In [ ]:
```
#loop: repeated task
#function : reuse


I want to calculate tax
def tax_pay():
    salary
    taxper
    tax_amt
tax_pay ====1
```

In [1]:
```
for i in range(5):
    print(i)
```

```
0
1
2
3
4
```

In [ ]:
```
if you wnat to run ny loop we require 3 things
- initial point : to start the loop
- increment or decrement :gap
- condition : to stop the loop

i want to start with 1
i want to stop at 10
i want to go step by step by 2 unit

    1 3 5 7 9
```

In [ ]:
```
in for loop there 3 lines represent only one line
```

$pattern - 1$: range(stop)

- start value by defalut is zero
- in python index starts with zero
- by default it is increment only and its incremented by 1
- last = stop-1

range(5)

- start =0
- incre = 1
- last = 4
- output = 0 1 2 3

for i in range(10): print(i)

In [3]:
```
for i in range(10): # start=0  last = 9
    print(i)
```

```
0
1
2
3
4
5
6
7
8
9
```

In [7]:
```
print(1, end=" ")
print(2, end=" ")
print(3, end=" ")

for naresh in range(3):
    print(naresh, end=" ")
```

```
1 2 3 0 1 2
```

$Pattern - 2$

In [11]:
```
for m in range(20):
    print(m, end=" i like to move it move it  ")
    print(m*m)
```

```
0 i like to move it move it  0
1 i like to move it move it  1
2 i like to move it move it  4
3 i like to move it move it  9
4 i like to move it move it  16
5 i like to move it move it  25
6 i like to move it move it  36
7 i like to move it move it  49
8 i like to move it move it  64
9 i like to move it move it  81
10 i like to move it move it  100
11 i like to move it move it  121
12 i like to move it move it  144
13 i like to move it move it  169
14 i like to move it move it  196
15 i like to move it move it  225
16 i like to move it move it  256
17 i like to move it move it  289
18 i like to move it move it  324
19 i like to move it move it  361
```

In [13]:
```
print(1)
print(2)
print(3, end=" ")
print(4)
print(5)
```

```
1
2
3 4
5
```

$Pattern - 2$

- start value taken as strat mention inside teh range
- increment by deafult it will take one : 1
- last=(stop-1) range(5,11) start = 5 inc =1 last = 11-1 = 10

In [15]:
```
for k in range(5,11):
    print(k, end=" ")
```

```
5 6 7 8 9 10
```

$Pattern - 3$

range(start,stop,step)

- start = start
- step : how much gap?
  - if step size is positive value consider as positive direction
  - if step size is negative value consider as negative direction
- last: last = stop-1 if step size is positive value

  last = stop+1 if step size is nagative value

In [16]:
```
for l in range(3,15,2):
    print(l, end =" ")


#start = 3
#step= 2
#last = 15-1=14 direction : negative
#3 to 14
#3 5 7 9 11 13
```

```
3 5 7 9 11 13
```

In [19]:
```
for h in range(3,15,-2):
    print(h, end =" ")


#start = 3
#step= - 2 direction : negative
#last = 15-1=14
#3 to 14
#start =3   step=-2 dire =(-)ve last= 15+1=16

# 3 to 16 in reverse direction

#it will not work so no error and no answer
```

In [ ]:
```
for p in range(3,-15,2):
    print(p)
#start:3 step:2(+ve) last=-15-1 = -16
#3 to -16
# no answer no error
```

In [ ]:
```
range(5,15,3) #p
range(5,15,-3) #np
range(5,-15,-3) #p
range(-5,-15,-3)#p
range(5,-15,3) #np
range(-5,-15,3)#np
range(-5,15,-3)#np
range(-5,15,3)#p
range(5,15)#p
range(-5,15)#p
range(-5,-15)#np
range(15,5)#np
range(5,15,3) #p
range(5,15,-3) #np
range(5,-15,-3) #p
range(-5,-15,-3)#p
range(5,-15,3) #np
range(-5,-15,3)#np
range(-5,15,-3)#np
range(-5,15,3)#p
range(5,15)#p
range(-5,15)#p
range(-5,-15)#p
range(15,5)#np
range(15,5)#np
```

In [20]:
```
#wap ask the user print square of numbers from 5 to 10
#print (the sqaure of 5 is 25

for o in range(5,11):
    print(f"The sqaure of {o} is {o*o}")
```

```
The sqaure of 5 is 25
The sqaure of 6 is 36
The sqaure of 7 is 49
The sqaure of 8 is 64
The sqaure of 9 is 81
The sqaure of 10 is 100
```

In [21]:
```
#implement the 9th table
for w in range(1,11):
    print(f"{9}  X {w} = {9*w}")
```

```
9  X 1 = 9
9  X 2 = 18
9  X 3 = 27
9  X 4 = 36
9  X 5 = 45
9  X 6 = 54
9  X 7 = 63
9  X 8 = 72
9  X 9 = 81
9  X 10 = 90
```

In [22]:
```
#implement the 9th table
for q in range(1,11):
    print(f"{15}  X {q} = {15*q}")
```

```
15  X 1 = 15
15  X 2 = 30
15  X 3 = 45
15  X 4 = 60
15  X 5 = 75
15  X 6 = 90
15  X 7 = 105
15  X 8 = 120
15  X 9 = 135
15  X 10 = 150
```

In [25]:
```
#wap ask the user to get 5 random numbers between 5 to 50 and prnt the square o

#5 random numbers means loop should run 5 times
# to get random number we need to use random package
#random.randint we need to keep inside teh for loop
import random
for u in range(1,6):
    num=random.randint(5,50)
    print(f"The random number is {num} and its sqaure is {num*num}")
##########################################################################

#if we have to write the same line mant times, we will take out the random line
#it will give output but not the desired output

num1=random.randint(5,50)
for u1 in range(1,6):

    print(f"The random number is {num1} and its sqaure is {num1*num1}")
```

```
The random number is 41 and its sqaure is 1681
The random number is 12 and its sqaure is 144
The random number is 24 and its sqaure is 576
The random number is 26 and its sqaure is 676
The random number is 7 and its sqaure is 49
The random number is 30 and its sqaure is 900
The random number is 30 and its sqaure is 900
The random number is 30 and its sqaure is 900
The random number is 30 and its sqaure is 900
The random number is 30 and its sqaure is 900
```

In [27]:
```
print("good morning ")
print("good morning ")
print("good morning ")
print("good morning ")


for i in range(3):
    print("good morning")
```

```
good morning
good morning
good morning
good morning
good morning
good morning
good morning
```

In [30]:
```
#wap of the user print it is even number or odd number
#between 5 to 10

for e in range(5,11):

    if e%2==0:
        print(f"{e} It is even  number")
    else:
        print(f"{e} It is odd number")


#wap of the user enter a number and print i is even number or odd and ask the u
#a number 5 times

for y in range(5):
    num1=eval(input("Enter the number whose value is needed to be figured out"))
    if num1%2==0:
        print(f"{num1} It is even  number")
    else:
        print(f"{num1} It is odd number")


#wap ask the user get a 5 random numbers between 5,50
#print it is even or odd

for u in range(5):
    bu=random.randint(5,50)
    if bu%2==0:
            print(f"{bu} It is even  number")
    else:
         print(f"{bu} It is odd number")
```

```
5 It is odd number
6 It is even  number
7 It is odd number
8 It is even  number
9 It is odd number
10 It is even  number
Enter the number whose value is needed to be figured out5
5 It is odd number
Enter the number whose value is needed to be figured out8
8 It is even  number
Enter the number whose value is needed to be figured out2
2 It is even  number
Enter the number whose value is needed to be figured out6
6 It is even  number
Enter the number whose value is needed to be figured out6
6 It is even  number
```

In [45]:
```
#wap to find even or odd for 5 random numbers and count the even and
#odd numbers

even_count=0
odd_count=0



for u in range(5):
    bu=random.randint(5,50)
    if bu%2==0:
            print(f"{bu} It is even  number")
            even_count=even_count+1
    else:
        print(f"{bu} It is odd number")
        odd_count=odd_count+1



print("The number of even_count is",even_count)
print("The number of odd_count is",odd_count)
```

```
50 It is even  number
24 It is even  number
32 It is even  number
38 It is even  number
40 It is even  number
The number of even_count is 5
The number of odd_count is 0
```

In [ ]: