Getting Started with Python

Variable

```
x=1
y=35.656222554887711
z=-325.e100
print(type(x))
print(type(y))
print(type(z))
```

```
     <class 'int'>
     <class 'float'>
     <class 'float'>
```

```
x1=float(x)
y1=int(y)
print(x1)
print(y1)
```

```
     1.0
     35
```

```
name="Hii world"
print(type(name))
```

```
     <class 'str'>
```

Write a Program to perform basic arthemetic operations of two numbers entered by the user.

```
n1=int(input("Enter a number:"))
n2=int(input("Enter a number:"))
s=n1+n2
d=n1-n2
p=n1*n2
q=n1/n2
r=n1%n2
print("Sum= ",s)
print("Difference= ",d)
print("Product= ",p)
print("Quotient= ",q)
print("Remainder= ",r)
```

```
     Enter a number: 5
     Enter a number:88
     Sum=  93
     Difference=  -83
     Product=  440
     Quotient=  0.056818181818181816
     Remainder=  5
```

Write a Program to check the biggest of three numbers entered by user

```
a=int(input("Enter a number:"))
b=int(input("Enter a number:"))
c=int(input("Enter a number:"))
if a>b and a>c:
    print(a,"is greatest")
elif b>a and b>c:
    print(b,"is greatest")
elif c>a and c>b:
    print(c,"is greatest")
else:
    print("All are equal.")
a=3+4j
print(a.real)
print(a.imag)
```

Data Structure

```
List
a=["gokul","is","dumb"]
print(type(a))
#tuple
b=("maybe","its beacause","he eats too much")
print(type(b))
for i in range(1,10):
print(i)
#dictionary
d={"gokul": "Dumb"}
print(d)
print(type(d))
```

Function

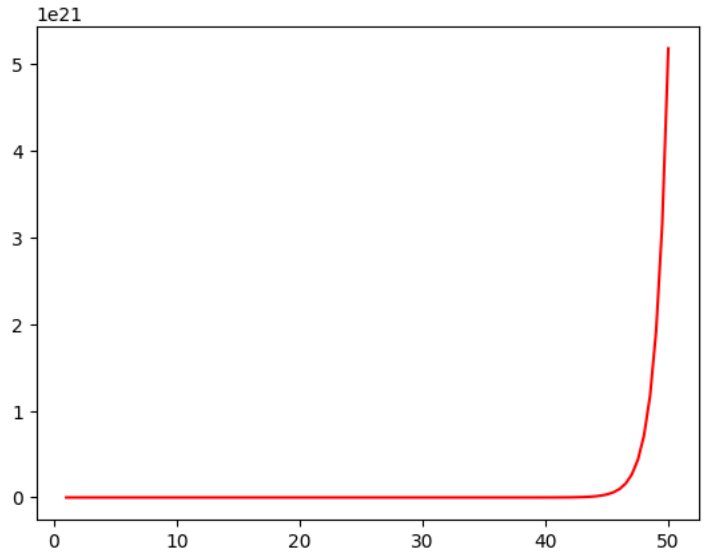
```
def my_function():
  print("Hello ")


def starkids(*kids):
  print("The name of the last kid is",kids[2])
  starkids("Harry","Hermione","Ron")
```

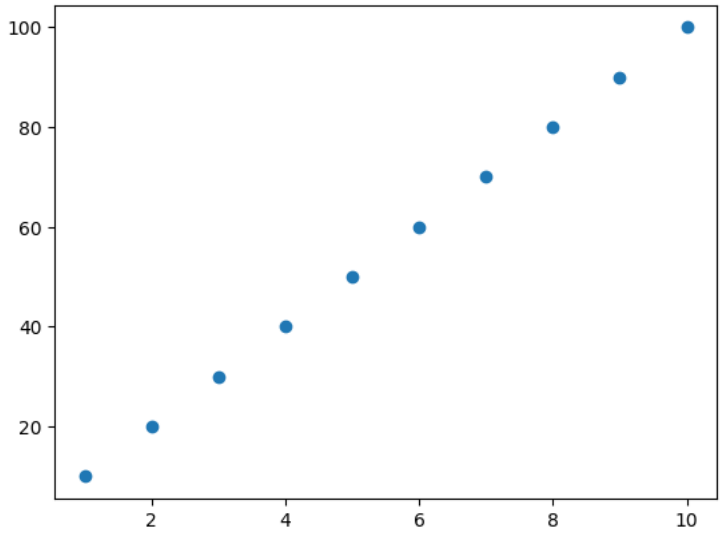
2d plots

```
import numpy as np
import matplotlib.pyplot as plt
x=np.linspace(1,50,100)
y=np.linspace(1,25,100)
z1=np.e**x
z2=np.exp(y)
print(x)
print(y)
print(z1)
print(z2)
print(type(x))
plt.plot(x,z1,color='red')
plt.show()
```

```
 5.89910195e+16 9.67697762e+16 1.58742630e+17 2.60403853e+17
 4.27170487e+17 7.00737040e+17 1.14949982e+18 1.88565720e+18
 3.09326109e+18 5.07423308e+18 8.32385003e+18 1.36545717e+19
 2.23991695e+19 3.67439423e+19 6.02753283e+19 9.88765761e+19
 1.62198657e+20 2.66073173e+20 4.36470527e+20 7.15992968e+20
 1.17452588e+21 1.92671033e+21 3.16060528e+21 5.18470553e+21]
[2.71828183e+00 3.46400087e+00 4.41429653e+00 5.62529127e+00
 7.16850389e+00 9.13507328e+00 1.16411409e+01 1.48347099e+01
 1.89043856e+01 2.40905147e+01 3.06993789e+01 3.91212840e+01
 4.98536099e+01 6.35301853e+01 8.09587199e+01 1.03168506e+02
 1.31471208e+02 1.67538323e+02 2.13499900e+02 2.72070332e+02
 3.46708666e+02 4.41822886e+02 5.63030237e+02 7.17488971e+02
 9.14321096e+02 1.16515110e+03 1.48479249e+03 1.89212260e+03
 2.41119749e+03 3.07267265e+03 3.91561339e+03 4.98980203e+03
 6.35867790e+03 8.10308393e+03 1.03260411e+04 1.31588325e+04
 1.67687569e+04 2.13690089e+04 2.72312697e+04 3.47017520e+04
 4.42216469e+04 5.63531794e+04 7.18128122e+04 9.15135588e+04
 1.16618904e+05 1.48611517e+05 1.89380813e+05 2.41334543e+05
 3.07540983e+05 3.91910148e+05 4.99424703e+05 6.36434232e+05
 8.11030229e+05 1.03352397e+06 1.31705546e+06 1.67836948e+06
 2.13880448e+06 2.72555277e+06 3.47326649e+06 4.42610403e+06
 5.64033797e+06 7.18767842e+06 9.15950806e+06 1.16722790e+07
 1.48743902e+07 1.89549517e+07 2.41549528e+07 3.07814946e+07
 3.92259268e+07 4.99869599e+07 6.37001178e+07 8.11752708e+07
 1.03444465e+08 1.31822872e+08 1.67986460e+08 2.14070976e+08
 2.72798074e+08 3.47636053e+08 4.43004687e+08 5.64536248e+08
 7.19408133e+08 9.16766751e+08 1.16826769e+09 1.48876406e+09
 1.89718371e+09 2.41764704e+09 3.08089153e+09 3.92608699e+09
 5.00314891e+09 6.37568629e+09 8.12475831e+09 1.03536615e+10
 1.31940302e+10 1.68136105e+10 2.14261674e+10 2.73041087e+10
 3.47945733e+10 4.43399323e+10 5.65039146e+10 7.20048993e+10]
<class 'numpy.ndarray'>
```



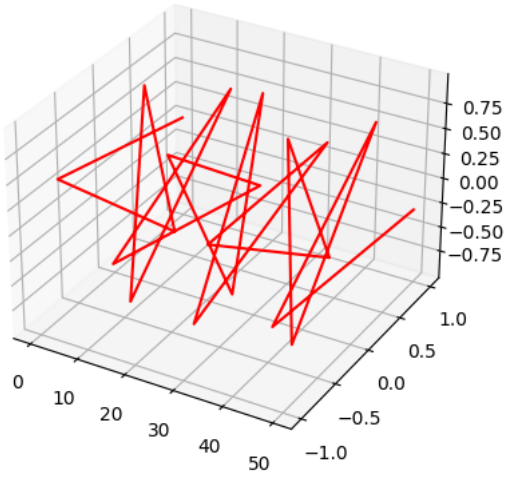
```
x=[1,2,3,4,5,6,7,8,9,10]
y=[10,20,30,40,50,60,70,80,90,100]
plt.scatter(x,y)
plt.show()
```



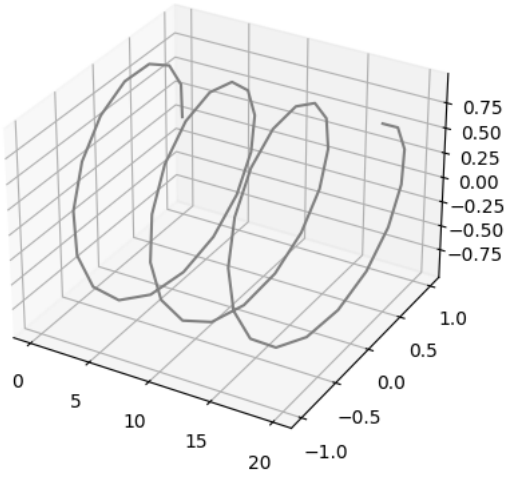
3D Plot

```
from mpl_toolkits import mplot3d
from matplotlib.pyplot import *
from numpy import *
x=linspace(0,50,20)
print(x)
y=cos(x)
z=sin(x)
print(y)
print(z)
ax=axes(projection="3d")
ax.plot3D(x,y,z,'red')
```

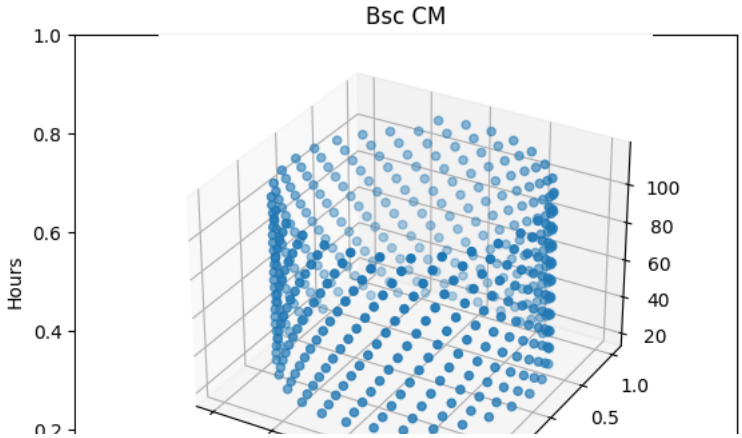
```
[ 0.          2.63157895  5.26315789  7.89473684 10.52631579 13.15789474
 15.78947368 18.42105263 21.05263158 23.68421053 26.31578947 28.94736842
 31.57894737 34.21052632 36.84210526 39.47368421 42.10526316 44.73684211
 47.36842105 50.        ]
[ 1.         -0.87273782  0.52334259 -0.04074393 -0.45222506  0.83009175
 -0.99667986  0.90958867 -0.59098499  0.12196123  0.37810463 -0.78193365
  0.98674151 -0.9403996   0.65470308 -0.20236868 -0.30147349  0.7285833
 -0.97025092  0.96496603]
[ 0.          0.48818921 -0.85212237  0.99916962 -0.89190386  0.55762683
 -0.08142019 -0.41550988  0.80668255 -0.99253487  0.92576287 -0.62336166
  0.16229972  0.34007145 -0.75588615  0.97930941 -0.95347456  0.6849572
 -0.24210155 -0.26237485]
[<mpl_toolkits.mplot3d.art3d.Line3D at 0x79ee8c24c220>]
```




```
x=linspace(0,20,50)
y=cos(x)
z=sin(x)
ax=axes(projection="3d")
ax.plot3D(x,y,z,'grey')
show()
```




```
x=linspace(20,115,450)
y=cos(x)
z=sin(x)
title("Bsc CM")
xlabel("Class")
ylabel("Hours")
ax=axes(projection="3d")
ax.scatter3D(y,z,x)
show()
```




```
from numpy import *
from matplotlib.pyplot import *
from mpl_toolkits.mplot3d import *
x=arange(-0.8,1,0.2)
print(x)
ax=axes(projection="3d")
x,y,z=meshgrid(arange(-0.8,1,0.2),arange(-0.8,1,0.2),arange(-
0.8,1,0.2))
u=sin(x*pi)*cos(y*pi)*cos(z*pi)
v=-cos(x*pi)*sin(y*pi)*cos(z*pi)
w=sqrt(2/3)*cos(x*pi)*cos(y*pi)*sin(z*pi)
ax.quiver(x,y,z,u,v,w,color='grey',length=0.1)
show()
```

```
[-8.00000000e-01 -6.00000000e-01 -4.00000000e-01 -2.00000000e-01
 -2.22044605e-16  2.00000000e-01  4.00000000e-01  6.00000000e-01
  8.00000000e-01]
```