

# FOUR SIMPLE CHARTS

to help you visualize  
your data!

matplotlib





## #1: Line Graph

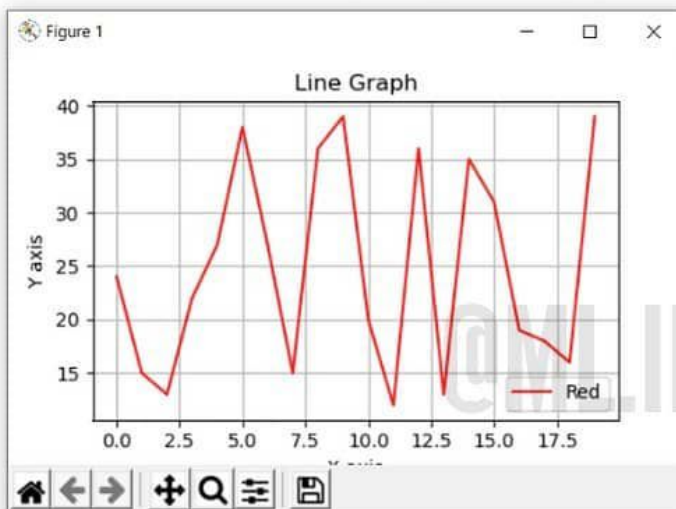
A line chart or line graph is a type of chart which displays information as a series of data points called '**markers**' connected by **straight line segments**. It is a basic type of chart common in many fields.

A line chart is often used to visualize a trend in data over intervals of time – a **time series** – thus the line is often drawn chronologically. In these cases they are known as **run charts**.

# Implementation and result:

```
import matplotlib.pyplot as plt #plt is an alias
import numpy as np #same for np
import random

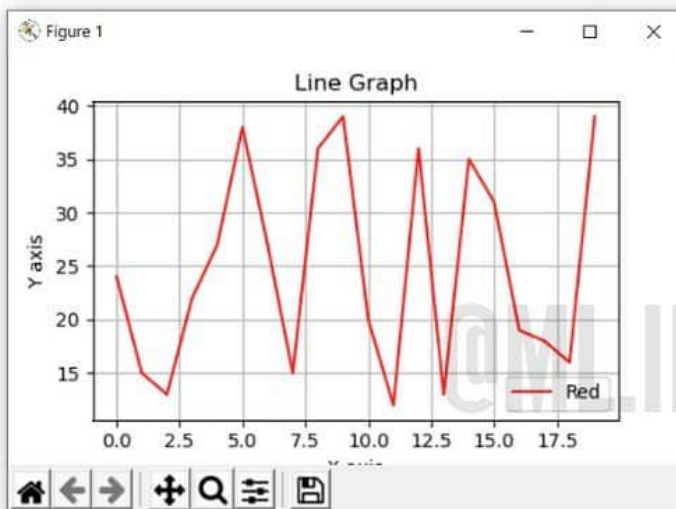
x=[random.randint(10,40) for i in range(20)] #list comprehension
y=[i for i in range(20)]
#print(x)
#print(y)
plt.title('Line Graph') #title of the plot
plt.grid() #grid
plt.xlabel('X axis') #labeling x axis
plt.ylabel('Y axis') #labeling y axis
plt.plot(y,x,color='red',label='Red',alpha=0.9) #labeling what does a certain color mean ;)
plt.legend(loc='lower right') #showing the labels
#by default the loc is upper right
plt.show() #compiles all of the above
#alpha = 0.9 is the transparency of the graph. 0 is transparent and 1 is opaque
```



# Implementation and result:

```
import matplotlib.pyplot as plt #plt is an alias
import numpy as np #same for np
import random

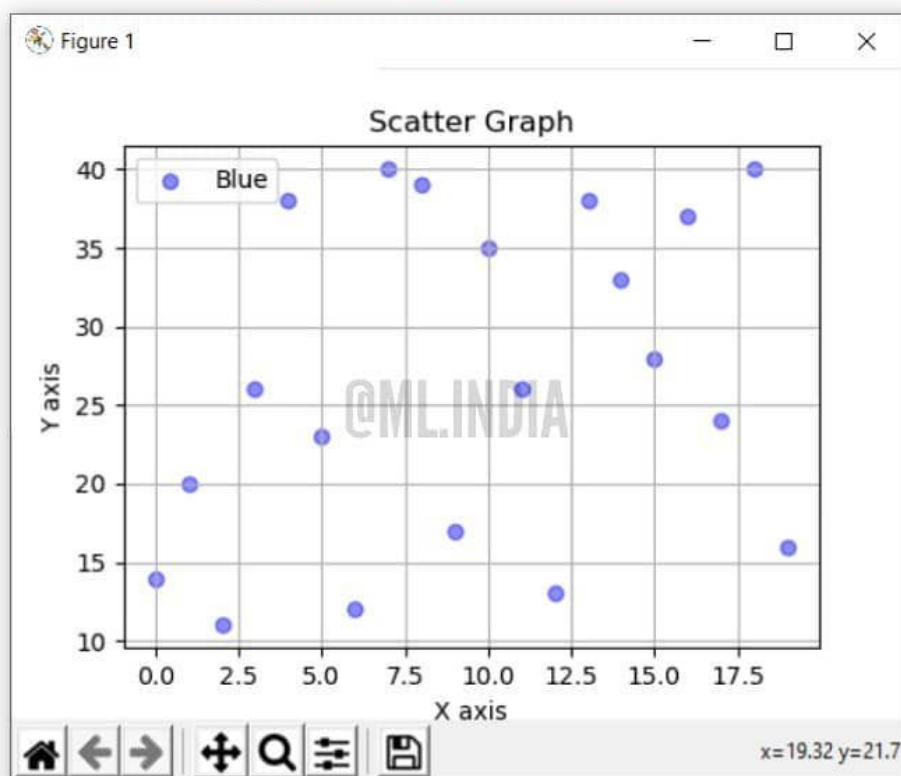
x=[random.randint(10,40) for i in range(20)] #list comprehension
y=[i for i in range(20)]
#print(x)
#print(y)
plt.title('Line Graph') #title of the plot
plt.grid() #grid
plt.xlabel('X axis') #labeling x axis
plt.ylabel('Y axis') #labeling y axis
plt.plot(y,x,color='red',label='Red',alpha=0.9) #labeling what does a certain color mean ;)
plt.legend(loc='lower right') #showing the labels
#by default the loc is upper right
plt.show() #compiles all of the above
#alpha = 0.9 is the transparency of the graph. 0 is transparent and 1 is opaque
```



# Implementation and result:

```
import matplotlib.pyplot as plt #plt is an alias
import numpy as np #same for np
import random

x=[random.randint(10,40) for i in range(20)] #list comprehension
y=[i for i in range(20)]
#print(x)
#print(y)
plt.title('Scatter Graph') #title of the plot
plt.grid() #grid
plt.xlabel('X axis') #labeling x axis
plt.ylabel('Y axis') #labeling y axis
plt.scatter(y,x,color='blue',label='Blue',alpha=0.45)
plt.legend() #showing the labels
#by default the loc is upper right
plt.show() #compiles all of the above
```







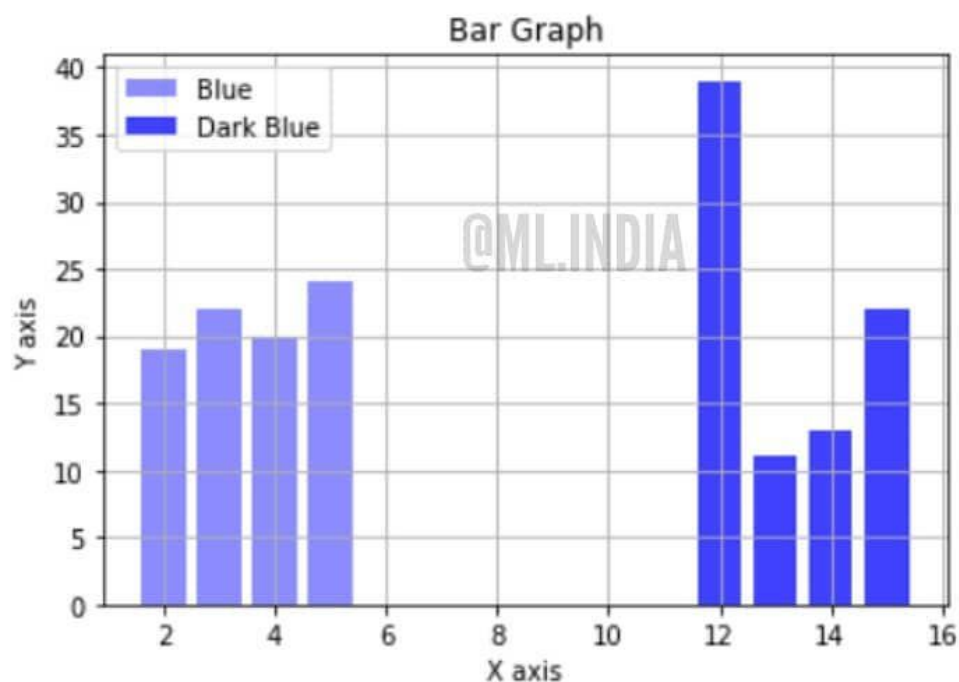
### #3: Bar Chart

A bar chart or bar graph is a diagram that presents **categorical data** with rectangular bars with heights or **lengths proportional to the values** that they represent. Bars can be plotted vertically/horizontally.

A vertical bar chart is sometimes called a **column chart**. This chart shows comparisons among **discrete** categories. One axis of the chart shows the specific categories being compared, and the other axis represents a measured value.

# Implementation and result:

```
plt.title('Bar Graph') #title of the plot
plt.grid() #grid
plt.xlabel('X axis') #Labeling x axis
plt.ylabel('Y axis') #Labeling y axis
plt.bar(y[2:6],x[2:6],color='blue',label='Blue',alpha=0.45) #Labeling what does a certain color mean ;)
plt.bar(y[12:16],x[12:16],color='blue',label='Dark Blue',alpha=0.75) #Labeling what does a certain color mean ;)
plt.legend() #showing the labels
#by default the loc is upper right
plt.show()
```





## #4: Histogram:

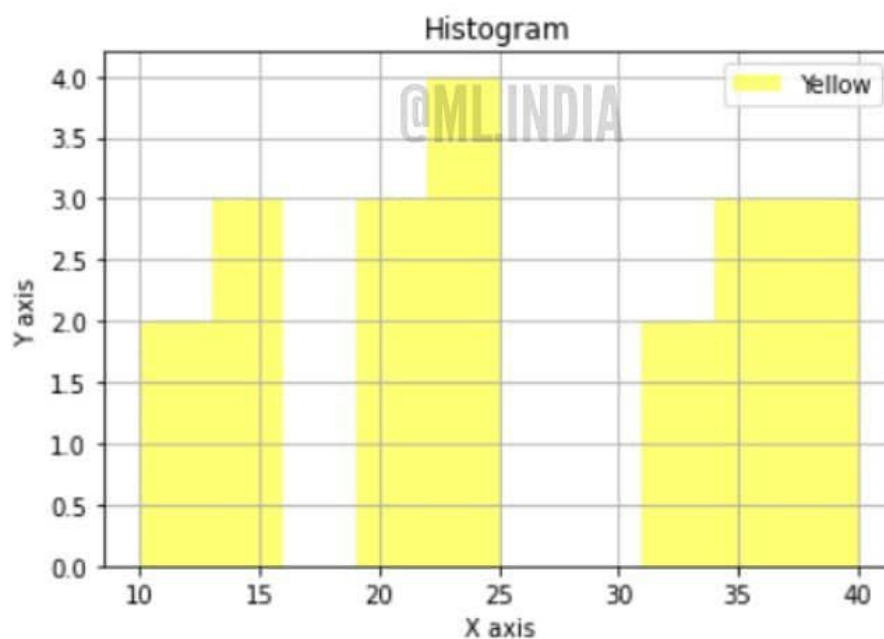
A histogram is an approximate representation of the **distribution** of numerical data. To construct a histogram, the first step is to "**bucket**" the range of values, that is, divide them into a series of intervals and then **count how many values fall into each**.

The bins are usually specified as **consecutive, non-overlapping** intervals of a variable. The bins (intervals) must be adjacent, and are often (but not required to be) of equal size.



# Implementation and result:

```
plt.title('Histogram') #title of the plot
plt.grid() #grid
plt.xlabel('X axis') #labeling x axis
plt.ylabel('Y axis') #labeling y axis
plt.hist(x,bins=10,color='yellow',label='Yellow',alpha=0.55) #labeling what does a certain color mean ;)
plt.legend(loc='upper right') #showing the labels
#by default the loc is upper right
plt.show()
```





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