

## while loop

“**while**” keyword represents while loop in python

“while” loop is used to repeat block of statements until given condition.

What is difference between while loop and for loop?

While loop	For loop
While loop is used to repeat one or more than one statement until given condition	For loop is used to repeat one or more than one statement number of times, it used to iterate or read values from iterables (collections)

While loop required 3 statements

1. Initialization statement
2. Condition
3. Update statement

Initialization statement is used to define initial value of condition

Condition is a boolean expression which defines how many time while loop has to repeated

Update statement is used to update condition

<p><b>Syntax:</b></p> <pre>&lt;initialization-statement&gt; while &lt;condition&gt;:     statement-1     statement-2     update-statement</pre> <p>while loop repeat statement-1, statement-2 until given condition is True, it will stop repeating when condition becomes False</p>	<pre>graph TD     Start([start]) --&gt; Init[initialization statement]     Init --&gt; Cond{condition}     Cond -- True --&gt; Statements[statement-1&lt;br/&gt;statement-2]     Statements --&gt; Cond     Cond -- False --&gt; Stop([stop])</pre>
<p><b>Example</b></p> <p># Write a program to print your name 10 times</p>	<p><b>Output</b></p> <p>NARESH IT NARESH IT NARESH IT NARESH IT</p>

<pre># using while loop  i=1 # initialization statement  while i&lt;=10: # condition     print("NARESH IT")     i=i+1 # update statement</pre>	<pre>NARESH IT NARESH IT NARESH IT NARESH IT NARESH IT NARESH IT</pre>
<p><b>Example</b></p> <pre># Write a program to generate numbers from 10 to 1 # 10 9 8 7 6 5 4 3 2 1 using while loop  num=10 while num&gt;=1:     print(num)     num-=1</pre>	<p><b>Output</b></p> <pre>10 9 8 7 6 5 4 3 2 1</pre>
<p><b>Example</b></p> <pre>while False:     print("Bye")  while True:     print("Hello")</pre>	<p><b>Output</b></p> <p><b>Print Hello infinite times</b></p> <p><b>To terminate program press Ctrl+C</b></p>
<p><b>Example</b></p> <pre># Write a program to find length of number (OR) count of digits # 4867 ==&gt; 4digits # 17936 ==&gt; 5digits  num=int(input("Enter any integer value ")) c=0 while num&gt;0:     c=c+1     num=num//10  print(f'Count of digits {c}')</pre>	<p><b>Output</b></p> <p><b>Enter any integer value 123</b></p> <p><b>Count of digits 3</b></p>

<p><b>Example</b></p> <p># Write a program to print sum of digits of input number</p> <pre> num=int(input("Enter any number ")) s=0 while num&gt;0:     r=num%10     s=s+r     num=num//10  print(f'Sum of digits {s}')</pre>	<p><b>Output</b></p> <p>Enter any number 123 Sum of digits 6</p>
<p><b>Example</b></p> <p># Write a program to print math table of input number</p> <pre> num=int(input("Enter any number "))  i=1 while i&lt;=10:     p=num*i     print(f'{num}x{i}={p}')     i=i+1</pre>	<p><b>Output</b></p> <p>Enter any number 9 9x1=9 9x2=18 9x3=27 9x4=36 9x5=45 9x6=54 9x7=63 9x8=72 9x9=81 9x10=90</p>
<p><b>Example</b></p> <p># Write a program to count even and odd digits # of input number</p> <pre> num=int(input("Enter any number ")) ec=0 oc=0  while num&gt;0:     d=num%10     if d%2==0:         ec+=1</pre>	<p><b>Output</b></p> <p><b>Enter any number 1578</b> <b>Even count digits 1</b> <b>Odd count digits 3</b></p> <p><b>Enter any number 1468</b> <b>Even count digits 3</b> <b>Odd count digits 1</b></p>

<pre>else:     oc+=1     num=num//10  print(f'Even count digits {ec}') print(f'Odd count digits {oc}')</pre>	
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