

```
In [1]: #integer  
x=1  
type(x)
```

Out[1]: int

```
In [2]: #float  
x=5.2  
type(x)
```

Out[2]: float

```
In [4]: #boolean  
b1=True  
b2=False  
type(b2)
```

Out[4]: bool

```
In [5]: # strings  
name1='shrakshi'  
type(name1)
```

Out[5]: str

```
In [ ]: # complex  
x=4.0-5.0j  
type(x)
```

```
In [7]: print(x)
```

(4-5j)

```
In [8]: print(x.real,x.imag)
```

4.0 -5.0

variables

```
In [9]: sixth=6  
two=2  
sixth  
two
```

Out[9]: 2

```
In [11]: sixth=6  
two=2  
print("two")  
sixth
```

```
two  
Out[11]: 6
```

Dynamic typing

```
In [12]: ten=10  
ten
```

```
Out[12]: 10
```

```
In [13]: five=5  
five
```

```
Out[13]: 5
```

```
In [14]: two="two"  
two
```

```
Out[14]: 'two'
```

```
In [15]: one="one"  
one
```

```
Out[15]: 'one'
```

Strong typing

```
In [17]: "Day"+'1'
```

```
Out[17]: 'Day1'
```

```
In [18]: "Shri"+'rakshi'
```

```
Out[18]: 'Shrirakshi'
```

```
In [19]: "Day"+str(1)
```

```
Out[19]: 'Day1'
```

```
In [21]: "shri"+str(1)
```

```
Out[21]: 'shri1'
```

Simple Expression:

Boolean Evaluation:

In [22]: `True and False`

Out[22]: `False`

In [23]: `1 and 0`

Out[23]: `0`

In [25]: `0 and 0`

Out[25]: `0`

In [26]: `0 and 1`

Out[26]: `0`

In [27]: `True or False`

Out[27]: `True`

In [28]: `1 or 1`

Out[28]: `1`

In [29]: `1 or 0`

Out[29]: `1`

In [30]: `0 or 1`

Out[30]: `1`

In [31]: `0 or 0`

Out[31]: `0`

In [33]: `not True`

Out[33]: `False`

In [36]: `not False`

Out[36]: `True`

In [37]: `True is True`

Out[37]: `True`

```
In [40]: True is False
```

```
Out[40]: False
```

```
In [45]: 'a' == 'a'
```

```
Out[45]: True
```

Branching Statement

if/elif/else

```
In [46]: i=7
         if i<7:
             print("less than 7")
         elif i<8:
             print("less than 8")
         else:
             print("8 or more")
```

```
less than 8
```

```
In [47]: age=20
         if age<20:
             print("less than 20")
         elif age<21:
             print("less than 21")
         else:
             print("21 or more")
```

```
less than 21
```

Lists:

collection of heterogeneous type of data and also represented as a square brackets,

```
In [50]: l=[]
         1
```

```
Out[50]: []
```

```
In [51]: l=list()
         1
```

```
Out[51]: []
```

```
In [52]: l=['a','b','c']
         1
```

```
Out[52]: ['a', 'b', 'c']
```

```
In [53]: a=[1,2,3,'abc',4,5]
```

```
a
```

```
Out[53]: [1, 2, 3, 'abc', 4, 5]
```

```
In [54]: #i want to print b  
a[3][1]
```

```
Out[54]: 'b'
```

```
In [55]: a[3][-2]
```

```
Out[55]: 'b'
```

```
In [56]: type(a)
```

```
Out[56]: list
```

```
In [58]: l=['a',7]  
l
```

```
Out[58]: ['a', 7]
```

```
In [63]: b=list(l)  
b
```

```
Out[63]: ['a', 7]
```

```
In [64]: list('shriraakshi')
```

```
Out[64]: ['s', 'h', 'r', 'i', 'r', 'a', 'k', 's', 'h', 'i']
```

```
In [65]: l=[2,3]  
l.append('shri')  
print(l)
```

```
[2, 3, 'shri']
```

```
In [75]: l=[1,2,3]  
l.append(4)  
l
```

```
Out[75]: [1, 2, 3, 4]
```

```
In [76]: for shri in l:  
          print(shri)
```

```
1  
2  
3  
4
```

```
In [79]: s=[9,8,7,6]
```

```
s.append(5)
s
```

Out[79]: [9, 8, 7, 6, 5]

```
In [83]: l=[9,8,7,6,5,4,3,2]
l
```

Out[83]: [9, 8, 7, 6, 5, 4, 3, 2]

```
In [84]: # using slice operator
#i want print 7,6,5
l[-6:-3:1]
```

Out[84]: [7, 6, 5]

```
In [85]: l[2:5:1]
```

Out[85]: [7, 6, 5]

```
In [86]: l[:]
```

Out[86]: [9, 8, 7, 6, 5, 4, 3, 2]

```
In [87]: l[5:9]
```

Out[87]: [4, 3, 2]

Loops:

For Loop

```
In [90]: #Program to find the sum of all numbers stored in a list
#List of numbers
numbers=[9,8,7,6,5,4,3,2]
#variable to store the sum
sum=0
#iterate over the list
for s in numbers:
    sum=sum+s
print("The sum is",sum)
sum
```

The sum is 44

Out[90]: 44

```
In [91]: #List of numbers
a=[2,3,5,7,4,9]
#variable to store the m
sum=0
#iterate over the list
for s in a:
    sum=sum+s
```

```
print("The sum is",sum)
sum
```

The sum is 30
Out[91]: 30

For loop with else

```
In [95]: shri=[1,2,3,4]
for s in shri:
    print(s)
else:
    print("No items left")
```

1
2
3
4
No items left

While loop

```
In [24]: #Program to add natural
#numbers upto
#sum=1+2+3+-----+n
#To take input from the use
n=int(input("Enter n:"))
#intialize sum and counter
sum=0
i=1
while i<=n:
    sum=sum+i
    i=i+1 #update counter
#print the sum
    print("The sum is",sum)
```

Enter n:5
The sum is 1
The sum is 3
The sum is 6
The sum is 10
The sum is 15

```
In [25]: #some example
i=1
while i<=5:
    print(i)
    i=i+1
```

1
2
3
4
5

```
In [26]: i=1
while i<=5:
```

```
print(i*'*')
i=i+1
```

```
*
**
***
****
*****
```

The range() function

In [27]: `print(range(10))`

```
range(0, 10)
```

In [28]: `print(list(range(10)))`

```
[0, 1, 2, 3, 4, 5, 6, 7, 8, 9]
```

In [29]: `print(list(range(2,8)))`

```
[2, 3, 4, 5, 6, 7]
```

In [30]: `print(list(range(2,20,5)))`

```
[2, 7, 12, 17]
```

In [33]: *#program to iterate through a list using indexing*
genre=['pop','shri','rakshi','shreya']
#iterate over the using index
for s in range(len(genre)):
 print("I like",genre[s])

```
I like pop
I like shri
I like rakshi
I like shreya
```

Break and Continue

Break

In [44]: *#use of break statement inside loop*
for s in "SHRIRAKSHI":
 if s=="K":
 break
 print(s)
print("The end")

```
S
H
R
I
R
A
The end
```


Continue

```
In [46]: #Program to show the use of continue statement inside Loops
for s in "SHRIRAKSHI":
    if s=="K":
        continue
    print(s)
print("The end")
```

S
H
R
I
R
A
S
H
I
The end

```
In [47]: #Program to take the input string from the user
name=input("What is your name:\n")
type(name)
```

What is your name:
Shrirakshi

Out[47]: str

```
In [48]: #Program to read integer from user
age=input("What is your age:")
print("your age is:",age)
```

What is your age:20
your age is: 20

```
In [49]: type(age)
```

Out[49]: str

```
In [50]: #Let's have one more example
name=input("What is your name:")
print("It was nice talking to you"+name+"!")
age=input("Enter your age:")
print("Hey, you are already"+age+"years old,"+name+"!")
```

What is your name:Shrirakshi
It was nice talking to youShrirakshi!
Enter your age:20
Hey, you are already20years old,Shrirakshi!

```
In [51]: print("happy learning")
```

happy learning

In []: