Lab-3_Part_1

Matplotlib Exercises

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Import Numpy, Panda and Matplotlib library

In [27]:
```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
```

In [41]:
```
x = np.arange(0,50)
y = x*2
z = x**2
```

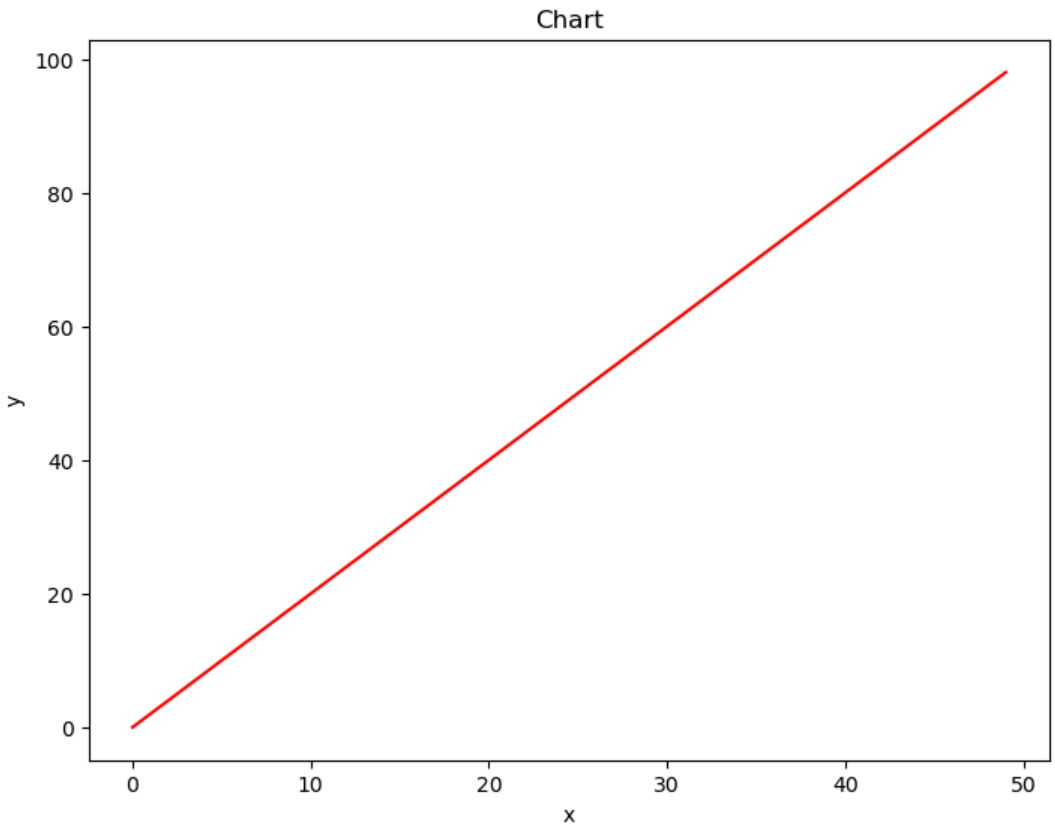
Question 1

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 [43]:
```
fig = plt.figure()
ax = fig.add_axes([0,0,1,1])
ax.plot(x,y, "r")
ax.set_xlabel("x")
ax.set_ylabel("y")
ax.set_title("Chart")
```

Out[43]:
```
Text(0.5, 1.0, 'Chart')
```

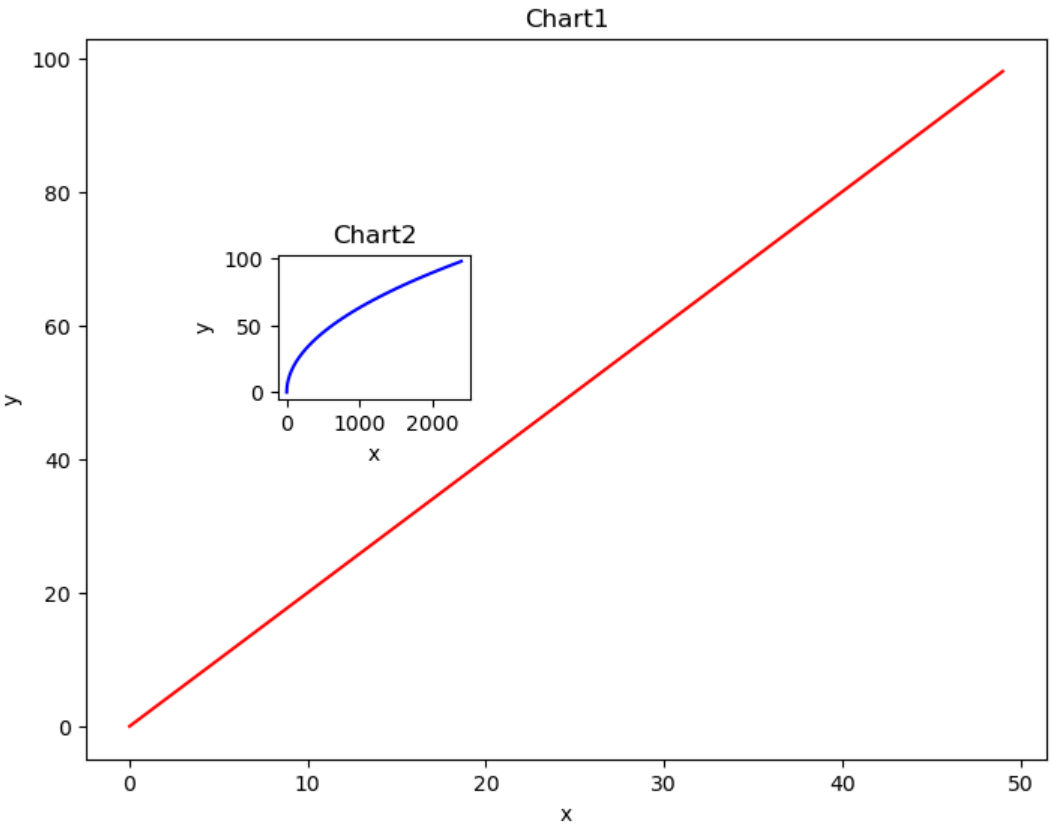


Question 2

- 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 [49]:
```
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, "r")
ax1.set_xlabel("x")
ax1.set_ylabel("y")
ax1.set_title("Chart1")

ax2.plot(z,y, "b")
ax2.set_xlabel("x")
ax2.set_ylabel("y")
ax2.set_title("Chart2");

plt.plot()
```

Out[49]:
```
[]
```



Question 3

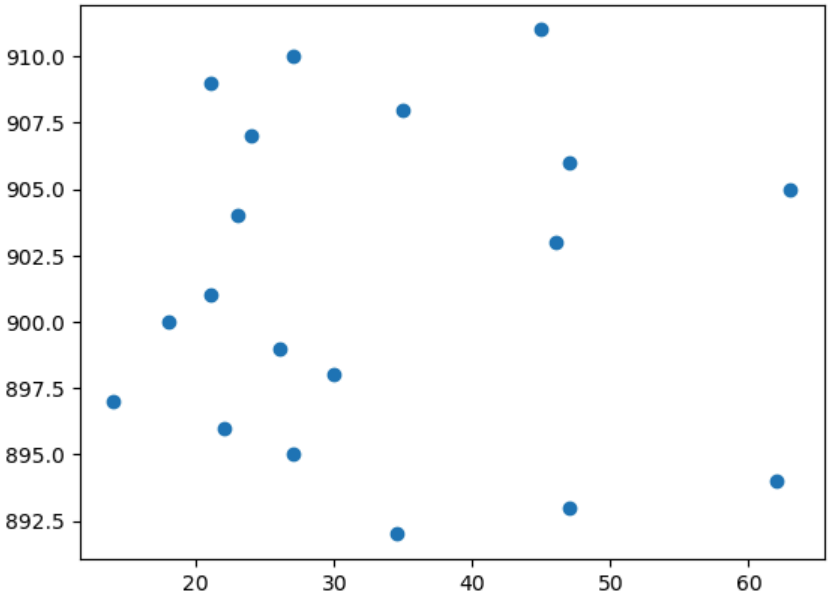
- Read the dataset Titanic, create the dataframe and read all columns.
- Plot the Age column information
- Plot all columns information

In [62]:
```
df_titanic = pd.read_csv("Titanic_1.csv")
df_titanic.columns
```

Out[62]:
```
Index(['PassengerId', 'Pclass', 'Name', 'Sex', 'Age', 'SibSp', 'Parch',
       'Ticket', 'Fare', 'Cabin', 'Embarked'],
      dtype='object')
```

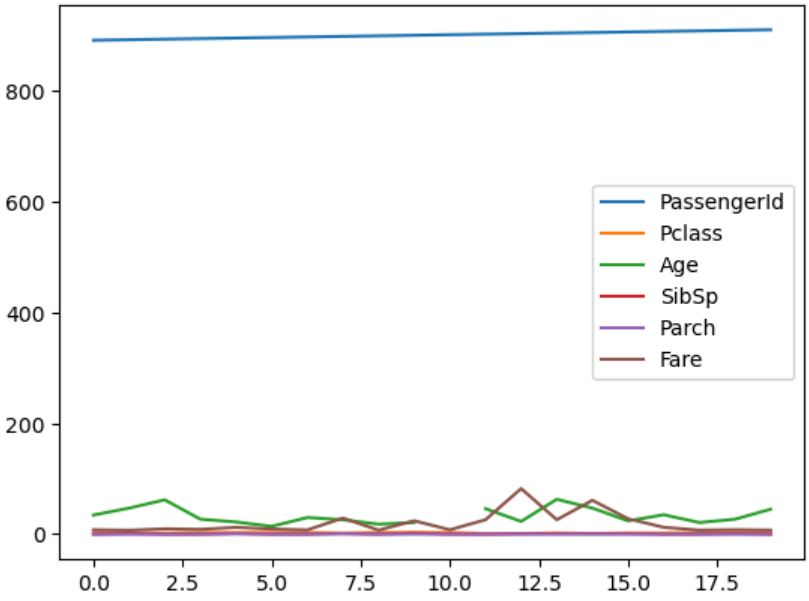
In [70]:
```
x = df_titanic["Age"]
y = df_titanic["PassengerId"]
plt.scatter(x,y)
```

Out[70]:
```
<matplotlib.collections.PathCollection at 0x257c5922f90>
```



In [80]:
```
df_titanic.columns
df_titanic.plot()
```

Out[80]: <Axes: >

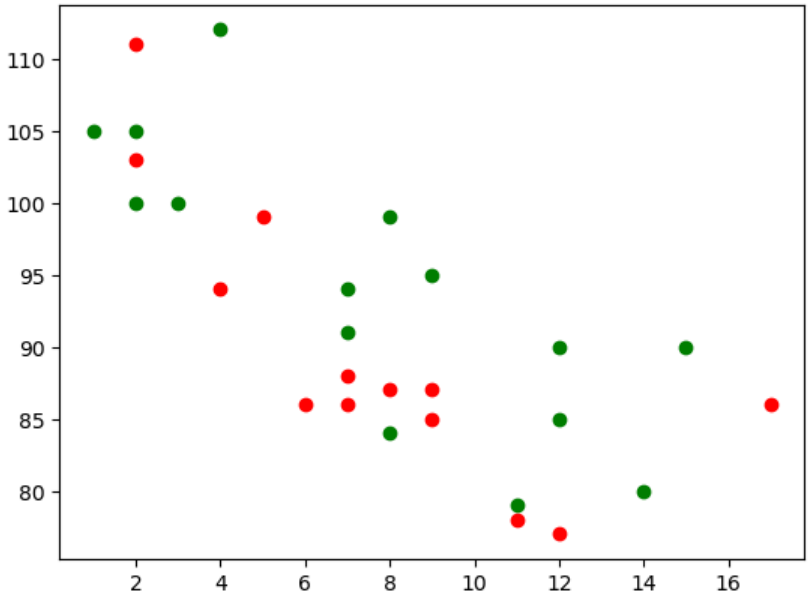


Question 4

Plot the array bellow with different line and scatterplot colors.

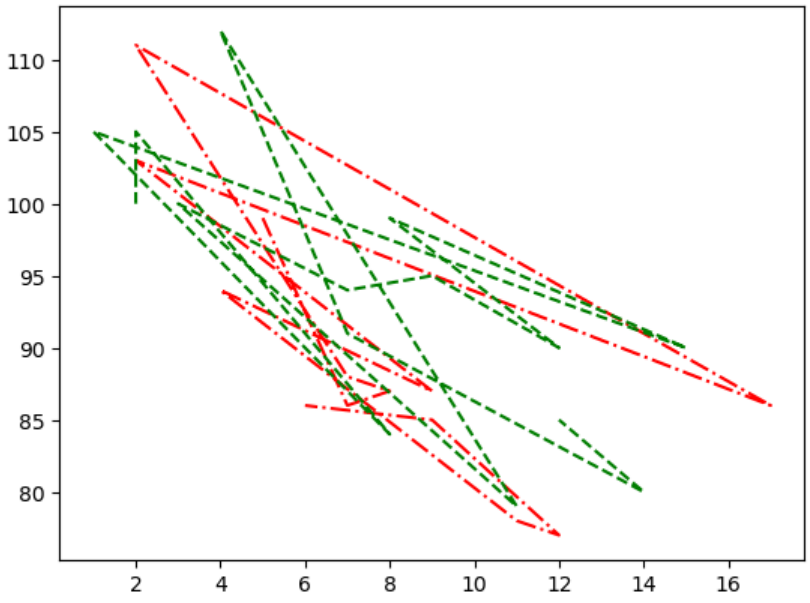
In [96]:
```
import matplotlib.pyplot as plt
import numpy as np

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.scatter(x,y, color = "r")

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")
```

Out[96]: <matplotlib.collections.PathCollection at 0x257c9453920>



In [104…
```
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 = "r", ls = "-.")

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.plot(x,y, color = "g", ls = "--")
```

Out[104…
```
[<matplotlib.lines.Line2D at 0x257cb94f200>]
```

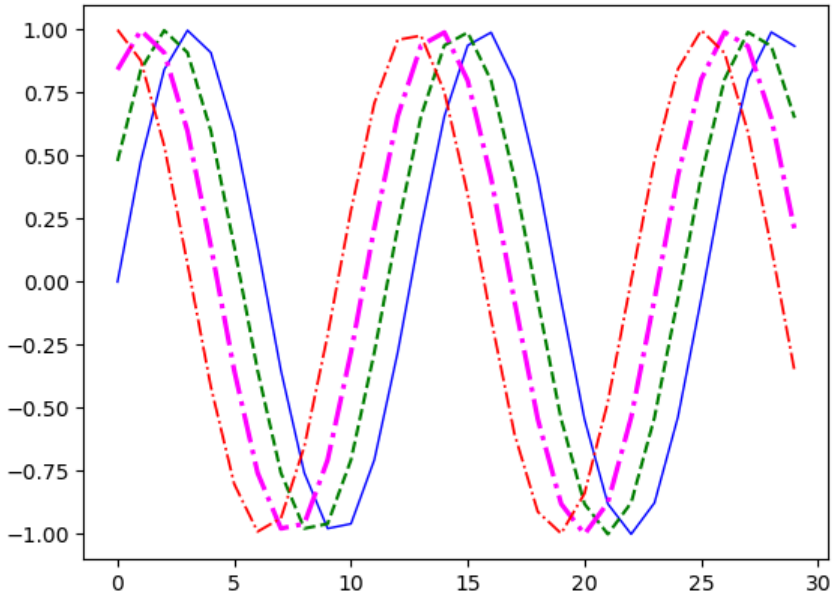


Question 5

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 [118…
```
x= np.arange(0,15,0.5)
plt.plot(np.sin(x), color = "blue", lw = 1, ls = "-")
plt.plot(np.sin(x+0.5), color = "green", lw = 1.5, ls = "--")
plt.plot(np.sin(x+1.0), color = "magenta", lw = 2.25, ls = "-.")
plt.plot(np.cos(x), color = "red", lw = 1.25, ls = "-.")
```

Out[118…
```
[<matplotlib.lines.Line2D at 0x257cd708710>]
```


1.00
0.75
0.50
0.25
0.00
−0.25
−0.50
−0.75
−1.00
0
5
10
15
20
25
30

Lab-3_Part_2

Matplotlib Exercises

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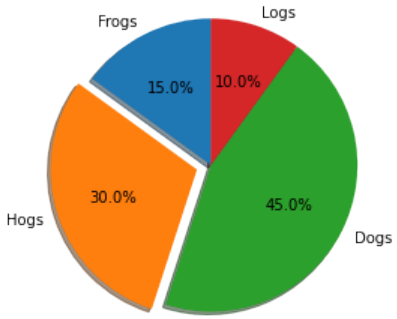
Import library

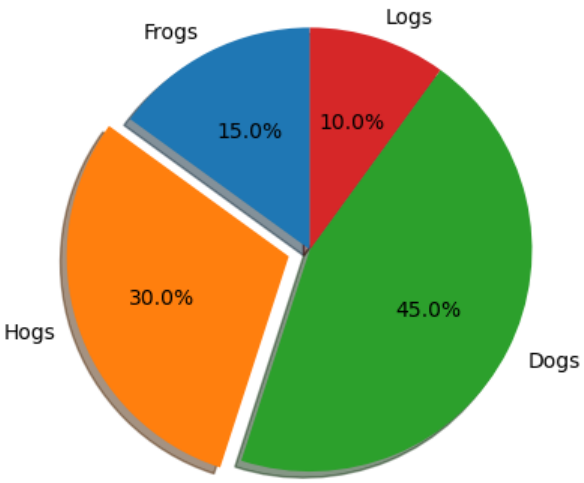
In [86]:
```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
```

Question 6

In [6]:
```
##Write the code to plot the graph below
```



In [15]:
```
y = [15,30,45,10]
mylabels = ["Frogs", "Hogs", "Dogs", "Logs"]
myexplode = [0, 0.1, 0, 0]
plt.pie(y, labels = mylabels, explode = myexplode, startangle = 90, shadow = True, autopct = '%1.1f%%')
plt.show()
```



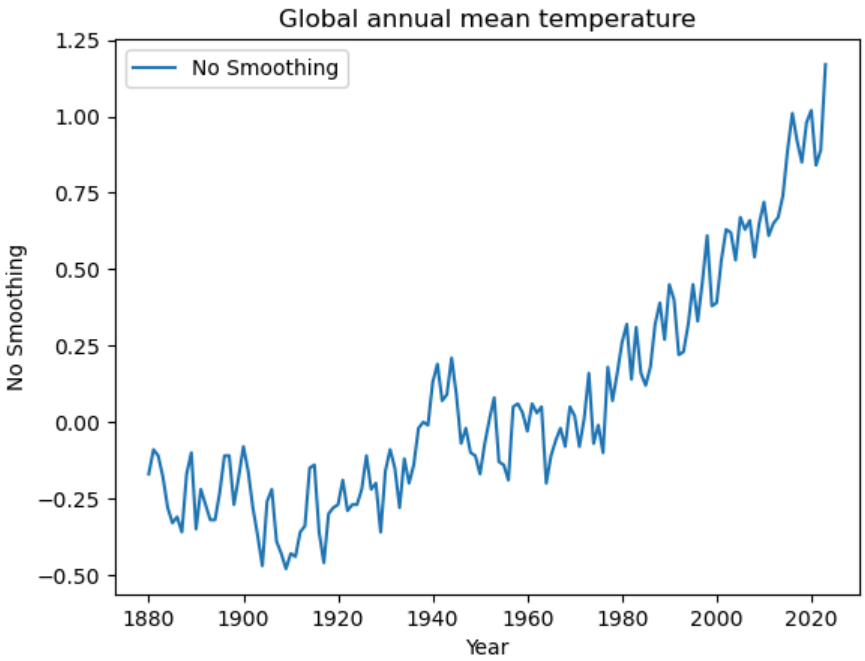
Question 7

Download any random data in CSV or Excel format from the internet and try to analyze the data as per the important attributes present in the file.

Plot the data on a graph.

Try to find out what important information can be obtained from visual representation data.

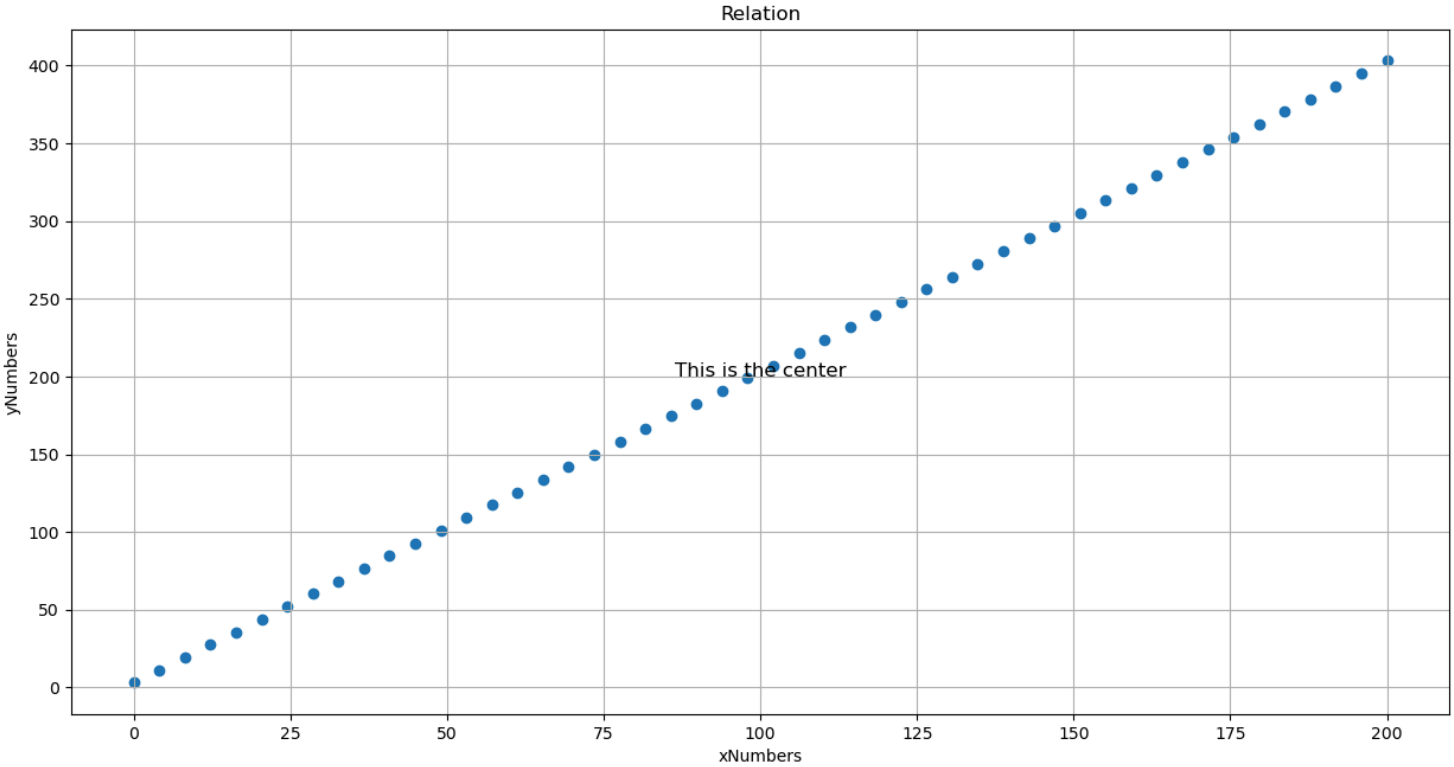
In [98]:
```
glo = pd.read_csv("D:\\AIML\\5000 0NB_Data Analytics\\Assignment_03\\Global_annual_mean_temp.csv")
glo.plot(x='Year', y ='No Smoothing')
plt.xlabel('Year')
plt.ylabel('No Smoothing')
plt.title('Global annual mean temperature')
plt.show()
```



Question 8

Add some text to a graph & create and plot a random linear graph Right at the center if the graph add some text which says this is the center. Also add grids to the graph.

In [108…
```
x = np.linspace(0, 200, 50)
y = 2 * x + 3
plt.figure(figsize = (15,7.5))
plt.scatter(x,y)
plt.title("Relation")
plt.xlabel("xNumbers")
plt.ylabel("yNumbers")
plt.text(100,200, 'This is the center', fontsize = 12, ha = 'center')
plt.grid(True)
plt.show()
```



Please save as Pdf and upload in Blackboard Lab4.