Python while Loop

The while loop in Python is used to iterate over a block of code as long as the test expression (condition) is true.

Syntax:

```
while test_expression:

    Body of while
```

The body of the loop is entered only if the test_expression evaluates to True.

After one iteration, the test expression is checked again.

This process continues until the test_expression evaluates to False.

Flow Chart

Example

In [3]:
```
#Find product of all numbers present in a list

lst = [10, 20, 30, 40, 60]

product = 1
index = 0

while index < len(lst):
    product *= lst[index]
    index += 1

print("Product is: {}".format(product))
```

```
Product is: 14400000
```

while Loop with else

Same as that of for loop, we can have an optional else block with while loop as well.

The else part is executed if the condition in the while loop evaluates to False. The while loop can be terminated with a break statement.

In such case, the else part is ignored. Hence, a while loop's else part runs if no break occurs and the condition is false.

In [6]:
```
numbers = [1, 2, 3,4,5]

#iterating over the list
index = 0
while index < len(numbers):
    print(numbers[index])
    index += 1

else:
    print("no item left in the list")
```

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```

```
---------------------------------------------------------------------------
KeyboardInterrupt                         Traceback (most recent call last)
<ipython-input-6-5284e331b6e8> in <module>()
      4 index = 0
      5 while index < len(numbers):
----> 6     print(numbers[index])
      7
      8 else:

/Library/Frameworks/Python.framework/Versions/3.6/lib/python3.6/site-packages/ip
ykernel/iostream.py in write(self, string)
    350             is_child = (not self._is_master_process())
    351             # only touch the buffer in the IO thread to avoid races
--> 352             self.pub_thread.schedule(lambda : self._buffer.write(string)
)
    353             if is_child:
    354                 # newlines imply flush in subprocesses

/Library/Frameworks/Python.framework/Versions/3.6/lib/python3.6/site-packages/ip
ykernel/iostream.py in schedule(self, f)
    184         """
    185         if self.thread.is_alive():
--> 186             event_id = os.urandom(16)
    187             while event_id in self._events:
    188                 event_id = os.urandom(16)

KeyboardInterrupt:
```

Python Program to check given number is Prime number or not

In [8]:
```
num = int(input("Enter a number: "))        #convert string to int


isDivisible = False;

i=2;
while i < num:
    if num % i == 0:
        isDivisible = True;
        print ("{} is divisible by {}".format(num,i) )
    i += 1;

if isDivisible:
    print("{} is NOT a Prime number".format(num))
else:
    print("{} is a Prime number".format(num))
```

```
Enter a number: 16
16 is divisible by 2
16 is divisible by 4
16 is divisible by 8
16 is NOT a Prime number
```