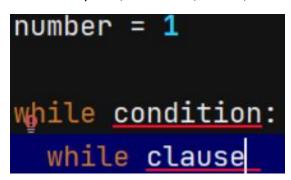# How To Use
While Loop

Python Video = https://youtu.be/vIQwHQfaWtg

In this session, let's take a look at while loop. The purpose of a Python while loop is to execute a block of code multiple times. We can add some lines of code and it will loop through the code until a particular condition is false. Therefore, our program will execute over and over again while the condition is true.

In the IDE, let's start with a variable called number and assign it to 1. The while loop has 4 parts. It has the while keyword, a condition, a colon, then the … while clause.

The while keyword is followed by condition. From previous sessions, we know a condition evaluates to True or False. Our while clause which is a block of code will execute while the condition is True. Let me erase condition then write a condition like while number <= 5: The next line begins our while clause. Everything indented below the while keyword, condition, and colon is considered the while clause. print(number) will execute while number <= 5. The condition determines how many times the variable number shows up in our console. However, we must be careful and not create an infinite loop. An infinite loop is a loop that always evaluate to True.

```
number = 1


while number <= 5:
    print(number)
```

Run and we have an infinite loop that only shows 1 in the console. If I stop the program, we Process finished with exit code -1.

```
1
1
1
1
Process finished with exit code -1
```

The value started at 1 but never incremented to 2. We increment by writing number = number + 1. This statement takes the value of number then add 1 to the number. The shorthand is number += 1 and it will automatically add 1 to the number. Let's add 1 more print() statement to show when the "While Loop Is Complete".

```python
number = 1

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

print("While Loop Is Complete")
```

This time, when we run, the console shows 1, 2, 3, 4, 5 While Loop Is Complete.

```
1
2
3
4
5
While Loop Is Complete
```

Here is the process. number is initialized to 1. Next is to check the condition. Is 1 less than or equal to 5? Yes, so the condition is True. Therefore, the code says while 1 <= 5 print the number 1 then increment by 1. After incrementing by 1, the number is now 2. At this point, the program jumps back to the while keyword and the condition. Is 2 less than or equal to 5. Yes, so while 2 is less than or equal to 5 print the number then increment the number. This process will continue until the number is 6. When number increments to 6, the while loop is complete because the condition is False. 6 is not less than 5 and 6 is not equal to 5.
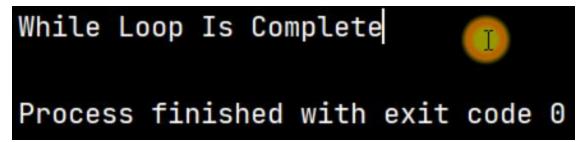
If number is initialized to 6 then the condition starts with a False value. As a result, the block of code will be skipped and never execute.

```python
number = 6

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

print("While Loop Is Complete")
```

Run and the console only shows While Loop Is Complete.

```
While Loop Is Complete

Process finished with exit code 0
```

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