While loop

What is a while loop?

A.   while loop is repeatedly executes a block of code as long as a condition is True.If the condition never becomes `False`, the loop will run forever.

Syntax:

    While condition:
            #code to run while condition is true

Basic example:

i = 1
while i <= 5:
   print(i)
   i += 1

Output:

1
2
3
4
5

#print 1 to 10 numbers using while loop

num=int(input("enter a number:"))
while num<=10:
   print(num)
   num+=1

Output:

enter a number:1
1
2
3
4
5
6
7
8
9
10

#print sum of even numbers from 15 to 25 using while loop

n=15

```
sum=0
while n<=25 :
    if n%2==0:
        print(n)
        sum+=n
    n+=1
print("sum:",sum)
```
Output:
16
18
20
22
24
Sum:100

#print sum of odd numbers from 10 to 1 using while loop
```
n=10
sum=0
while n>=1:
    if n%2==1:
        print(n)
        sum+=n
    n-=1
print("sum of odd numbers",sum)
```
Output:
9
7
5
3
1
sum of odd numbers 25

#print numbers from 100 to 1 using while loop
```
n=100
while n>0:
    print(n)
    n-=1
```

#print -1 to -10 numbers using while loop

```python
n=-1
while n>=-10 :
    print(n)
    n-=1
```

Output:

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

#print -10 to -1 using while loop

```python
n=-10
while n<0 :
    print(n)
    n+=1
```

Output:

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

#wap to iterare a number and print every digit in the number

```python
n=int(input("enter a number:"))
while n>0 :
    digit=n%10
    print(digit)
```

```
   n//=10
```

Output:

enter a number:158

8

5

1

#sum of digits in a number

```python
n=int(input("enter a number:"))
sumofdigit=0
while n>0:
    digit=n%10
    print(digit)
    sumofdigit+=digit
    n//=10
print("sum:",sumofdigit)
```

Output:

enter a number:250

0

5

2

sum: 7

#wap to print no of digits in a number

```python
n=int(input("enter  a number:"))
count=0
while n>0 :
    digit=n%10
    print(digit)
    count+=1
    n//=10
print("count:",count)
```

Output:

enter a number:125645

5

4

6

5

2

count: 6

#reverse a number using while loop

```
num=int(input("enter a number:"))
reverse=0
while num>0:
   digit=num%10
   reverse=reverse*10+digit
   num//=10
print("reverse:",reverse)
```

Output:

enter a number:654

reverse: 456

#check if a number is a palindrome or not

```
num=int(input("enter a number:"))
original=num
reverse=0
while num>0:
   digit=num%10
   reverse=reverse*10+digit
   num//=10
print(reverse)
if reverse==original:
        print(f"{original} is a palindrome")
else:
        print(f"{original} is not a palindrome")
```

Output:

enter a number:252

252

252 is a palindrome

#factorial of number

```
n=int(input("enter a number:"))
factorial=1
i=1
while i<=n:
   factorial*=i
   i+=1
```

```
print(factorial)
```

Output:
```
enter a number:5
120
```

#while -else
```
n=100
while n>95:
    print(n)
    n-=1
else:
    print("hello")
```

Output:
```
100
99
98
97
96
'hello'
```