loop : repeating the code

while: till condition satisfies

for : for each value in sequence

for loop : for each value in sequence,repeating the

sequence: str, list, tuple, set, range

Syntax of for loop:

for variable_name in sequence:

```
    block of code
```

while loop

In [1]:

```
l=[1,2,3,4]

i=1
while i in l:
    print(i)
    i=i+1
```

```
1
2
3
4
```

for loop

In [2]:

```
l = [1,2,3,4]      # sequence

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

```
1
2
3
4
```

In [3]:

```
for i in range(5):
    print(i)
```

```
0
1
2
3
4
```

In [4]:

```
a="data"

for s in a:
    print(s)
```

```
d
a
t
a
```

In [5]:

```
t=(1,2,3,4)

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

```
1
2
3
4
```

In [6]:

```
s ={1,2,3,4}

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

```
1
2
3
4
```

In [7]:

```
s={1:25,"a":90}

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

```
25
90
```

In [8]:

```
l={10,20,30,40,10,10}

for i in range(10):
    l.discard(10)

print(l)
```

```
{40, 20, 30}
```

In [9]:

```
l=[10,11,3,4]

for i in l:
    if i==11:
        print("ds")

print("python")
```

```
ds
python
```

write a program that gives even numbers in a list

In [10]:

```
l=[4,9,14,16,21,29,33]

even_list=[]
for i in l:
    if i%2==0:
        even_list.append(i)

print(even_list)
```

```
[4, 14, 16]
```

write a program that gives even numbers & odd numbers in a list

In [11]:

```
l=[10,12,13,14,19,17]

even=[]
odd=[]

for i in l:
    if i%2==0:
        even.append(i)
    else:
        odd.append(i)


print(even,odd)
```

```
[10, 12, 14] [13, 19, 17]
```

write a program that gives, the sum of even numbers in a list

In [12]:

```
l=[4,9,14,16,21,29,33]

even_list=[]
for i in l:
    if i%2==0:
        even_list.append(i)

sum=0
for i in even_list:
    sum = sum+i

print(sum)
```

```
34
```

write a program that gives, the sum of even numbers & sum of odd numbers in a list

In [13]:

```
l=[4,9,14,16,21]

even_sum=0
odd_sum=0

for i in l:
    if i%2==0:
        even_sum=even_sum+i
    else:
        odd_sum=odd_sum+i

print(even_sum, odd_sum)
```

```
34 30
```

write a multiplication table using for loop

In [14]:

```
n= int(input("which multiplication table you want:"))
s= int(input("enter from which number, you want to start"))
e= int(input("enter number, where you wan to end"))

for i in range(s,e+1):
    print(n,"*",i,"=",n*i)
```

```
which multiplication table you want:5
enter from which number, you want to start1
enter number, where you wan to end10
5 * 1 = 5
5 * 2 = 10
5 * 3 = 15
5 * 4 = 20
5 * 5 = 25
5 * 6 = 30
5 * 7 = 35
5 * 8 = 40
5 * 9 = 45
5 * 10 = 50
```

In [15]:

```
l=[1,2,3,4]

for i in l:
    if i==3:
        break
    print(i)
```

```
1
2
```


Ask user to enter the values using for loop, break it when the sum is greater than 50

In [16]:

```
sum=0
for i in range(100):
    v = int(input("enter the value:"))
    sum=sum+v
    if sum>=50:
        break

print(sum)
```

```
enter the value:5
enter the value:55
60
```

In [17]:

```
l=[1,2,3,4]

for i in l:
    if i==3:
        continue
    print(i)
```

```
1
2
4
```

In [18]:

```
l=[1,2,3,4]

for i in l:
    if i==4:
        break
    print(i)

else:
    print("loop executed without any break")
```

```
1
2
3
```

In [19]:

```
for i in range(2):
    print("i=",i)
    if i==2:
        break
else:
    print("out of block")
```

```
i= 0
i= 1
out of block
```

nested for loops

In [20]:

```
for i in [14,18,20]:
    for j in range(10,12):
        print(i,j)
```

```
14 10
14 11
18 10
18 11
20 10
20 11
```

In [21]:

```
for i in range(3):
    for j in range(2):
        print("i=",i,"j=",j)
        if j==1:
            break
```

```
i= 0 j= 0
i= 0 j= 1
i= 1 j= 0
i= 1 j= 1
i= 2 j= 0
i= 2 j= 1
```

sum of digits of your phone number, till u get a single digit

In [23]:

```
p = input("enter your phone number: ")

sum=0
for i in range(10):
    sum=sum+int(p[i])
    if sum>=10:
        s = str(sum)
        t = int(s[0])+int(s[1])
        if t>=10:
            s=str(t)
            t=int(s[0])+int(s[1])

print("Sum:",t)
```

```
enter your phone number: 9123456789
Sum: 9
```