Lab-3_Part_1

Matplotlib Exercises

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```

Import Numpy, Panda and Matplotlib library

In [1]:
```python
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
```

In [2]:
```python
x = np.arange(0,50)
y = x*2
z = x**2
```
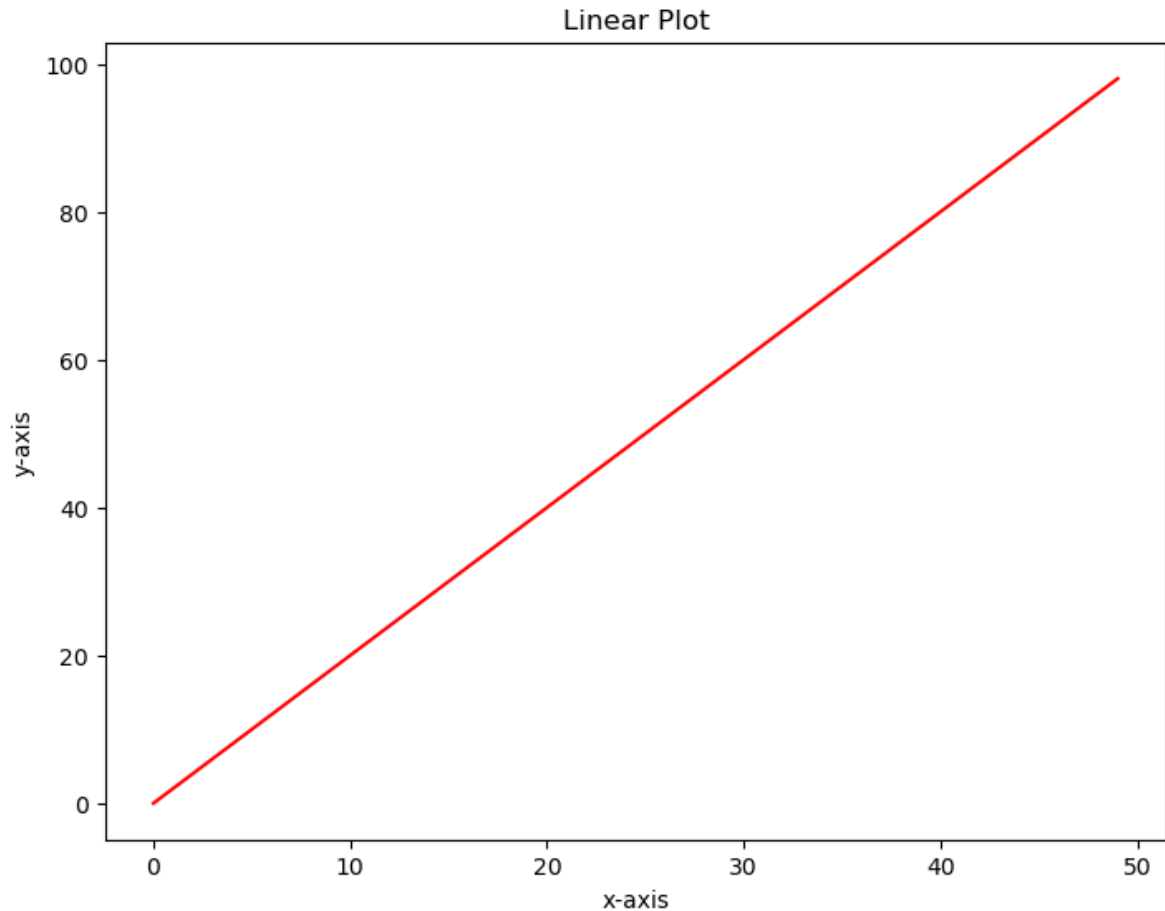
Question 1

Follow 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 [9]:
```python
fig = plt.figure()
ax = fig.add_axes([0,0,1,1]) #left, bottom, width, height (range 0 to 1)
ax.plot(x,y,'r')
ax.set_xlabel('x-axis')
ax.set_ylabel('y-axis')
ax.set_title('Linear Plot')
```

Out[9]: Text(0.5, 1.0, 'Linear Plot')

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

```
In [10]: fig = plt.figure()
         ax1 = fig.add_axes([0,0,1,1])
         ax2 = fig.add_axes([0.2,0.5,.2,.2])
         ax1.plot(x,y,'r')
         ax2.plot(x,y,'b')
         ax1.set_xlabel('ax1-x-axis')
         ax1.set_ylabel('ax1-y-axis')
         ax1.set_title('ax1-Linear Plot')

         ax2.set_xlabel('ax2-x-axis')
         ax2.set_ylabel('ax2-y-axis')
         ax2.set_title('ax2-Linear Plot')
```

Out[10]: Text(0.5, 1.0, 'ax2-Linear Plot')
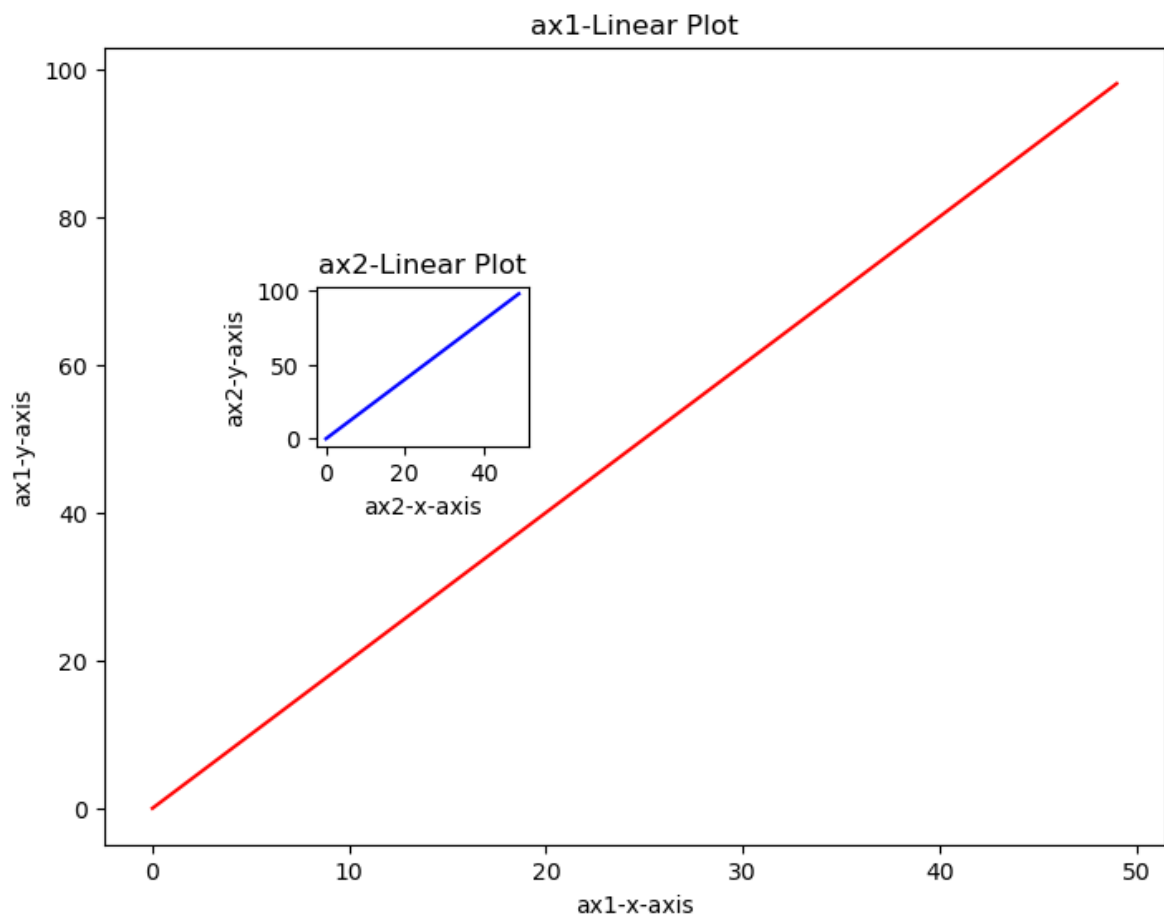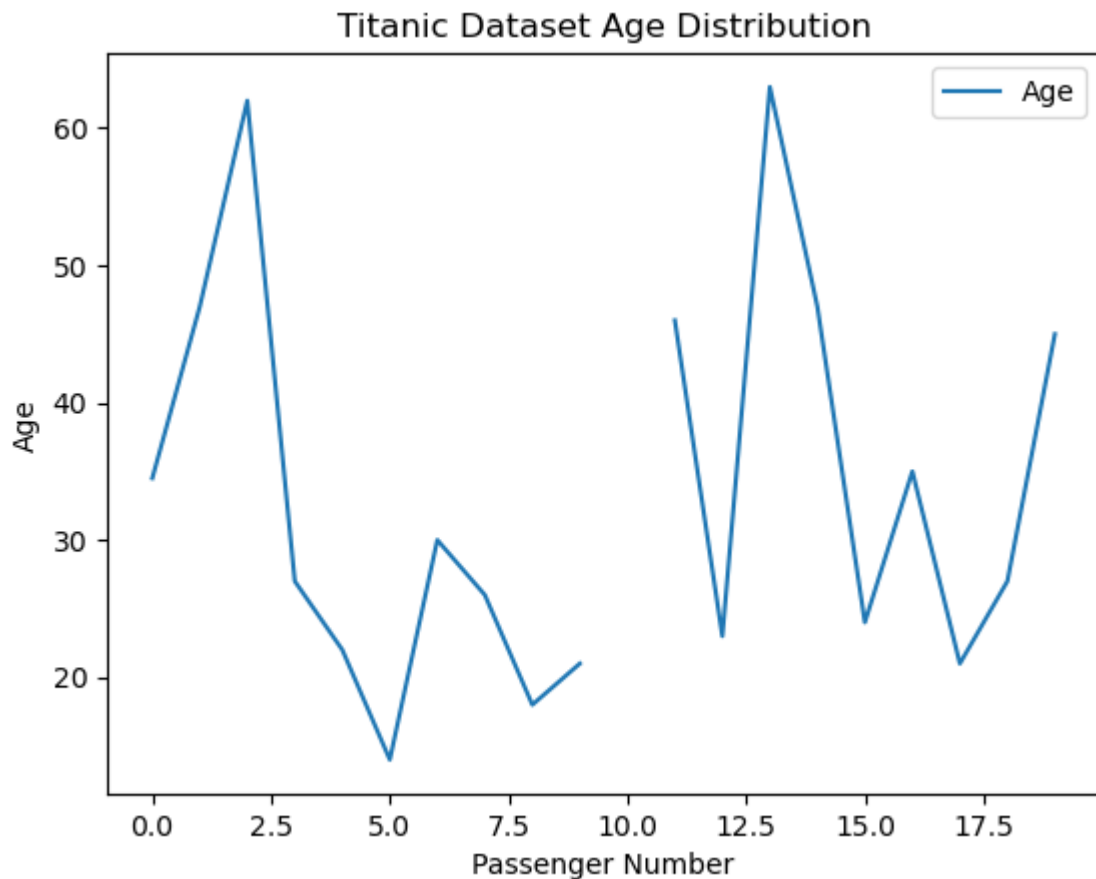

Question 3

- Read the dataset Titanic, create the dataframe and read all columns.
- Plot the Age column information
- Plot all columns information

```
In [16]: df = pd.read_csv('Titanic_1.csv')
         df.columns
```

```
Out[16]: Index(['PassengerId', 'Pclass', 'Name', 'Sex', 'Age', 'SibSp', 'Parch',
                'Ticket', 'Fare', 'Cabin', 'Embarked'],
               dtype='object')
```
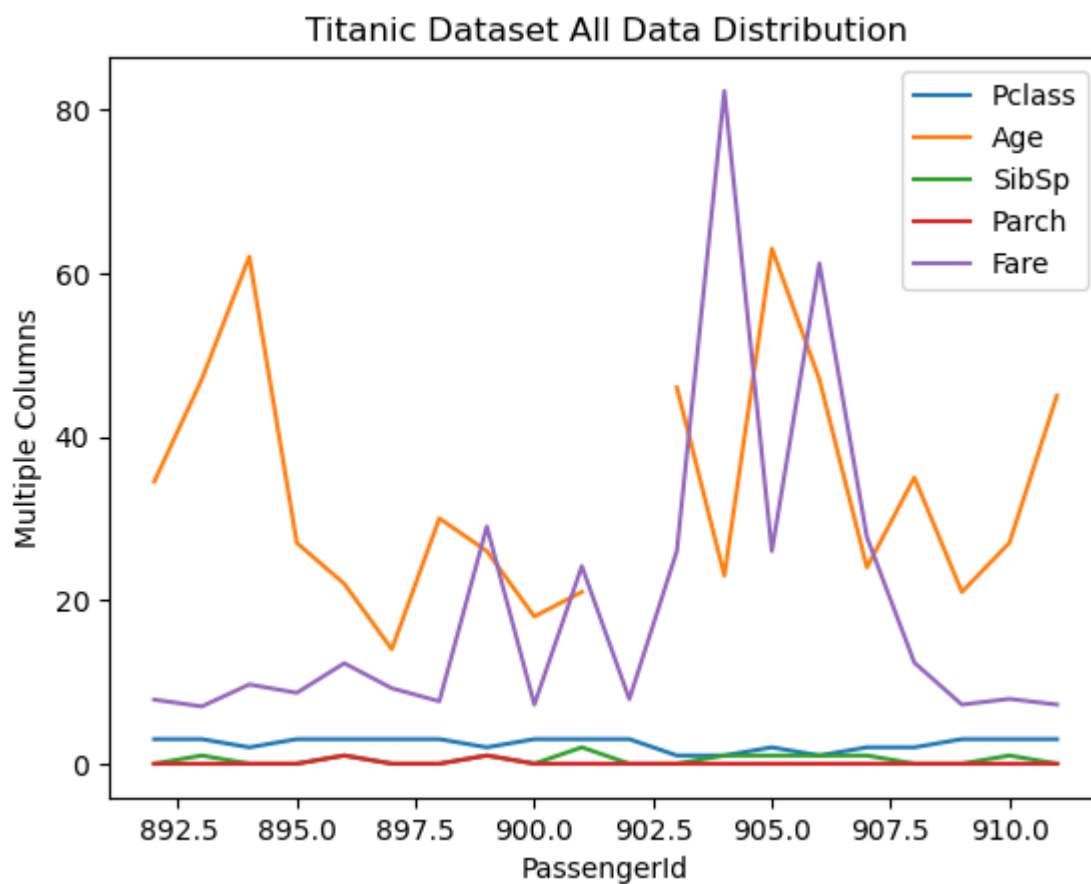
```
In [27]: df.plot(y='Age')
         plt.xlabel('Passenger Number')
         plt.ylabel('Age')
         plt.title('Titanic Dataset Age Distribution')
```

```
Out[27]: Text(0.5, 1.0, 'Titanic Dataset Age Distribution')
```

```
In [28]: df.plot(x='PassengerId')
         plt.xlabel('PassengerId')
         plt.ylabel('Multiple Columns')
         plt.title('Titanic Dataset All Data Distribution')
```

Out[28]: Text(0.5, 1.0, 'Titanic Dataset All Data Distribution')

Question 4

Plot the array bellow with different line and scatterplot colors.

In [44]:
```python
import matplotlib.pyplot as plt
import numpy as np

x = np.array([5,7,8,7,2,17,2,9,4,11,12,9,6])
y = np.array([99,86,87,88,111,86,103,87,94,78,77,85,86])

plt.plot(x,y,color="blue", alpha=0.5)


x = np.array([2,2,8,1,15,8,12,9,7,3,11,4,7,14,12])
y = np.array([100,105,84,105,90,99,90,95,94,100,79,112,91,80,85])

plt.scatter(x,y,color = 'g')

plt.xlabel('x-axis')
plt.ylabel('y-axis')
plt.title('Line and Scatterplot')
```
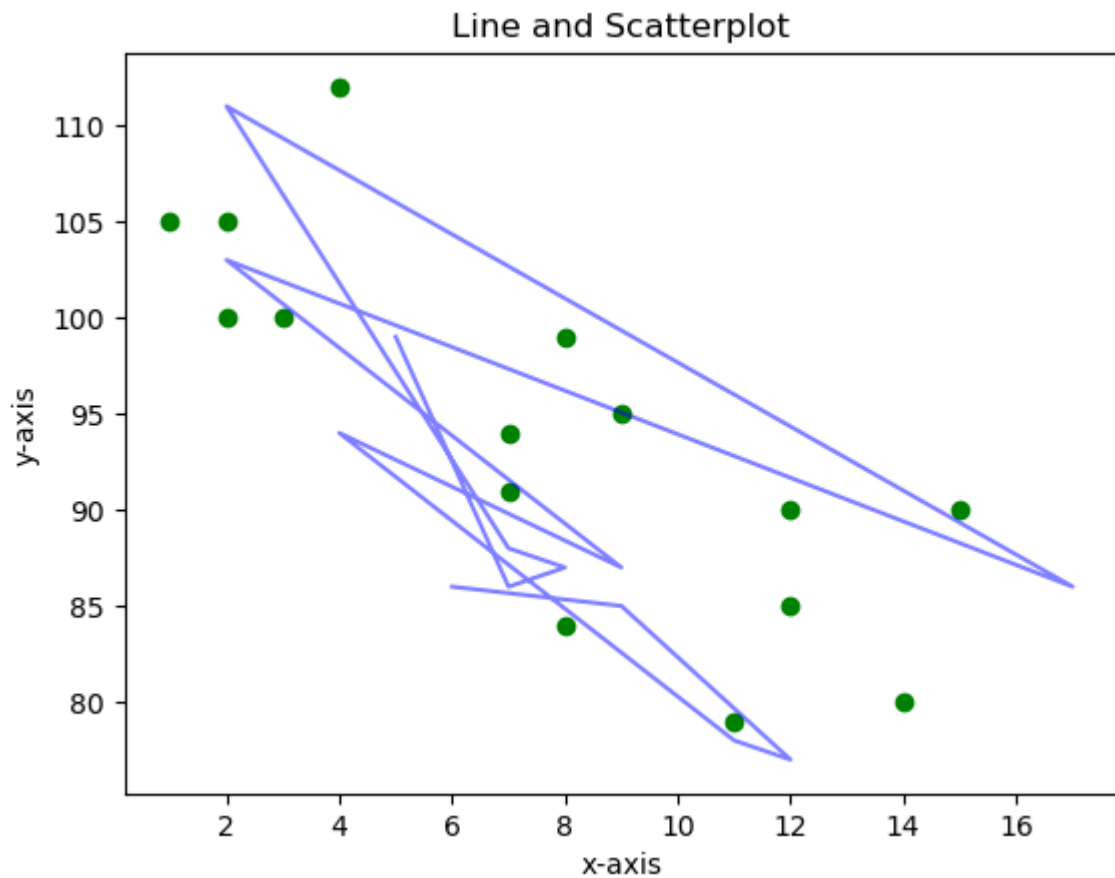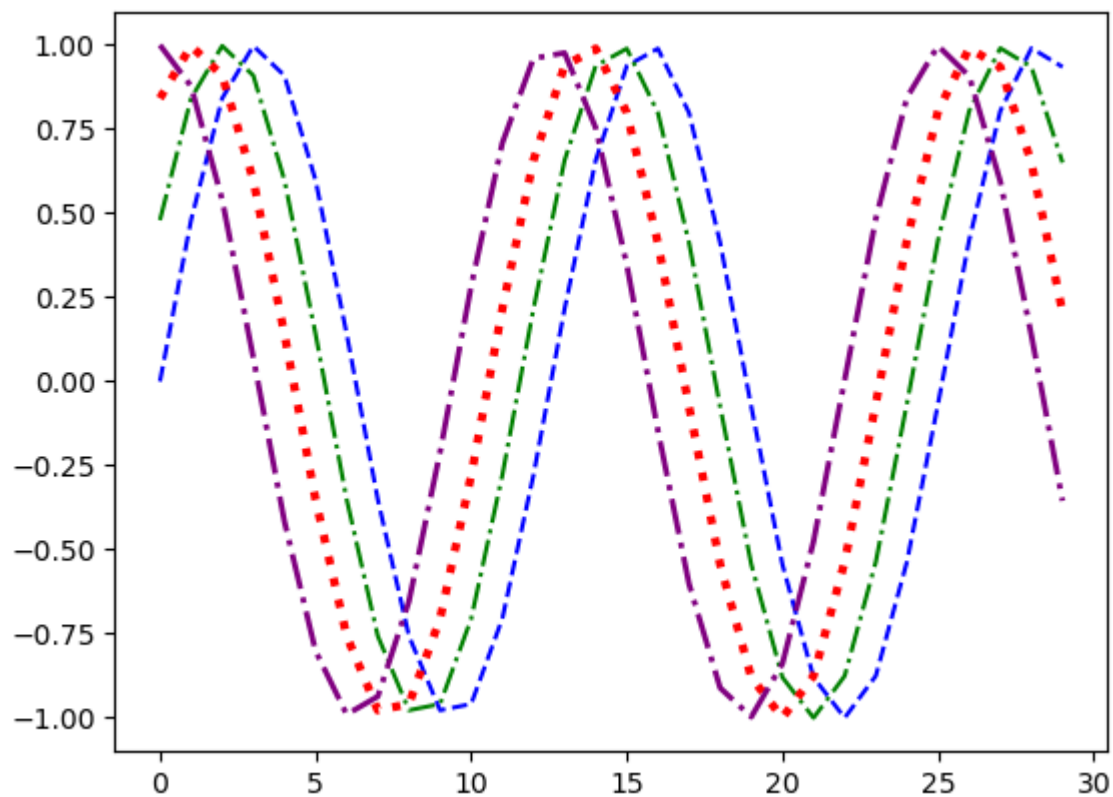
Out[44]: Text(0.5, 1.0, 'Line and Scatterplot')

Question 5

Consider the x=np.arange(0,15,0.5), them plot (np.sin(x)), (np.sin(x+0.5)), (np.sin(x+1.0)), (np.cos(x)) with different linestyle and linewidth.

In [57]:
```python
x=np.arange(0,15,0.5)
plt.plot(np.sin(x),'b--')
plt.plot(np.sin(x+0.5),'g-.')
plt.plot(np.sin(x+1.0), color='red', lw=3, linestyle=':')
plt.plot(np.cos(x), color='purple', lw=2, linestyle='-.')
```

Out[57]: [<matplotlib.lines.Line2D at 0x1bffcd35a90>]

In [ ]: