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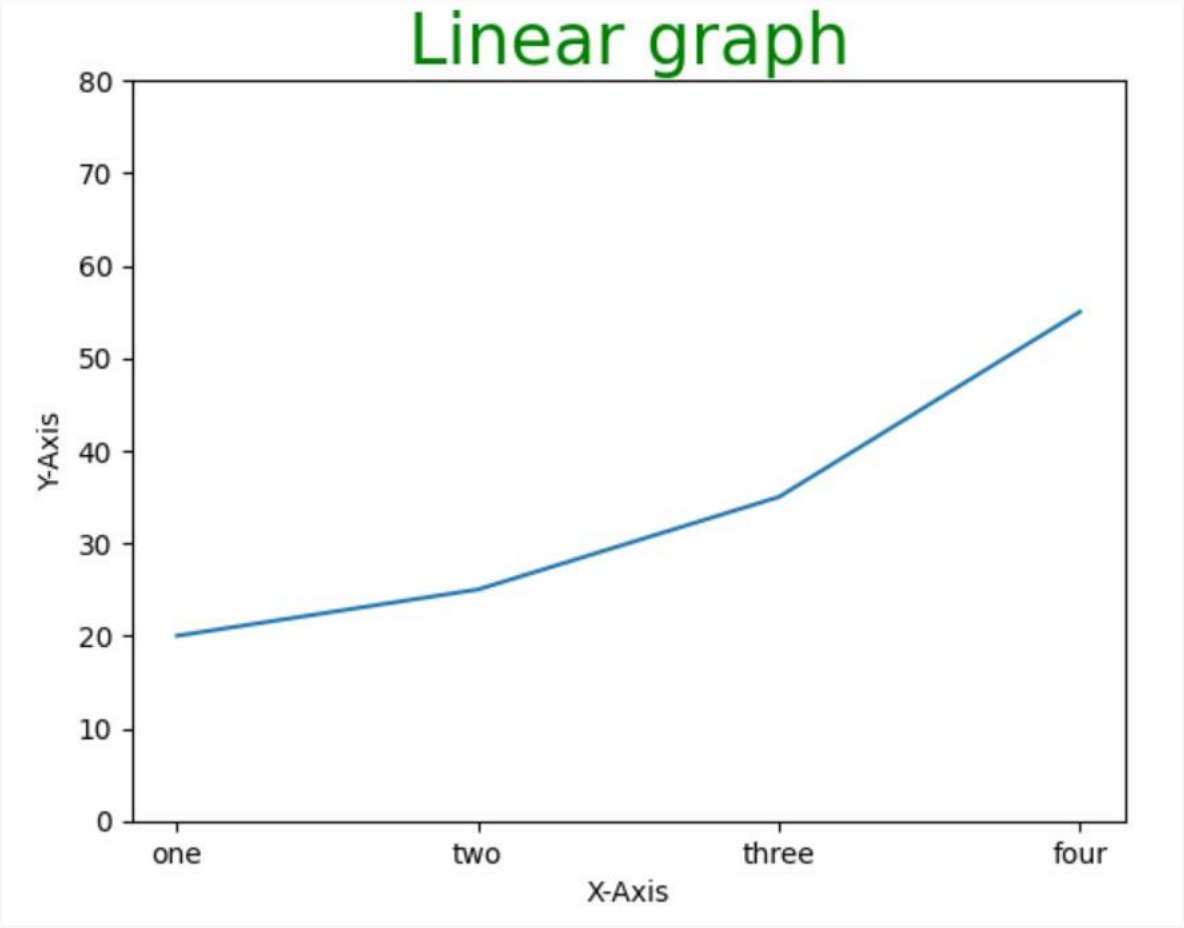
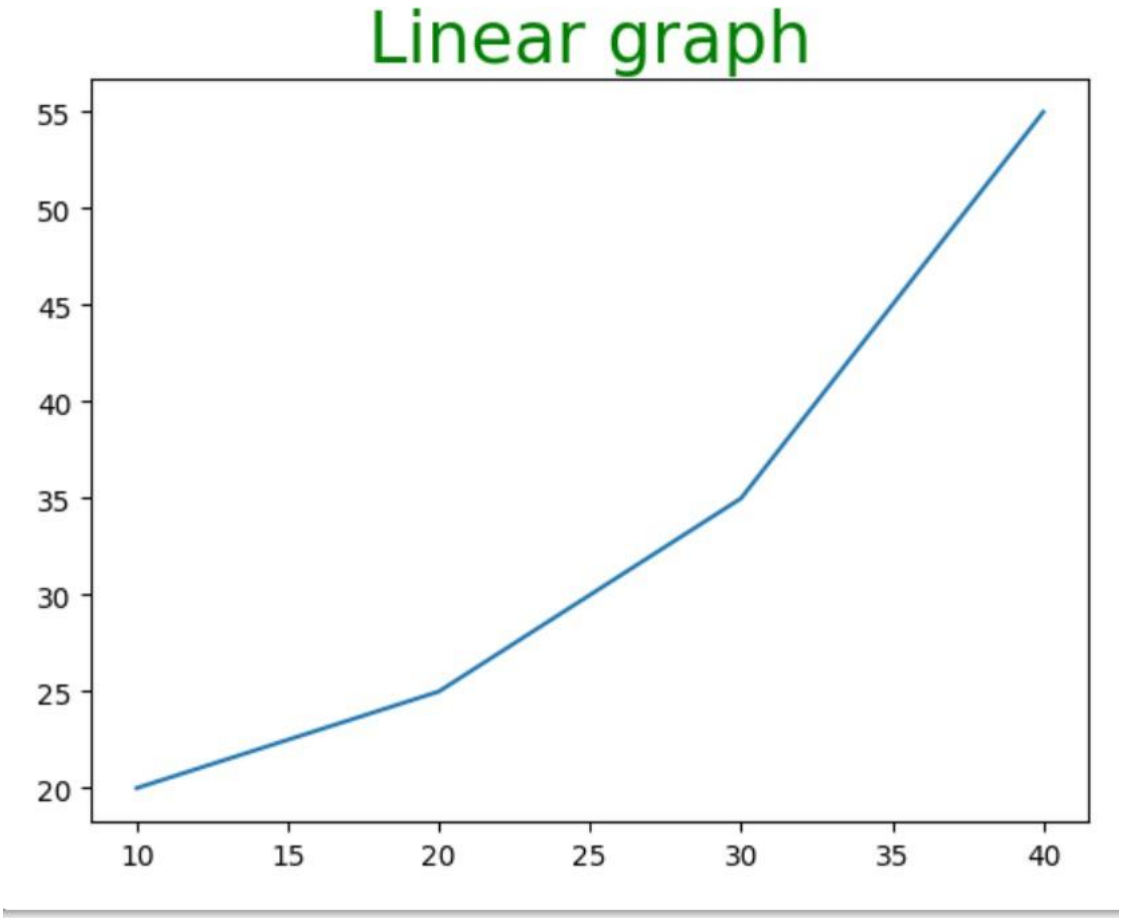
ASSIGNMENT 5

```
import matplotlib.pyplot as plt
x=[10,20,30,40]
y=[20,25,35,55]
plt.plot(x,y)
```

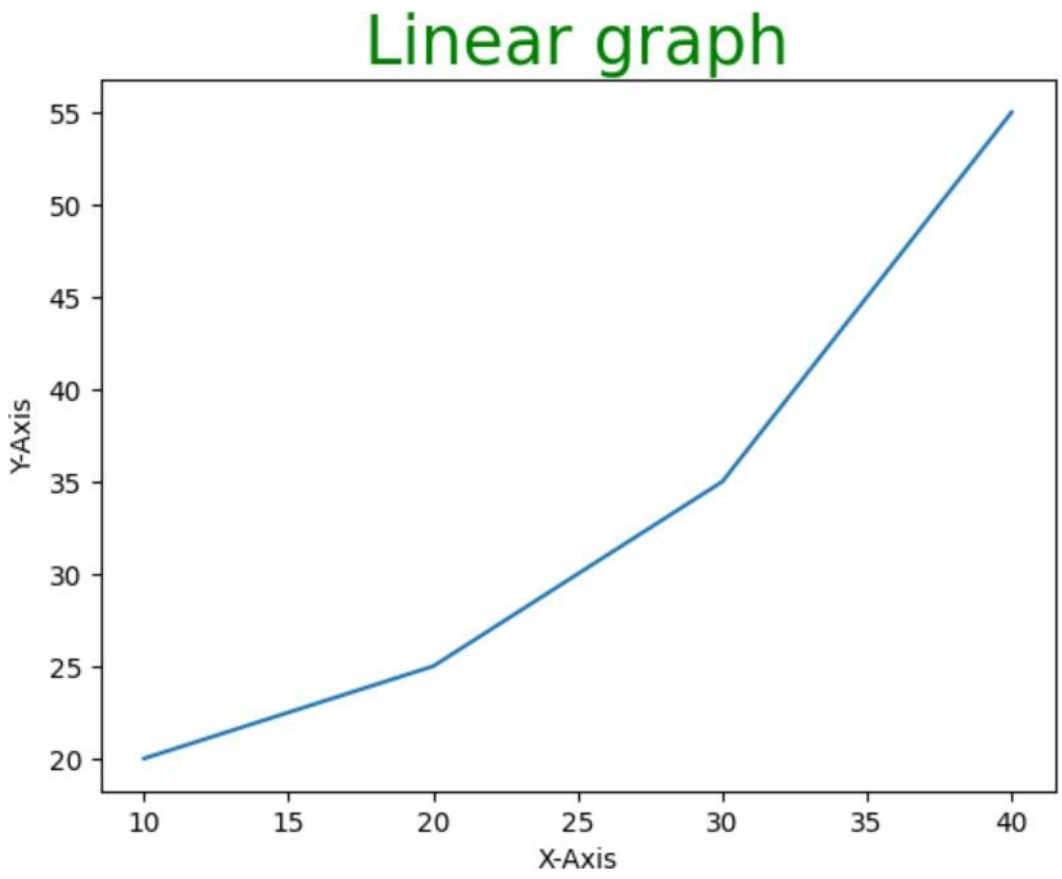



```
x=[10,20,30,40]
y=[20,25,35,55]
plt.plot(x,y)
```

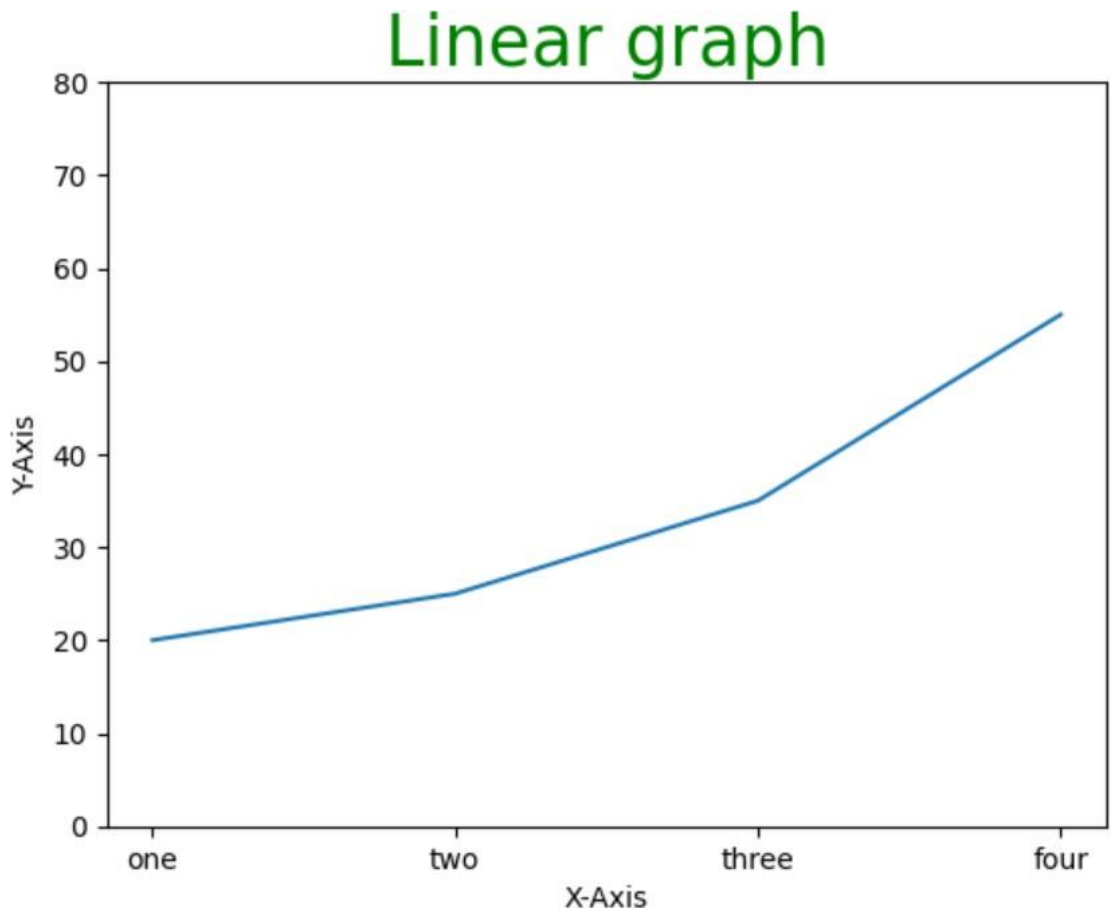
```
plt.title("Linear graph")
plt.show()
```



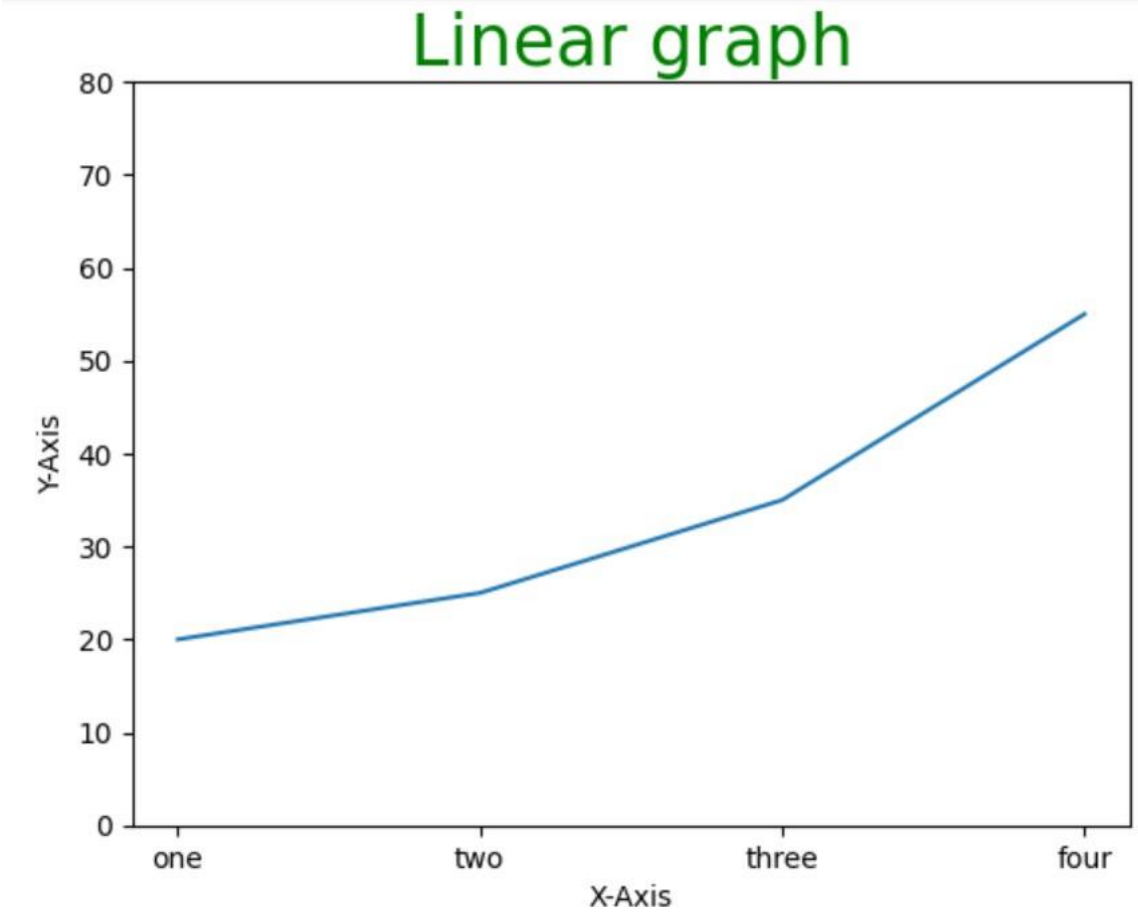

```
x=[10,20,30,40]
y=[20,25,35,55]
plt.plot(x,y)
plt.title("Linear graph",fontsize=25,color="green")
plt.show()
```



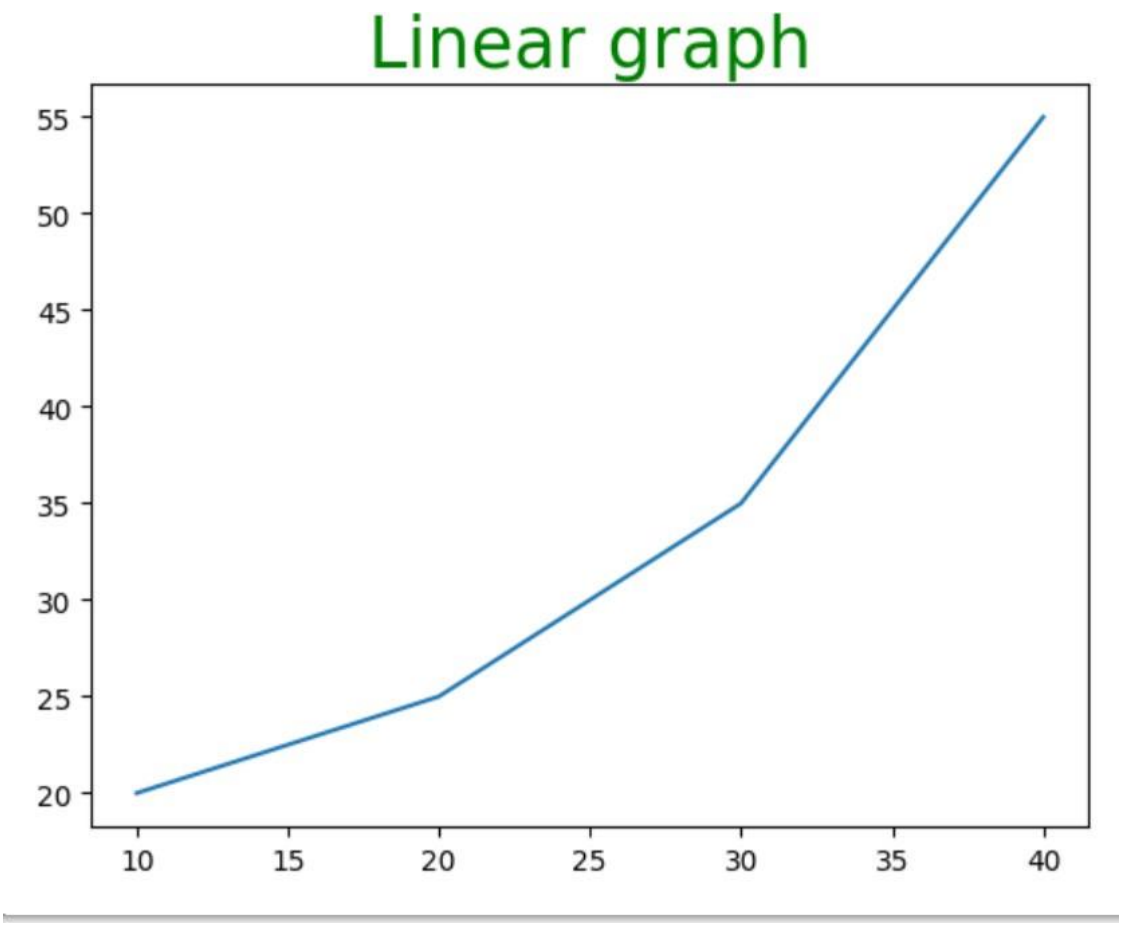

```
import matplotlib.pyplot as plt
x=[10,20,30,40]
y=[20,25,35,55]
plt.plot(x,y)
plt.title("Linear graph",fontsize=25,color="green")
plt.ylabel('Y-Axis')
plt.xlabel('X-Axis')
plt.show()
```



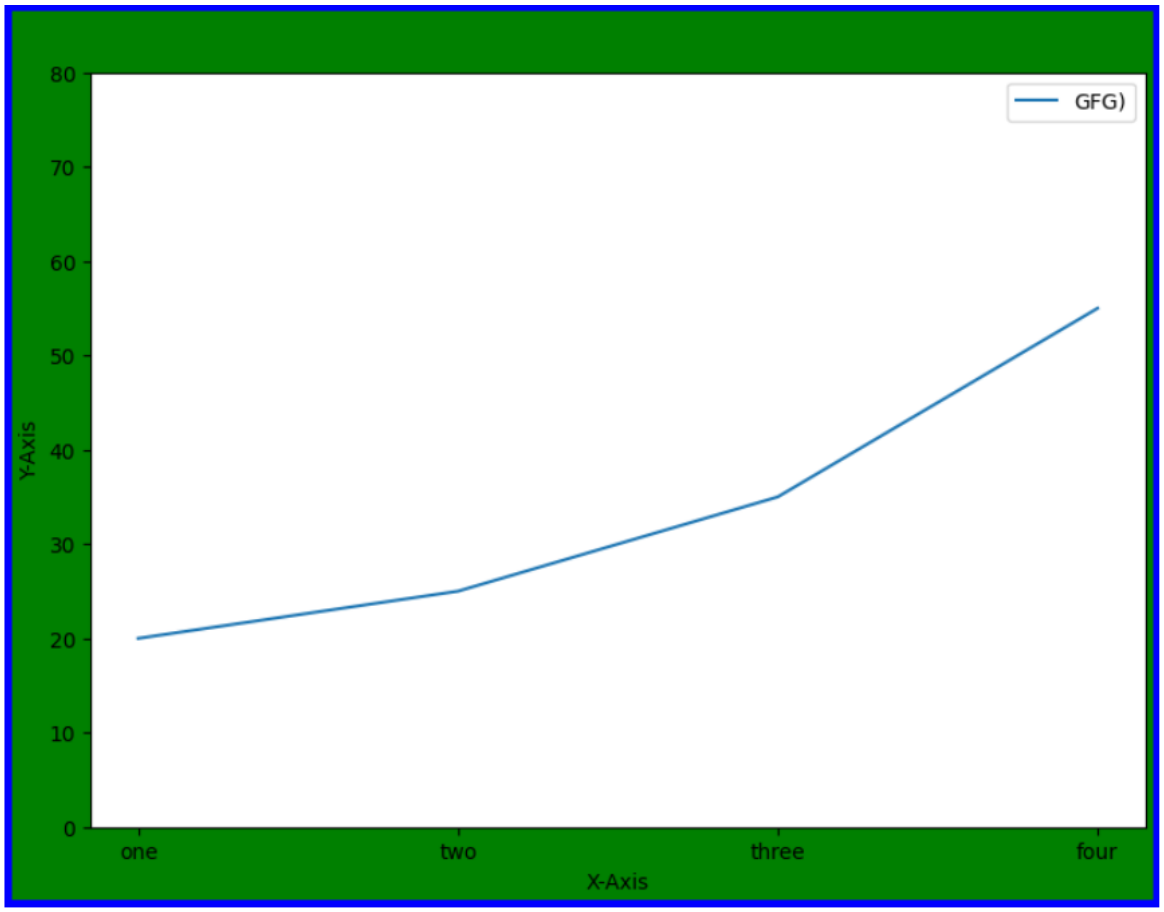

```
import matplotlib.pyplot as plt
x=[10,20,30,40]
y=[20,25,35,55]
plt.plot(x,y)
plt.title("Linear graph",fontsize=25,color="green")
plt.ylabel('Y-Axis')
plt.xlabel('X-Axis')
plt.ylim(0,80)
plt.xticks(x, labels=["one","two","three","four"])
plt.show()
```



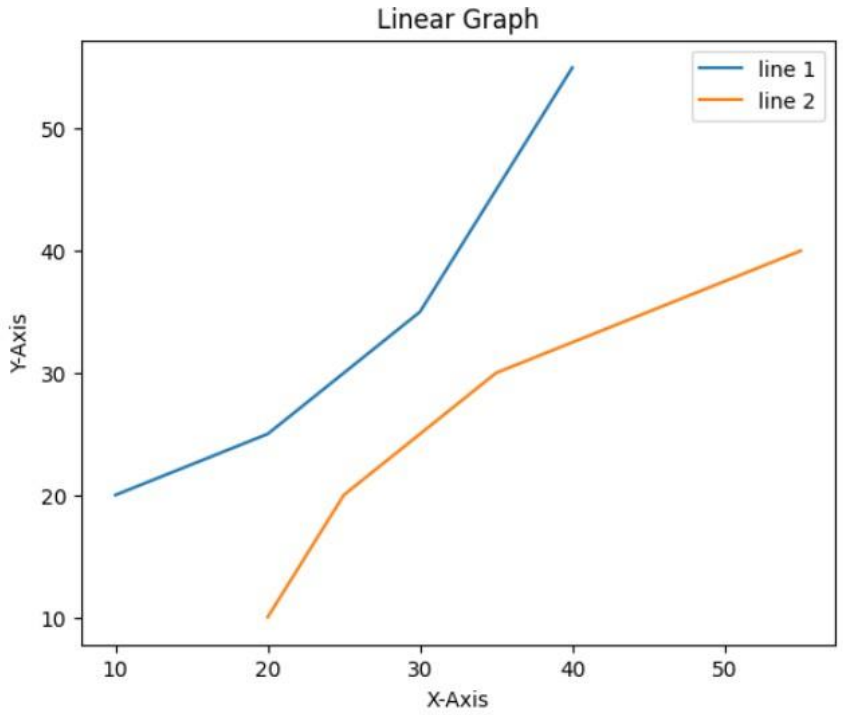

```
import matplotlib.pyplot as plt
x=[10,20,30,40]
y=[20,25,35,55]
plt.plot(x,y)
plt.title("Linear graph",fontsize=25,color="green")
plt.ylabel('Y-Axis')
plt.xlabel('X-Axis')
plt.ylim(0,80)
plt.xticks(x, labels=["one","two","three","four"])
plt.legend(["GFG)"])
plt.show()
```



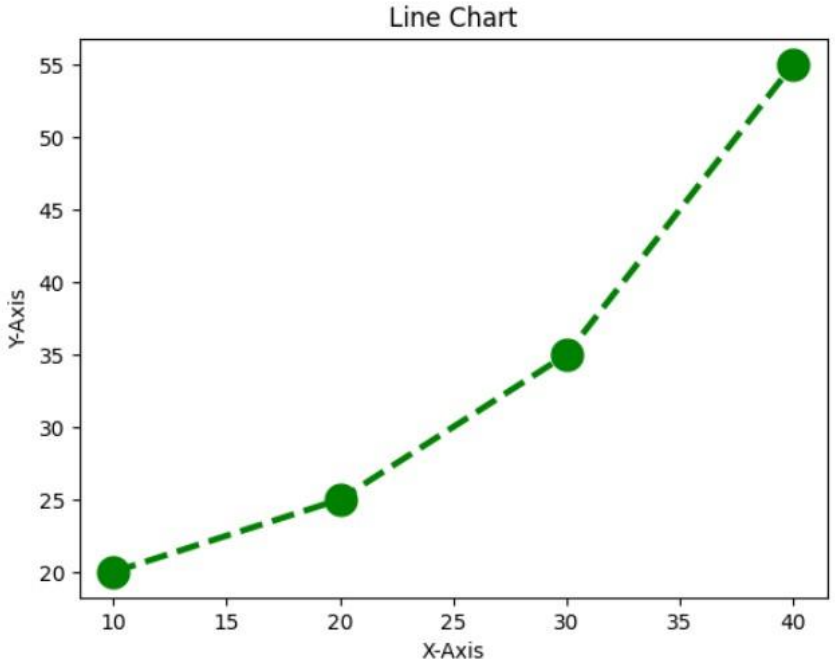

```
import matplotlib.pyplot as plt
x=[10,20,30,40]
y=[20,25,35,55]
fig=plt.figure(figsize=(7,5),facecolor='g',edgecolor='b',linewidth=7)
ax=fig.add_axes([1,1,1,1])
plt.plot(x,y)
plt.title("Linear graph",fontsize=25,color="green")
plt.ylabel('Y-Axis')
plt.xlabel('X-Axis')
plt.ylim(0,80)
plt.xticks(x, labels=["one","two","three","four"])
plt.legend(["GFG)"])
plt.show()
```



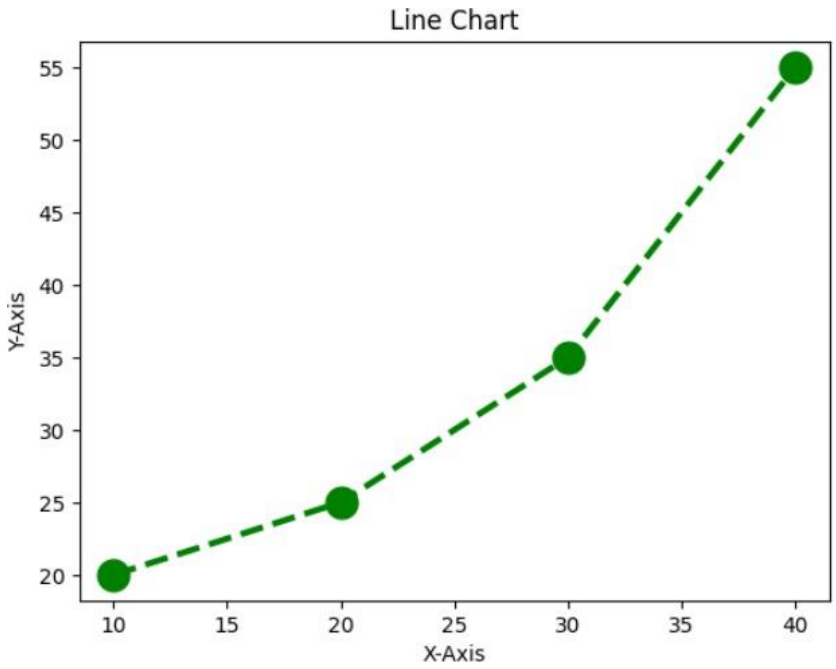

```
import matplotlib.pyplot  as  plt
from matplotlib.figure import Figure
x=[10,20,30,40]
y=[20,25,35,55]
fig=plt.figure(figsize=(5,4))
ax=fig.add_axes([1,1,1,1])
ax1=ax.plot(x,y)
ax2=ax.plot(y,x)
ax.set_title("Linear Graph")
ax.set_xlabel("X-Axis")
ax.set_ylabel("Y-Axis")
ax.legend(labels=('line 1','line 2'))
plt.show()
```



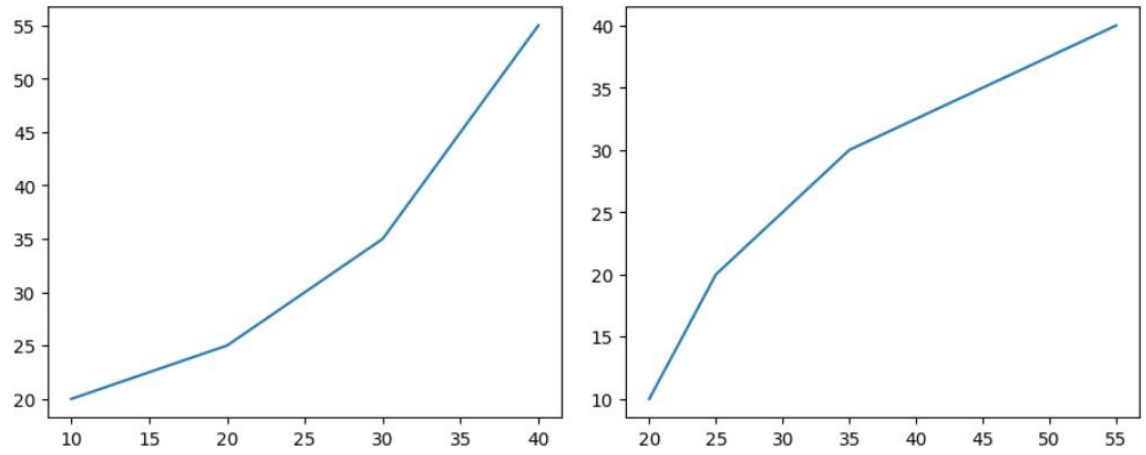

```
x=[10,20,30,40]
y=[20,25,35,55]
plt.plot(x,y,color='green',linewidth=3,marker='o',markersize=15,linesty
le="--")
plt.title("Line Chart")
plt.ylabel('Y-Axis')
plt.xlabel('X-Axis')
plt.show()
```




```
 #Different line styles
import matplotlib.pyplot as plt


# initializing the data
x = [10, 20, 30, 40]
y = [20, 25, 35, 55]

# plotting the data
plt.plot(x, y, color='green', linewidth=3, marker='o',
    markersize=15, linestyle='--')

# Adding title to the plot
plt.title("Line Chart")

# Adding label on the y-axis
plt.ylabel('Y-Axis')

# Adding label on the x-axis
plt.xlabel('X-Axis')

plt.show()
```

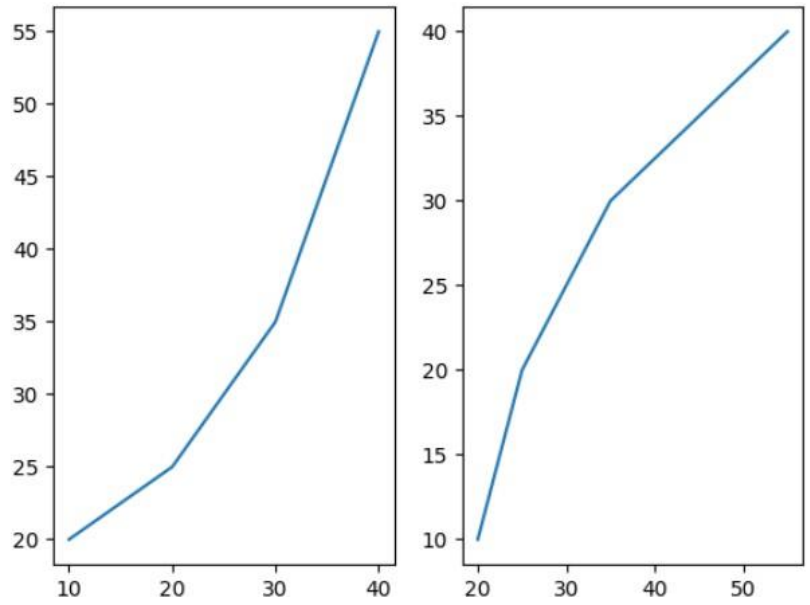



```
#Multiple Plots
# Python program to show pyplot module
import matplotlib.pyplot as plt
from matplotlib.figure import Figure

# initializing the data
x = [10, 20, 30, 40]
y = [20, 25, 35, 55]

# Creating a new figure with width = 5 inches
# and height = 4 inches
fig = plt.figure(figsize =(5, 4))

# Creating first axes for the figure
ax1 = fig.add_axes([0.1, 0.1, 0.8, 0.8])

# Creating second axes for the figure
ax2 = fig.add_axes([1, 0.1, 0.8, 0.8])

# Adding the data to be plotted
ax1.plot(x, y)
ax2.plot(y, x)

plt.show()
```



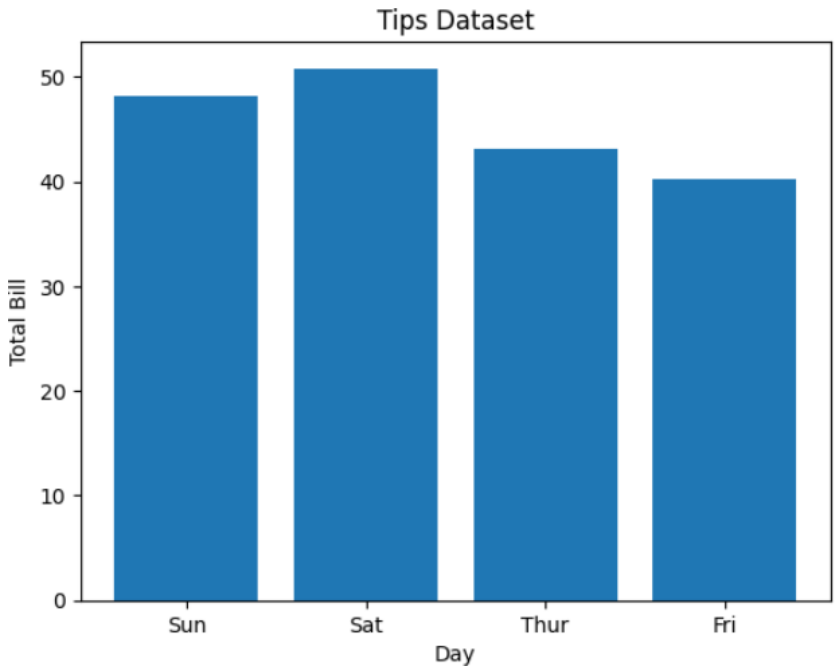

```
#Using subplot() method.
import matplotlib.pyplot as plt


# initializing the data
x = [10, 20, 30, 40]
y = [20, 25, 35, 55]


# Creating figure object
plt.figure()

# adding first subplot
plt.subplot(121)
plt.plot(x, y)

# adding second subplot
plt.subplot(122)
plt.plot(y, x)
```

```
[<matplotlib.lines.Line2D at 0x7f234cfbaaa0>]
```



ASSIGNMENT 5b

```
#bar chart
import matplotlib.pyplot as plt
import pandas as pd

# Reading the tips.csv file
data = pd.read_csv('/content/tips (1).csv')

# initializing the data
x = data['day']
y = data['total_bill']

# plotting the data
plt.bar(x, y)

# Adding title to the plot
plt.title("Tips Dataset")

# Adding label on the y-axis
plt.ylabel('Total Bill')

# Adding label on the x-axis
plt.xlabel('Day')

plt.show()
```




```
import pandas as pd
import numpy as np
import matplotlib.pyplot  as  plt
from pandas import Series, DataFrame
# Reading the tips.csv file
df1=pd.read_csv('/content/tips.csv')

df1.head()
```

	total_bill	tip	sex	smoker	day	time	size
0	16.99	1.01	Female	No	Sun	Dinner	2
1	10.34	1.66	Male	No	Sun	Dinner	3
2	21.01	3.50	Male	No	Sun	Dinner	3
3	23.68	3.31	Male	No	Sun	Dinner	2
4	24.59	3.61	Female	No	Sun	Dinner	4

```
df1.columns
```

```
Index(['total_bill', 'tip', 'sex', 'smoker', 'day', 'time', 'size'],
dtype='object')
```

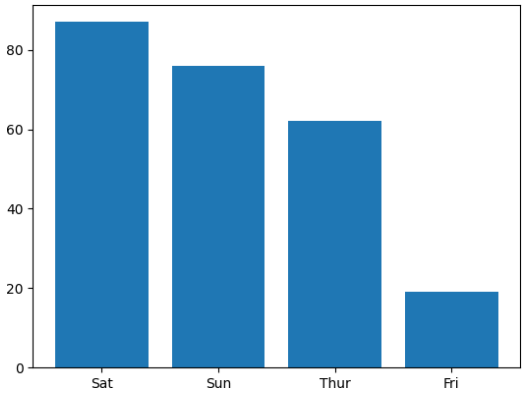
```
df1.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 244 entries, 0 to 243
Data columns (total 7 columns):
 #   Column      Non-Null Count  Dtype
---  ------      --------------  -----
 0   total_bill  244 non-null    float64
 1   tip         244 non-null    float64
 2   sex         244 non-null    object
 3   smoker      244 non-null    object
 4   day         244 non-null    object
 5   time        244 non-null    object
 6   size        244 non-null    int64
dtypes: float64(2), int64(1), object(4)
memory usage: 13.5+ KB
```

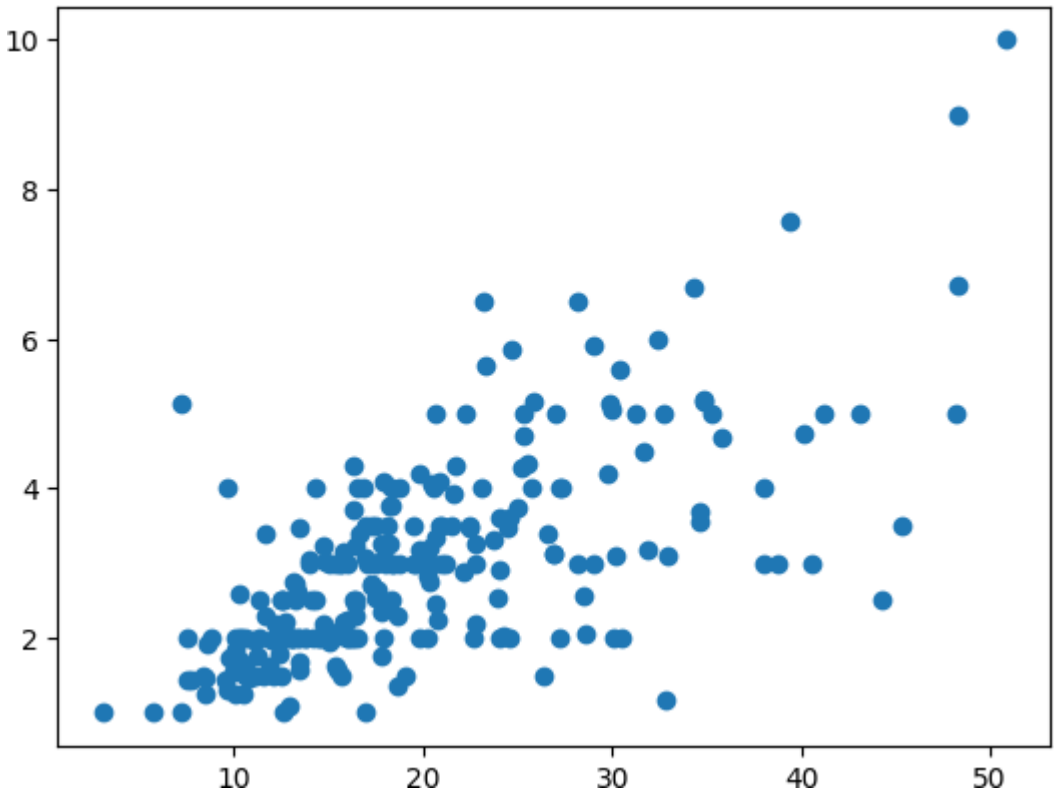
```
df1.describe()
```

	total_bill	tip	size
count	244.000000	244.000000	244.000000
mean	19.785943	2.998279	2.569672
std	8.902412	1.383638	0.951100
min	3.070000	1.000000	1.000000
25%	13.347500	2.000000	2.000000
50%	17.795000	2.900000	2.000000
75%	24.127500	3.562500	3.000000
max	50.810000	10.000000	6.000000

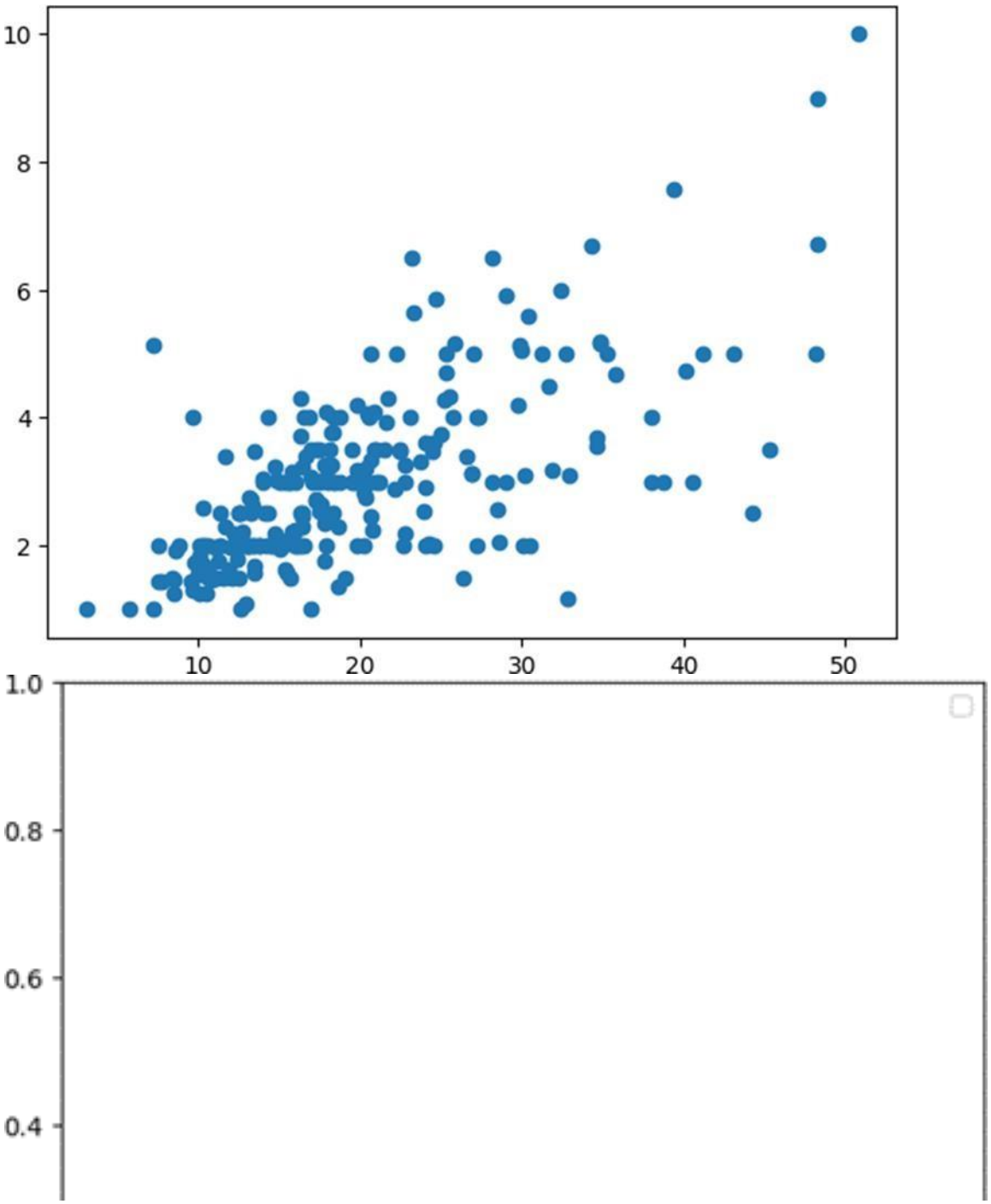
```
a=pd.DataFrame(df1['day'].value_counts())
a.reset_index(inplace=True)
plt.bar(a['index'],a['day'])
```




```
plt.scatter(df1['total_bill'],df1['tip'])
plt.show()
```

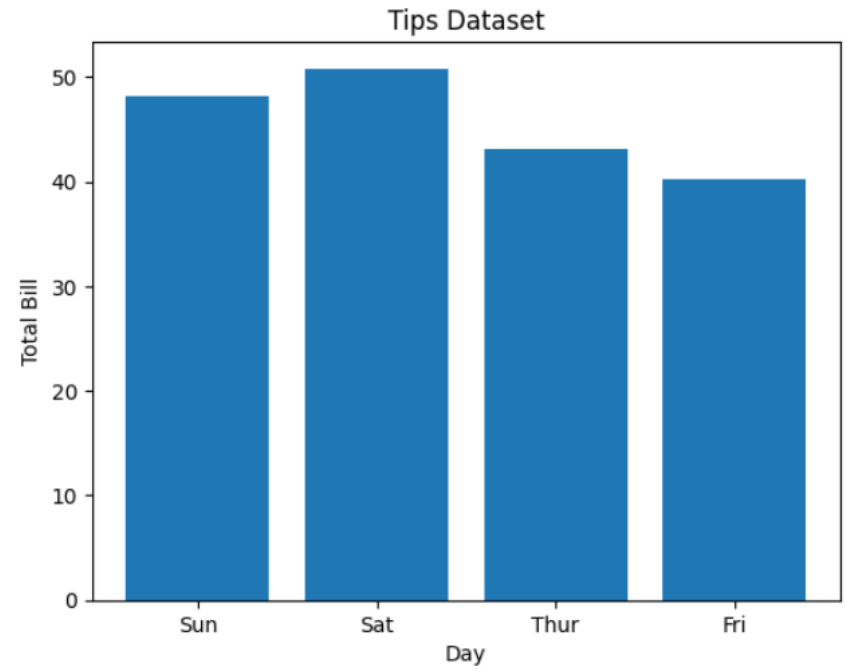



```
plt.scatter(x='total_bill',y='tip',data=df1)
fig=plt.figure(figsize=(5,4))
ax=fig.add_axes([1,1,1,1])
ax.legend(labels=('sun','mon','tue'))
plt.show()
```



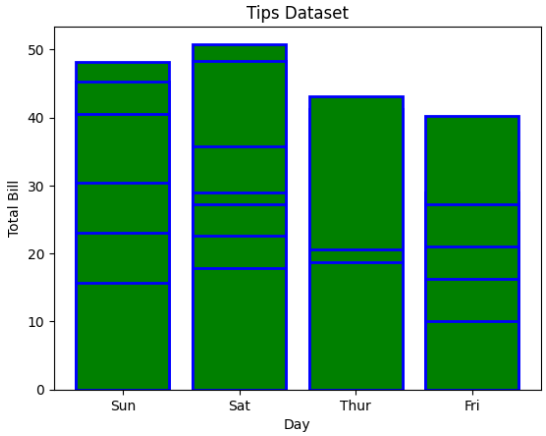

```
#Different types of Matplotlib Plots
#bar chart
import matplotlib.pyplot as plt
import pandas as pd

  # Reading the tips.csv file
data = pd.read_csv('/content/tips.csv')
# initializing the data
x = data['day']
y = data['total_bill']
```

```
 # plotting the data
plt.bar(x, y)

 # Adding title to the plot
plt.title("Tips Dataset")

 # Adding label on the y-axis
plt.ylabel('Total Bill')

 # Adding label on the x-axis
plt.xlabel('Day')

plt.show()
```

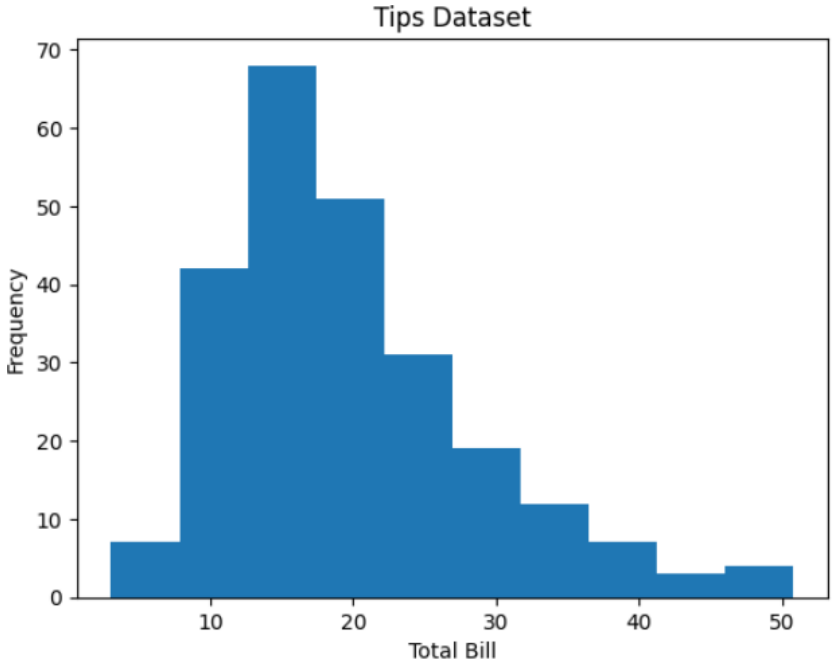


```
import matplotlib.pyplot as plt
import pandas as pd


# initializing the data
x = data['day']
y = data['total_bill']
# plotting the data
```

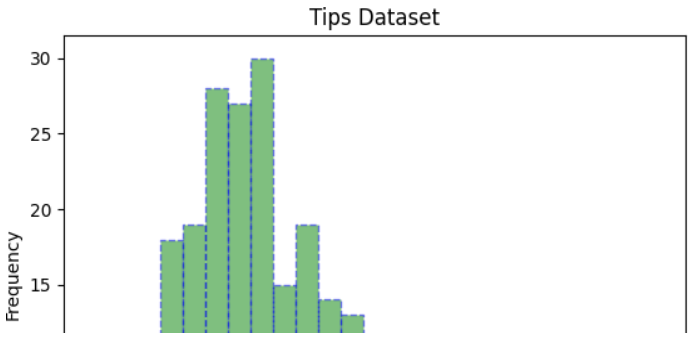
```
plt.bar(x, y, color='green', edgecolor='blue',
linewidth=2)
 # Adding title to the plot
plt.title("Tips Dataset")

 # Adding label on the y-axis
plt.ylabel('Total Bill')

 # Adding label on the x-axis
plt.xlabel('Day')
```



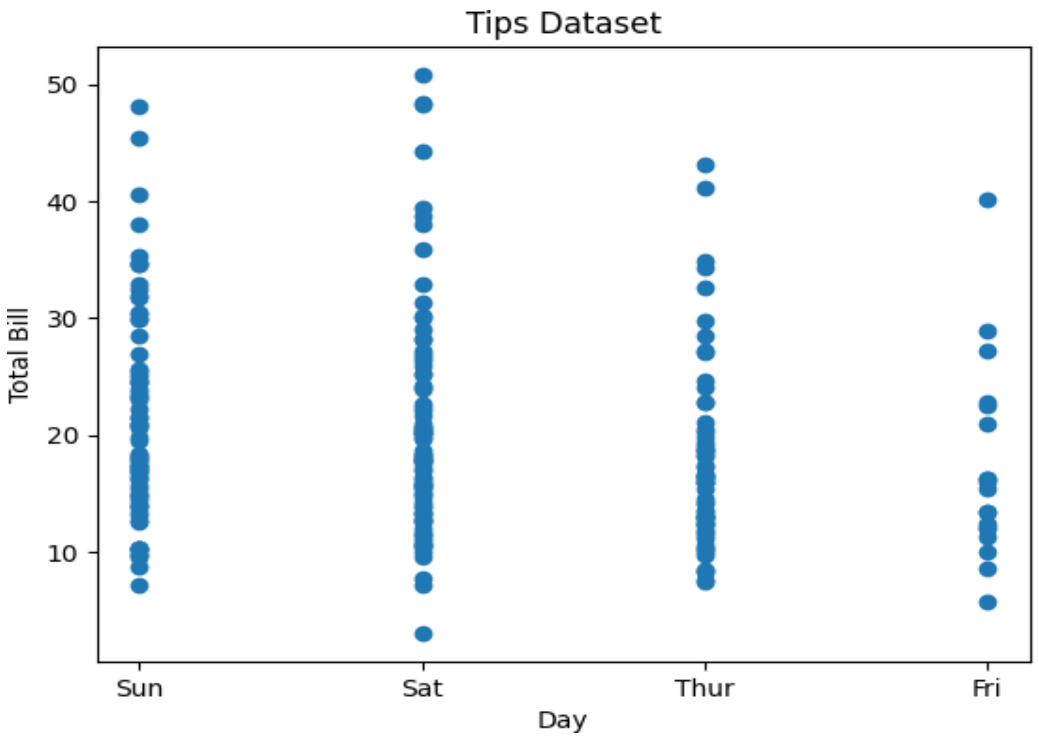

```
import matplotlib.pyplot as plt
import pandas as pd
 # initializing the data
x = data['total_bill']

# plotting the data
plt.hist(x)
# Adding title to the plot
plt.title("Tips Dataset")
 # Adding label on the y-axis
plt.ylabel('Frequency')
 # Adding label on the x-axis
plt.xlabel('Total Bill')
plt.show()
```




```
import matplotlib.pyplot as plt
import pandas as pd
 # initializing the data
x = data['total_bill']
 # plotting the data
plt.hist(x)
# Adding title to the plot
plt.title("Tips Dataset")
# Adding label on the y-axis
plt.ylabel('Frequency')
# Adding label on the x-axis
plt.xlabel('Total Bill')
plt.show()
```

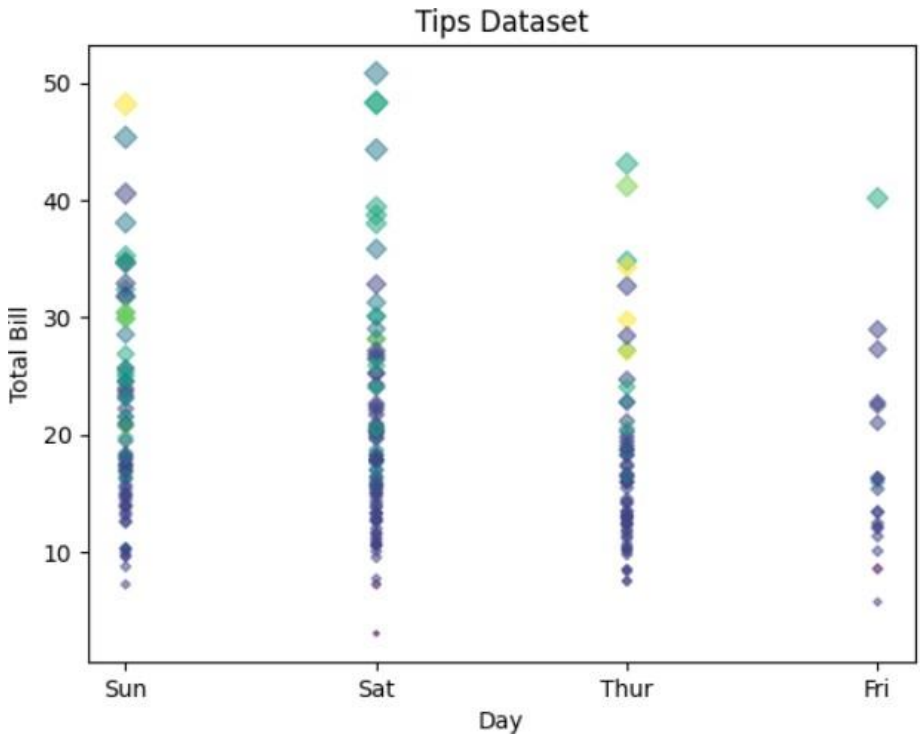


```
import matplotlib.pyplot as plt
import pandas as pd
# initializing the data
x = data['day']
y = data['total_bill']
# plotting the data
plt.scatter(x, y)
# Adding title to the plot
plt.title("Tips Dataset")

# Adding label on the y-axis
plt.ylabel('Total Bill')
# Adding label on the x-axis
plt.xlabel('Day')
```

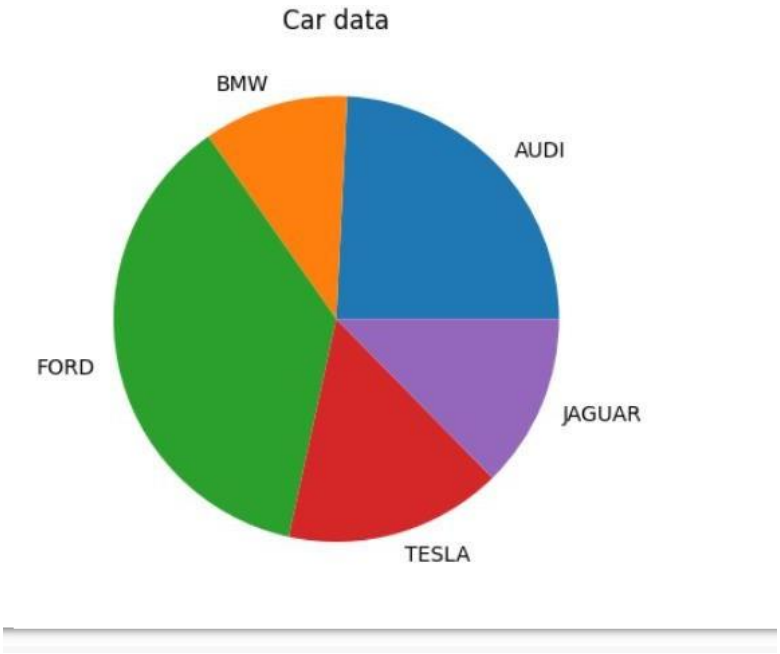



```
import matplotlib.pyplot as plt
import pandas as pd
# initializing the data
x = data['day']
y = data['total_bill']
# plotting the data
plt.scatter(x, y, c=data['size'], s=data['total_bill'],
marker='D', alpha=0.5)
# Adding title to the plot
plt.title("Tips Dataset")
```

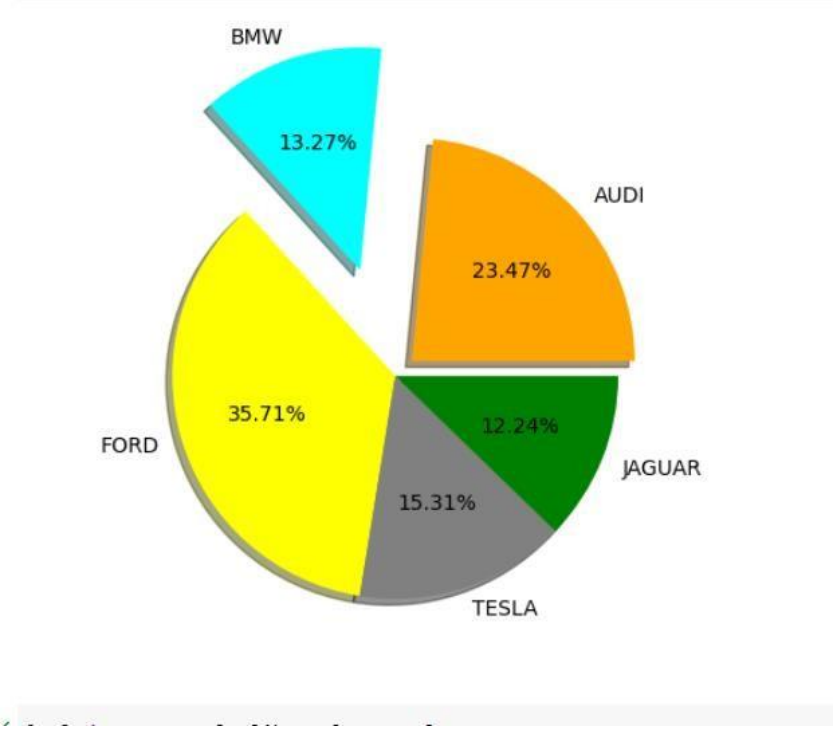
```
# Adding label on the y-axis
plt.ylabel('Total Bill')

# Adding label on the x-axis
plt.xlabel('Day')
plt.show()
```



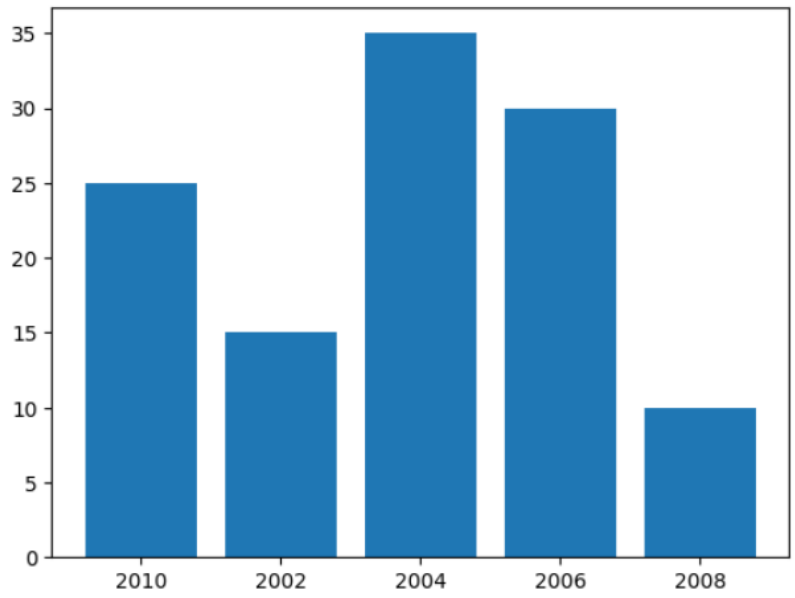

```
import matplotlib.pyplot as plt
import pandas as pd
# initializing the data
cars = ['AUDI', 'BMW', 'FORD',
'TESLA', 'JAGUAR',]
data = [23, 10, 35, 15, 12]
# plotting the data
plt.pie(data, labels=cars)
# Adding title to the plot
plt.title("Car data")
plt.show()
```




```
import matplotlib.pyplot as plt
import pandas as pd

# initializing the data
cars = ['AUDI', 'BMW', 'FORD','TESLA', 'JAGUAR',]
data = [23, 13, 35, 15, 12]
explode = [0.1, 0.5, 0, 0, 0]
colors = ( "orange", "cyan", "yellow","grey", "green",)
# plotting the data
plt.pie(data, labels=cars, explode=explode, autopct='%1.2f%%',
colors=colors, shadow=True)
plt.show()
```




```
import matplotlib.pyplot as plt
 # Creating data
year = ['2010', '2002', '2004', '2006', '2008']
production = [25, 15, 35, 30, 10]

  # Plotting barchart
plt.bar(year, production)

# Saving the figure.
plt.savefig("output.jpg")
# Saving figure by changing parameter values
plt.savefig("output1", facecolor='y',
bbox_inches="tight",pad_inches=0.3, transparent=True)
```


35
30
25
20
15
10
5
0
2010
2002
2004
2006
2008