```
import numpy as np
lst1=[1,2,3]
array1 = np.array(list)
print("list = ",lst1)
print("array =",array1)
type(lst1)
type(array1)
```

```
list =  [1, 2, 3]
array = <class 'list'>
numpy.ndarray
```

```
type(lst1)
```

```
list
```

```
import numpy as np
array1=np.array([10,20,30])
array2=np.array([2,2,2])

print("array2 multiplied by array1: ",array1*array2)
print("array2 divided by array1: ",array2/array1)
print("array2 raised to the power of array1: ",array2**array1)
print("Adding two numpy arrays {array1} and {array2} together: ",array1+array2)
```

```
array2 multiplied by array1:  [20 40 60]
array2 divided by array1:  [0.2        0.1        0.06666667]
array2 raised to the power of array1:  [      1024    1048576 1073741824]
Adding two numpy arrays {array1} and {array2} together:  [12 22 32]
```

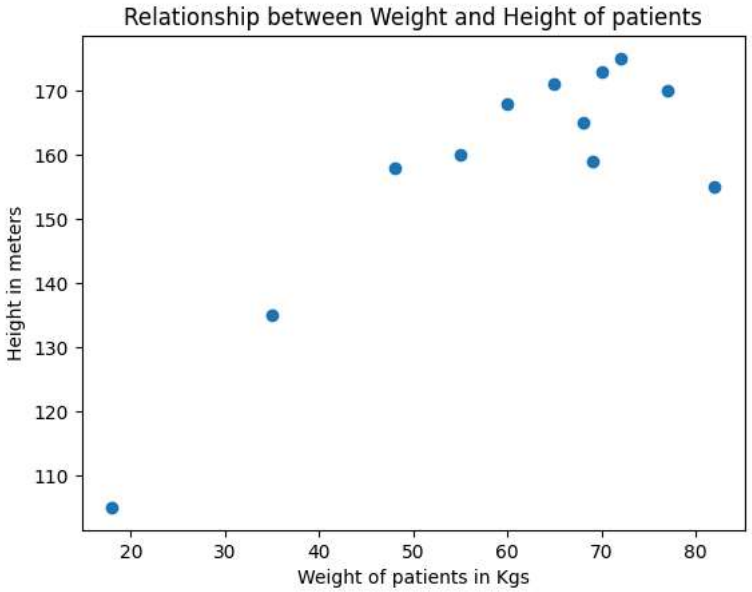
```
import numpy as np
array1=np.array([10,20,30])

print("Sine: ",np.sin(array1))

print("Natural logarithm: ",np.log(array1))
print("Base-10 logarithm: ",np.log10(array1))
print("Base-2 logarithm: ",np.log2(array1))

print("Exponential: ",np.exp(array1))
```

```
Sine:  [-0.54402111  0.91294525 -0.98803162]
Natural logarithm:  [2.30258509 2.99573227 3.40119738]
Base-10 logarithm:  [1.         1.30103    1.47712125]
Base-2 logarithm:  [3.32192809 4.32192809 4.9068906 ]
Exponential:  [2.20264658e+04 4.85165195e+08 1.06864746e+13]
```

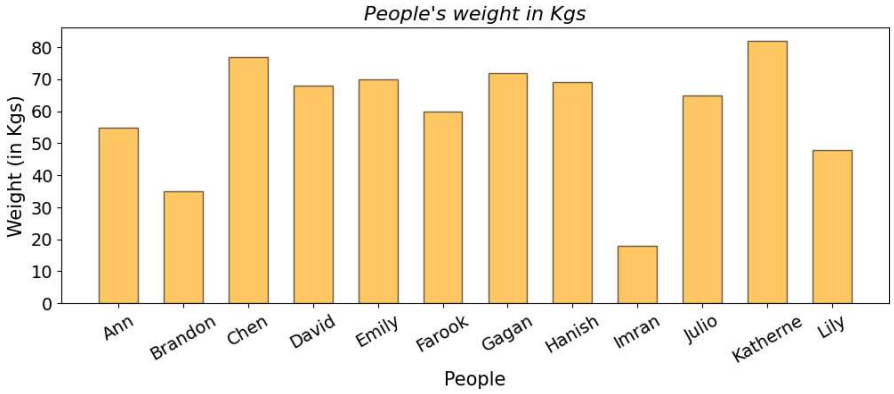
```
people = ['Ann','Brandon','Chen','David','Emily','Farook','Gagan','Hanish','Imran','Julio','Katherne','Lily']

age = [21,12,32,45,37,18,28,52,5,40,48,15]
weight = [55,35,77,68,70,60,72,69,18,65,82,48,]
height = [160,135,170,165,173,168,175,159,105,171,155,158]
```

```
import matplotlib.pyplot as plt
```

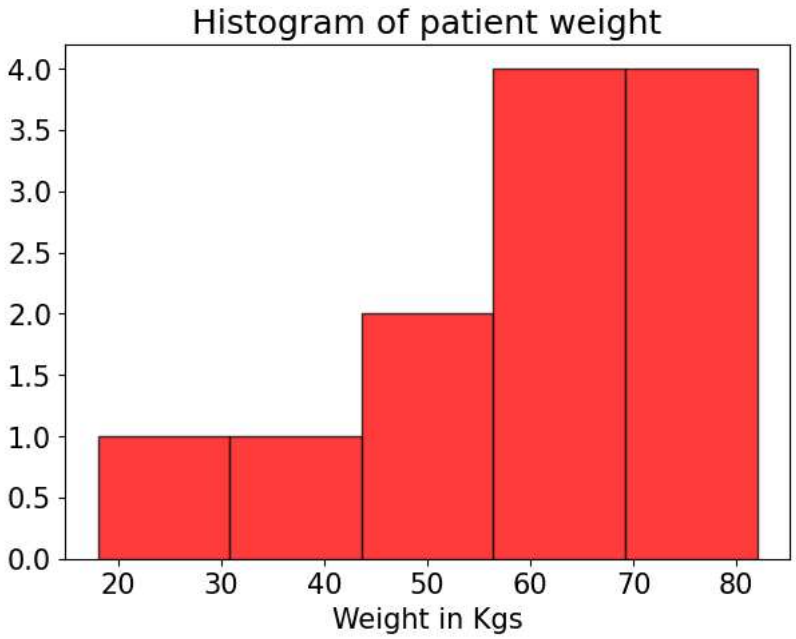
```
plt.scatter(weight , height)
plt.title("Relationship between Weight and Height of patients")
plt.ylabel("Height in meters")
plt.xlabel("Weight of patients in Kgs")
plt.show()
```




```
plt.figure(figsize=(12,4))
plt.title("People's weight in Kgs",fontsize=16 , fontstyle='italic')

plt.bar(x=people,height=weight, width=0.6, color='orange' , edgecolor='k' , alpha=0.6)

plt.xlabel("People",fontsize=15)
plt.xticks(fontsize=14,rotation=30)
plt.yticks(fontsize=14)
plt.ylabel("Weight (in Kgs)",fontsize=15)
plt.show()
```




```
import numpy as np
plt.figure(figsize=(7,5))

plt.hist(weight,color='red',edgecolor='k', alpha=0.75,bins=5)

plt.title("Histogram of patient weight",fontsize=18)
plt.xlabel("Weight in Kgs",fontsize=15)
plt.xticks(fontsize=15)
plt.yticks(fontsize=15)
plt.show()
```




```
import pandas as pd
```

```
a=pd.read_excel("Book1.xlsx")
a
```

	ROLL No.	NAME	SUB 1	SUB 2	SUB 3
0	1	Ramu	50	40	65
1	2	raju	75	80	23
2	3	Ganesh	55	44	63
3	4	Delip	45	15	88
4	5	Rajesh	77	45	65

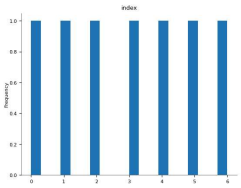
```
b=pd.read_csv("Book1.csv")
b
```

	ROLL No.	NAME	SUB 1	SUB 2	SUB 3
0	1	Ramu	50	40	65
1	2	raju	75	80	23
2	3	Ganesh	55	44	63
3	4	Delip	45	15	88
4	5	Rajesh	77	45	65

```
c=pd.read_table("Book1.txt")
c
```

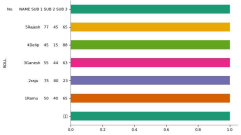
	ROLL
0	No. NAME SUB 1 SUB 2 SUB 3
1	1Ramu 50 40 65
2	2raju 75 80 23
3	3Ganesh 55 44 63
4	4Delip 45 15 88
5	5Rajesh 77 45 65
6	

Distributions



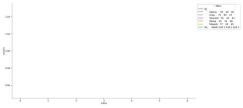
Categorical distributions

```
/usr/local/lib/python3.10/dist-packages/google/colab/_quickchart_lib.py:32: UserWarnir
  plt.savefig(
```

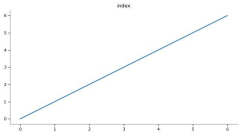


Time series

```
/usr/local/lib/python3.10/dist-packages/google/colab/_quickchart_lib.py:32: UserWarnir
  plt.savefig(
```



Values



Faceted distributions

```
<string>:5: FutureWarning:

Passing `palette` without assigning `hue` is deprecated and will be removed in v0.14.(
```

```
import pandas as pd

url = "https://drive.google.com/file/d/1VCnA36GSgZm-eZvp4knUP5mER4VPqWzn/view?usp=drive_link"

df_url = pd.read_csv("Book1.csv")
df_url
```

	ROLL No.	NAME	SUB 1	SUB 2	SUB 3
0	1	Ramu	50	40	65
1	2	raju	75	80	23
2	3	Ganesh	55	44	63
3	4	Delip	45	15	88
4	5	Rajesh	77	45	65