

MATPLOTLIB:

A) IMPORT MATPLOTLIB:

```
import numpy as np
x = np.arange(0,100)
y = x*2
z = x**2

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

B) Follow along with these steps:

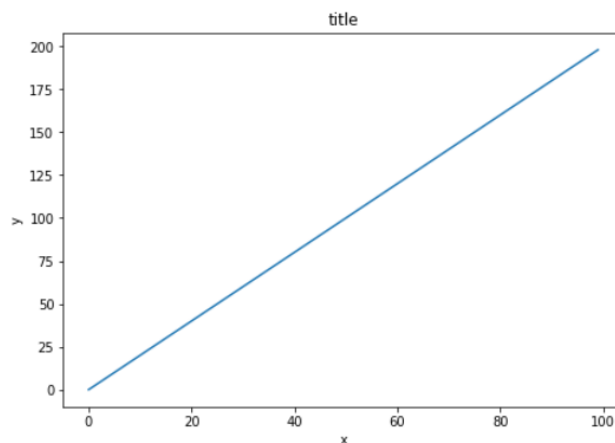
Create a figure object called fig using plt.figure()

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:

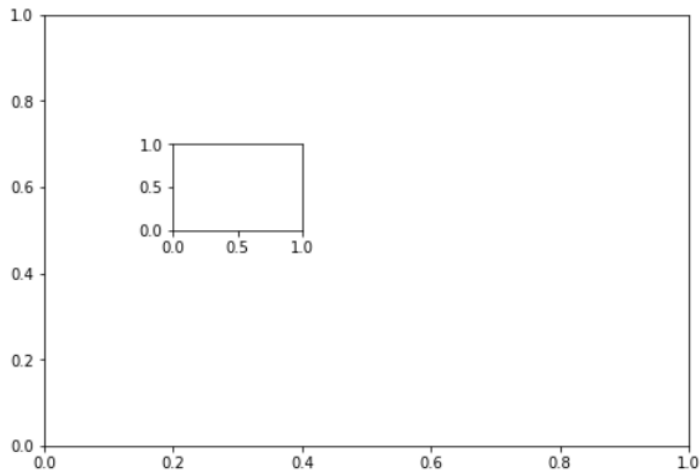
```
fig = plt.figure()
ax= fig.add_axes([0,0,1,1])
ax.plot(x,y)
ax.set_title('title')
ax.set_xlabel('x')
ax.set_ylabel('y')
```

Text(0, 0.5, 'y')



C) 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.

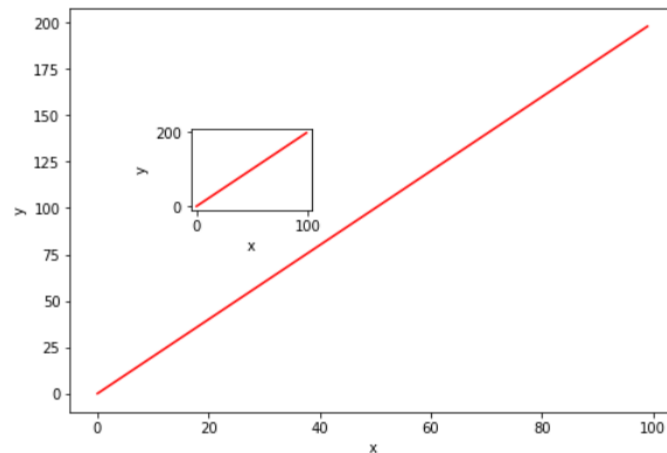
```
fig = plt.figure()
ax1 = fig.add_axes([0,0,1,1])
ax2 = fig.add_axes([0.2,0.5,.2,.2])
```



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

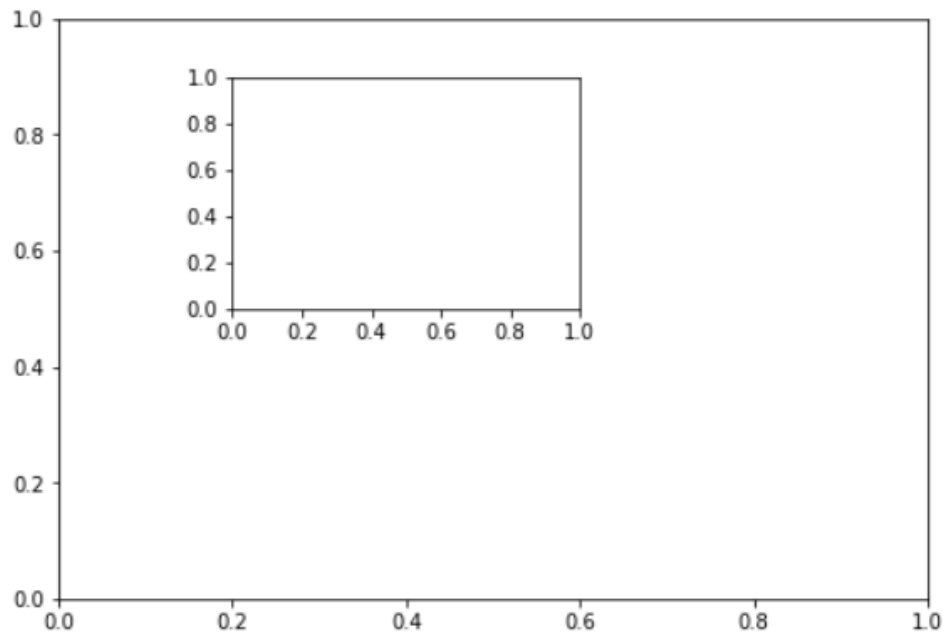
```
fig = plt.figure()
ax1 = fig.add_axes([0,0,1,1])
ax1.plot(x,y,'red')
ax1.set_xlabel('x')
ax1.set_ylabel('y')
ax2 = fig.add_axes([0.2,0.5,.2,.2])
ax2.plot(x,y,'red')
ax2.set_xlabel('x')
ax2.set_ylabel('y')
```

Text(0, 0.5, 'y')



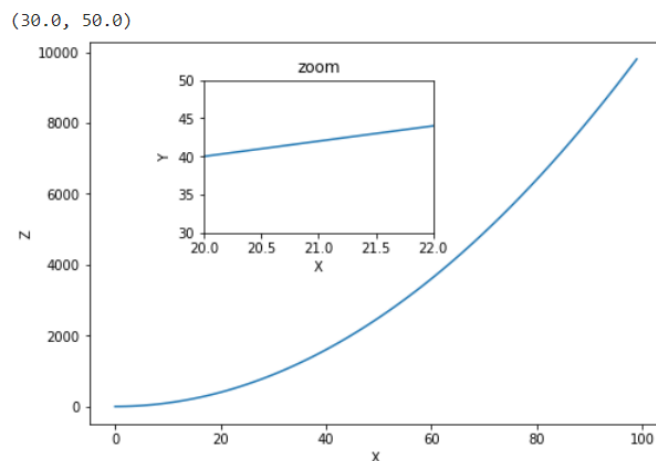
E) Create the plot below by adding two axes to a figure object at [0,0,1,1] and [0.2,0.5,.4,.4]

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



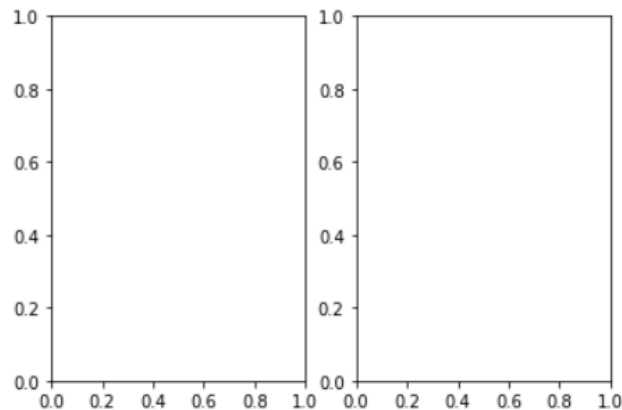
F) Now use x,y, and z arrays to recreate the plot below. Notice the xlims and y limits on the inserted plot:

```
fig = plt.figure()
ax1 = fig.add_axes([0,0,1,1])
ax1.plot(x,z)
ax1.set_xlabel('X')
ax1.set_ylabel('Z')
ax2 = fig.add_axes([0.2,0.5,.4,.4])
ax2.plot(x,y)
ax2.set_title('zoom')
ax2.set_xlabel('X')
ax2.set_ylabel('Y')
ax2.set_xlim(20,22)
ax2.set_ylim(30,50)
```



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

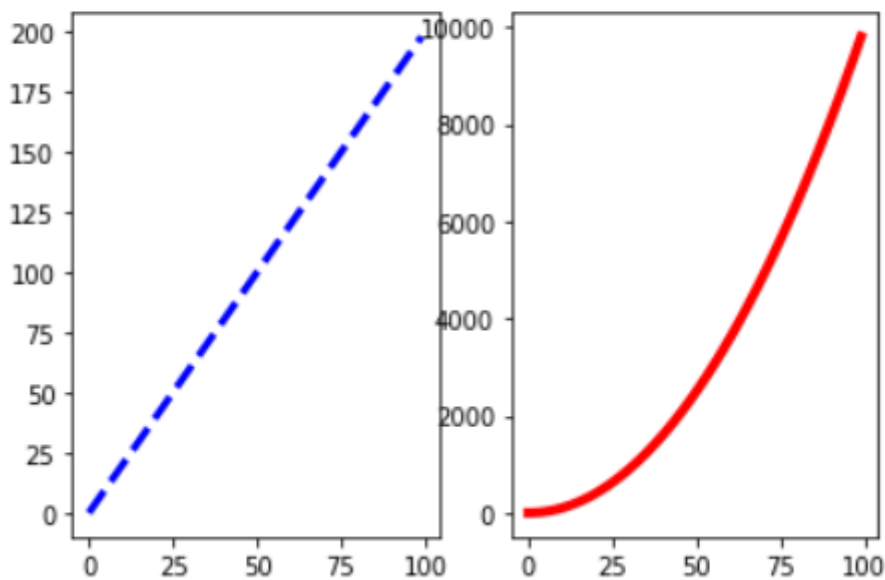
```
fig, axes = plt.subplots(nrows=1, ncols=2)
```



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

```
fig, axes = plt.subplots(nrows=1, ncols=2)
axes[0].plot(x,y,color='blue',lw=3,ls='--')
axes[1].plot(x,z,color='red',lw=4)
```

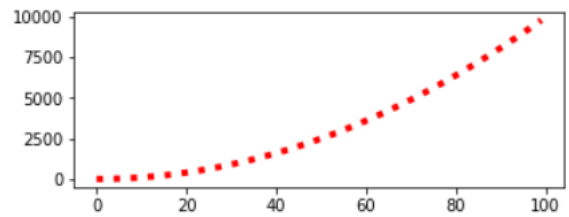
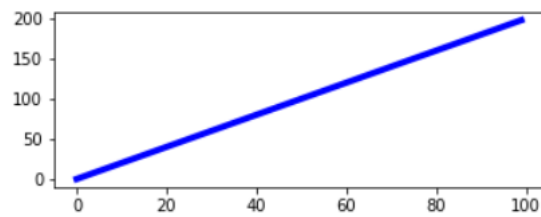
[<matplotlib.lines.Line2D at 0x7f24a91d71d0>]



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

```
fig, axes = plt.subplots(figsize=(12,2),nrows=1, ncols=2)
axes[0].plot(x,y,color='blue',lw=4,ls='-')
axes[1].plot(x,z,color='red',lw=4,ls=':')
```

[<matplotlib.lines.Line2D at 0x7f24a88f6590>]



CONCLUSION:

From this practical, I have successfully learned about matplotlib library in python.