

```
#VARIABLE AND STRING CONCATINATION
```

```
a=10
print("i'm",a,"years old")
```

```
i'm 10 years old
```

```
a=int(input("enter a value")) b=int(input("enter b value")) print(a+b,"=sum")
```

```
#ADDING TWO INTEGER VALUES
```

```
a=int(input("enter a value"))
b=int(input("enter b value"))
print("sum=",a+b)
print("difference=",a-b)
print("product=",a*b)
print("quotient=",a/b)
print("remainder=",a%b)
print("power of a to b=",a**b)
```

```
enter a value2
enter b value4
sum= 6
difference= -2
product= 8
quotient= 0.5
remainder= 2
power of a to b= 16
```

```
#Take a salary from the user,if the salary is more than 50000 then tax is 10% and print final salary
```

```
salary=int(input("Enter your sarlary="))
if(salary>=50000):
    final_salary=salary-salary*(0.1)
    print("final salary =",final_salary)
else:
    print("Your Salary is less than 50000,without tax is :",salary)
```

```
Enter your sarlary=50000
final salary = 45000.0
```

```
#get the salary from the user , if the is more or equal to 50000 apply 10% reduction , if the salary is < 50000 apply %5 , if the salary is
```

```
salary=int(input("Enter your sarlary="))
if(salary<50000):
    final_salary=salary-salary*(0.05)
    print("final salary =",final_salary)
elif(salary<=70000):
    final_salary=salary-salary*(0.1)
    print("final salary =",final_salary)
elif(salary<=100000):
    final_salary=salary-salary*(0.12)
    print("final salary =",final_salary)
else:
    print("You are promoted")
```

```
Enter your sarlary=0
final salary = 0.0
```

```
#Range Fuction
```

```
T=int(input("Enter a number="))
for i in range(1,31,5):
    print(T,"x",i,"=",T*i)
```

```
Enter a number=5
5 x 1 = 5
5 x 6 = 30
5 x 11 = 55
5 x 16 = 80
5 x 21 = 105
5 x 26 = 130
```

```
#while loop
T=int(input("Enter a number="))
i=1
while(i!=11):
    print(T,"x",i,"=",T*i)
    i=i+1
```

```
Enter a number=5
5 x 1 = 5
5 x 2 = 10
5 x 3 = 15
5 x 4 = 20
5 x 5 = 25
5 x 6 = 30
5 x 7 = 35
5 x 8 = 40
5 x 9 = 45
5 x 10 = 50
```

```
#Creating List
L=[20,15,25,51,5]
L1=["UMP9","VECTOR","m416","UZI","DP29","M762"]
L1.append("MG3")
L1.pop(2)
print(L[::-1])
print(L1[::-1])
L2=L+L1
print(L)
print(L1)
print(L2)
```

```
[5, 51, 25, 15, 20]
['MG3', 'M762', 'DP29', 'UZI', 'VECTOR', 'UMP9']
[20, 15, 25, 51, 5]
['UMP9', 'VECTOR', 'UZI', 'DP29', 'M762', 'MG3']
[20, 15, 25, 51, 5, 'UMP9', 'VECTOR', 'UZI', 'DP29', 'M762', 'MG3']
```

```
#Reverse Of A List
L=[20,15,25,51,5]
L1=["UMP9","VECTOR","m416","UZI","DP29","M762"]
print(L[::-1])
print(L1[::-1])
```

```
[5, 51, 25, 15, 20]
['M762', 'DP29', 'UZI', 'm416', 'VECTOR', 'UMP9']
```

```
#POP
L=[20,15,25,51,5]
L1=["UMP9","VECTOR","m416","UZI","DP29","M762"]
L1.pop(3)
print(L1)
```

```
['UMP9', 'VECTOR', 'm416', 'DP29', 'M762']
```

```
#Remove
L=[20,15,25,51,5]
L1=["UMP9","VECTOR","m416","UZI","DP29","M762"]
L.remove(51)
print(L)
```

```
[20, 15, 25, 5]
```

```
#Append
L=[20,15,25,51,5]
L1=["UMP9","VECTOR","m416","UZI","DP29","M762"]
L.append(55)
print(L)
```

```
[20, 15, 25, 51, 5, 55]
```

```
#Create a list of 10 integers elements and print their squares and saves these squares in a new list
L=[1,2,3,4,5,6,7,8,9,10]
L1=[]
for i in L:
    L1.append(i*i)
print(L1)
```

```
[1, 4, 9, 16, 25, 36, 49, 64, 81, 100]
```

```
#list comprehension
L=[1,2,3,4,5,6,7,8,9,10]
L2=[ i*i for i in L]
print(L2)
```

```
[1, 4, 9, 16, 25, 36, 49, 64, 81, 100]
```

```
#list comprehension With a Condition
L=[1,2,3,4,5,6,7,8,9,10]
L2=[ i*i for i in L if i<=5]
print(L2)
```

```
[1, 4, 9, 16, 25]
```

```
#list comprehension With a Conditions
L=[15,51,59,32,45,87]
L2=[ i*i if i>50 else 'X' for i in L]
print(L2)
```

```
['X', 2601, 3481, 'X', 'X', 7569]
```

```
#Take the salary the user if the salary IS < 50K / 10% TAX Otherwise 15%
salary=int(input("Enter the salary:"))
print("The final salary :",salary-salary*(0.1) if(salary<=50000) else salary-salary*(0.15))
```

```
Enter the salary:60000
The final salary : 51000.0
```

```
#OTHER METHOD FOR [Take the salary the user if the salary IS < 50K / 10% TAX Otherwise 15%]
salary=[45000,50000,60000,70000,80000]
newlist=[i-i*0.1 if i<50000 else i-i*0.15 for i in salary]
print(newlist)
```

```
[40500.0, 42500.0, 51000.0, 59500.0, 68000.0]
```

```
#Dictionary
dict1={"Game":'PUBG',"Year":'2006',"Type":'BATTLE',"AWM":'300 MAG'}
print(dict1)
print(dict1.keys())
print(dict1.values())

{'Game': 'PUBG', 'Year': '2006', 'Type': 'BATTLE', 'AWM': '300 MAG'}
dict_keys(['Game', 'Year', 'Type', 'AWM'])
dict_values(['PUBG', '2006', 'BATTLE', '300 MAG'])
```

```
#Dictionary
#keys
dict1={"Game":'PUBG',"Year":'2006',"Type":'BATTLE',"AWM":'300 MAG'}
print(dict1.keys())
```

```
dict_keys(['Game', 'Year', 'Type', 'AWM'])
```

```
#Dictionary
#values
dict1={"Game":'PUBG',"Year":'2006',"Type":'BATTLE',"AWM":'300 MAG'}
print(dict1.values())
```

```
dict_values(['PUBG', '2006', 'BATTLE', '300 MAG'])
```

```
#Dictionary
#printing a particular value
dict1={"Game":'PUBG',"Year":'2006',"Type":'BATTLE',"AWM":'300 MAG'}
print(dict1["Game"])
```

PUBG

```
#Dictionary's
dict2={"Dept":'CSE',"Details":{"Year":'2nd year',"section":'D',"strength":'73'}}
print("Years is",dict2["Details"]["Year"])
print("DEPARTMENT IS",dict2["Dept"])
print("section is",dict2["Details"]["section"])
print("strength is",dict2["Details"]["strength"])
```

```
Years is 2nd year
DEPARTMENT IS CSE
section is D
strength is 73
```

```
#Dictionary's Using ZipFile
id=[1,2,3,4,5,6]
names=["BINNU","SAKULJI","SHIVA","DILEEP","SHUBHAS","SHANKAR"]
new=zip(id,names)
for i in new:
    print(i)
```

```
(1, 'BINNU')
(2, 'SAKULJI')
(3, 'SHIVA')
(4, 'DILEEP')
(5, 'SHUBHAS')
(6, 'SHANKAR')
```

```
import numpy as np
A = np.array([1,2,3,4]) #1D ARRAY
print(A.ndim)
print(A.shape)
```

```
1
(4,)
```

```
import numpy as np
A = np.array([[1,8],[2,9],[3,7],[4,5]]) #2D ARRAY
print(A.ndim)
print(A.shape)
```

```
2
(4, 2)
```

```
import numpy as np
A = np.array([[[1,2,5],[2,6,5],[3,8,4],[4,8,9]],[[9,8,2],[8,8,1],[7,8,1],[6,5,6]]]) #3D ARRAY
print(A.ndim)
print(A.shape)
```

```
3
(2, 4, 3)
```

```
A = np.ones((2,4,3))
print(A)
```

```
[[[1. 1. 1.]
  [1. 1. 1.]
  [1. 1. 1.]
  [1. 1. 1.]]
 [[1. 1. 1.]
  [1. 1. 1.]
  [1. 1. 1.]
  [1. 1. 1.]]]
```

```
A = np.zeros((2,4,3))
print(A)
```

```
[[[0. 0. 0.]
  [0. 0. 0.]
  [0. 0. 0.]
  [0. 0. 0.]]
 [[0. 0. 0.]
  [0. 0. 0.]
  [0. 0. 0.]
  [0. 0. 0.]]]
```

```
[0. 0. 0.]
[0. 0. 0.]]
```

```
A = np.ones((1,4,3))
print(A)
```

```
[[[1. 1. 1.]
  [1. 1. 1.]
  [1. 1. 1.]
  [1. 1. 1.]]]
```

```
A = np.ones((2,2,3))
print(A)
```

```
[[[1. 1. 1.]
  [1. 1. 1.]]
 [[1. 1. 1.]
  [1. 1. 1.]]]
```

```
A = np.ones((2,2,2))
print(A)
```

```
[[[1. 1.]
  [1. 1.]]
 [[1. 1.]
  [1. 1.]]]
```

```
A = np.arange(8,1001,8)
print(A)
print(type(A))
```

```
[ 8  16  24  32  40  48  56  64  72  80  88  96 104 112
120 128 136 144 152 160 168 176 184 192 200 208 216 224
232 240 248 256 264 272 280 288 296 304 312 320 328 336
344 352 360 368 376 384 392 400 408 416 424 432 440 448
456 464 472 480 488 496 504 512 520 528 536 544 552 560
568 576 584 592 600 608 616 624 632 640 648 656 664 672
680 688 696 704 712 720 728 736 744 752 760 768 776 784
792 800 808 816 824 832 840 848 856 864 872 880 888 896
904 912 920 928 936 944 952 960 968 976 984 992 1000]
<class 'numpy.ndarray'>
```

```
A = np.linspace(4,6,24)
print(A)
```

```
[4.          4.08695652 4.17391304 4.26086957 4.34782609 4.43478261
4.52173913 4.60869565 4.69565217 4.7826087  4.86956522 4.95652174
5.04347826 5.13043478 5.2173913  5.30434783 5.39130435 5.47826087
5.56521739 5.65217391 5.73913043 5.82608696 5.91304348 6.         ]
```