15/09/25

PYTHON

For Loop: Write a program to check for prime number

```
num = int(input())
                                               Tracing:3
                                                1.Intially count =0
count=0
print ("before count:", count)
                                                  count=0
for i in range(2,num,1):
                                                 => i=2
       if(num%i==0):
                                                     3\%2 == 0 [false]
           count+=1
                                                     count=0
                                                  =>i=3
       else:
                                                     3\%3 == 0[true]
           count=count
print("after count:", count)
                                                      count=1
if(count==0):
                                                   count = 0 (false)
        print("prime number")
                                                   Not a prime number
else:
        print ("not a prime number")
```

- =>There are 3 loop statements:
 - Break
 - Continue
 - Pass

o/p: 1 2 3 4

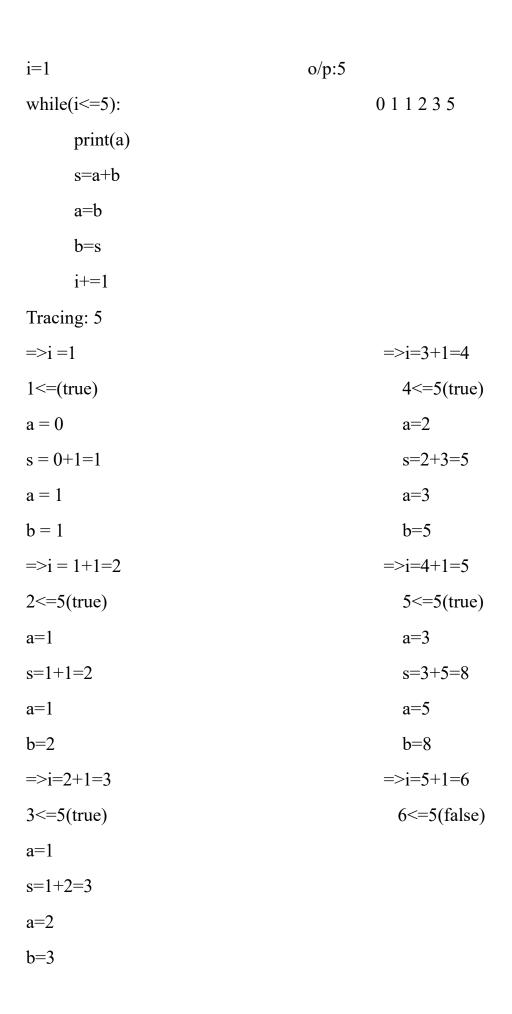
1.break statement: It will stop the execution if the given condition is satisfied.

Eg: for i in range(1,6,1):

```
if (i==5):
    break
else:
    print(i)
```

2.continue statement: To skip a particular condition

```
Eg: for i in range(1,6,1):
         if (i==5):
            continue
         else:
            print(i)
o/p:1 2 3 4 6
=>Using break statement check no. is prime or not
num = int(input())
for i in range(2,num,1):
       if(num%i==0):
            print("It is prime no.")
else:
    print("It's not a prime no.")
Tracing:
num = 4
i=2
4%2==0
It's a prime no.
2. While Loop: Syntax: initialization
                        while(condition):
                              statements
                              increment/decrement
=>Fibonacci series using while loop:
num = int(input())
a=0
b=1
```



```
=>Sum of digits using while loop
num = int (input())
s=0
while(num>0):
     dig=num%10 [to extract value]
     s=s+dig
     num=num//10 [to delete the value]
print(s)
o/p:123=>6
Tracing: 123
=>_{S}=0
123>0(true)
dig=123%10=3
s=0+3=3
num=123//10=12
s=3
=>_{S}=3
12>0(true)
dig=12%10=2
s=3+2=5
num=12//10=1
s=5
=>_{S}=5
1>0(true)
dig=1%10=1
```

s=5+1=6 , num=1//10=0 , s=6

3.Nested Loops: A loop inside another loop.

When we have a table like structure or rows and column structure go for nested loops.

• For loop inside for loop:

Syntax: for var1 in range(): #outer loop

for var2 in range(): #inner loop

statements for inner loop

statements for outer loop

Eg: write a program to tables from 1-3

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

for j in range(1,4,1):

print(i*j, end=" \t'") [end we use to print one after other]

print()

			Tracing: =>i=1	=>i=2	=>i=3
o/p: 1	2	3	j=1,2,3	j=1,2,3	j=1,2,3
2	4	6	1 2 3	2 4 6	3 6 9
3	6	9	=>i=4	=>i=5	=>i=6
4	8	12	j=1,2,3	j=1,2,3	j=1,2,3
5	10	15	4 8 12	5 10 15	6 12 18
6	12	18	=>i=7	=>i=8	=>i=9
7	14	21	j=1,2,3	j=1,2,3	j=1,2,3
8	16	24	7 14 21	8 16 24	9 18 27
9	18	27	=>i=10		
10	20	30	j=1,2,3		
			10 20 30		