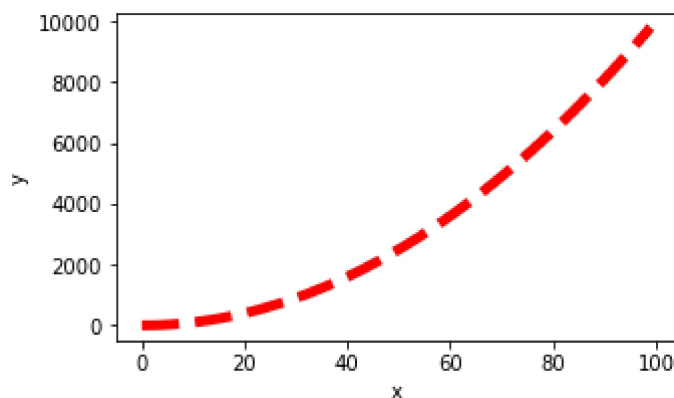
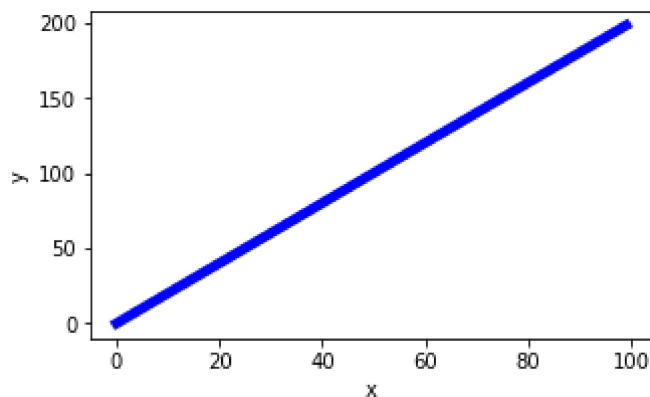
Out[30]: [<matplotlib.lines.Line2D at 0x170bb2902b0>]



**** See if you can resize the plot by adding the figsize() argument in plt.subplots() are copying and pasting your previous code.****


```
In [46]: plt.figure(figsize=(5,3))
plt.plot(x,y,linewidth='5',color='b')
plt.xlabel('x')
plt.ylabel('y')
plt.figure(figsize=(5,3))
plt.plot(x,z,linewidth='5',linestyle='dashed',color='r')
plt.xlabel('x')
plt.ylabel('y')
```

Out[46]: Text(0, 0.5, 'y')



Great Job!