# RANGE

- range(start,end,step) #start=1, end=required argument, step=1

In [8]:

```
1 a=range(1,10)
2 print(type(a))
```

```
<class 'range'>
```

In [9]:

```
1 list(range(1,10))
```

Out[9]:

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

In [10]:

```
1 list(range(1,11,2))
```

Out[10]:

```
[1, 3, 5, 7, 9]
```

In [11]:

```
1 range(5)
```

Out[11]:

```
range(0, 5)
```

In [12]:

```
1 list(range(5))
```

Out[12]:

```
[0, 1, 2, 3, 4]
```

In [13]:

```
1 range(10,1)
```

Out[13]:

```
range(10, 1)
```

In [14]:

```
list(range(10,1))
```

Out[14]:

```
[]
```

In [15]:

```
list(range(10,0,-1))
```

Out[15]:

```
[10, 9, 8, 7, 6, 5, 4, 3, 2, 1]
```

# WAP TO PRINT 1 - 10 Using For Loop

In [16]:

```
for i in range(1,11):
    print(i)
```

```
1
2
3
4
5
6
7
8
9
10
```

In [17]:

```
for i in range(1,11):
    print(i,end=" ")
```

```
1 2 3 4 5 6 7 8 9 10
```

# WAP to print 1-10 every second value using for loop

In [18]:

```
for i in range(1,11,2):
    print(i)
```

```
1
3
5
7
9
```

# WAP TO PRINT 10 - 1 Using For Loop

In [19]:

```
for i in range(10,0,-1):
    print(i)
```

```
10
9
8
7
6
5
4
3
2
1
```

- Ascending eg. 1-10 start<end eg. 1,11 ---> step=1
- Descending e.g 10-1 start>end eg. 10,0 --->step=-1

# WAP TO PRINT FACTORIAL USER ENTER ANY NUMBER

```
factorial (!)
5!=5*4*3*2*1 = 120

5!=1*2*3*4*5 = 120
```

In [20]:

```
n = int(input("Enter a Number :- "))
f=1
for i in range(1,n+1):
    f=f*i
print(f"Factorial of {n} is {f}")
```

```
Enter a Number :- 5
Factorial of 5 is 120
```

**Write a Program to Add n Natural Number.**

In [36]:

```
#User Input
n=int(input("Enter a Number :- "))
tot=0
for i in range(1,n+1):
    tot=tot+i
print(f"The Sum of {n} is {tot}")
```

```
Enter a Number :- 5
The Sum of 5 is 15
```

# ITERATION OVER DATATYPES

In [21]:

```
x=["one","two","three","four","five"]
```

In [22]:

```
len("asif")
```

Out[22]:

```
4
```

In [23]:

```
len(x)
```

Out[23]:

```
5
```

In [24]:

```
list(range(0,len(x)))
```

Out[24]:

```
[0, 1, 2, 3, 4]
```

In [25]:

```
#Indexing ke madad se
for i in range(0,len(x)):
    print(x[i])
```

```
one
two
three
four
five
```

In [26]:

```
for i in x:
    print(i)
```

```
one
two
three
four
five
```

In [27]:

```
a=(11,12,13,14,15)
for i in range(len(a)):
    print(a[i])
```

```
11
12
13
14
15
```

In [28]:

```
for i in range(len(a)):
    print(a[i], end=" ")
```

```
11 12 13 14 15
```

In [29]:

```
b ="python is fun"
for i in range(len(b)):
    print(b[i])
```

```
p
y
t
h
o
n

i
s

f
u
n
```

In [30]:

```
z=["hey","now","hello","my","world"]

for i in z:
    print(i)
```

```
hey
now
hello
my
world
```

# DICTIONARY

In [32]:

```
d={"a":10,"b":20,"c":30,"d":40}

for i in d.keys():
    print(i)
```

```
a
b
c
d
```

In [33]:

```
for i in d.values():
    print(i)
```

```
10
20
30
40
```

In [34]:

```
for i in d.items():
    print(i)
```

```
('a', 10)
('b', 20)
('c', 30)
('d', 40)
```

In [35]:

```
for i,j in d.items():
    print(i,j)
```

```
a 10
b 20
c 30
d 40
```

### Swapping Variables

In [37]:

```
x=5
y=10
```

In [38]:

```
x,y=y,x
```

In [39]:

```
x
```

Out[39]:

```
10
```

In [40]:

```
y
```

Out[40]:

```
5
```

In [41]:

```
x=5
y=10
```

In [42]:

```
z=x
x=y
y=z
```

# FIBONACCI SERIES

- The Fibonacci Series is a Series of numbers where a number is the addition of last two numbers. Starting with 0 and 1.
- The Fibonacci Sequence : 0,1,1,2,3,5,8,13,21,34,55.....and so on

Fibo PPt

```
x=0
y=1

loop(n):
          z<----x+y
          x<----y
          y<-----x+y
```

In [1]:

```
x=0
y=1
for i in range(10):
    z=x+y
    x=y
    y=z
    print(z,end=" ")
```

```
1 2 3 5 8 13 21 34 55 89
```

In [2]:

```
n=int(input("Enter a Series you want :- "))
x=0
y=1

for i in range(n+1):
    print(x,end=" ")
    z=x+y
    x=y
    y=z
```

```
Enter a Series you want :- 10
0 1 1 2 3 5 8 13 21 34 55
```

**Difference Between For Loop And While Loop**

- For Loop is used when we have definite iteration
- WHile Loop is used when we have infinite iteration
- For Loop is faster than while loop
- For Loop can iterate through a collection.
- WHile loop simply loop untill the condition become false.
- Syntax:- for i in range()
- Syntax:- while (condition)

In [ ]:

```

```