# The 'while' Statement

```
#-------------------------------------------------------------------------------

def CountUp( lo, hi ) :

    # Print the integers between 'lo' and 'hi', inclusive, one per line

    i = lo

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

#-------------------------------------------------------------------------------

def IsSquare( n ) :

    # Is the number 'n' a perfect square?  ( assume n >= 0 )

    r = 0

    while r * r < n :
        r += 1

    return r * r == n

#-------------------------------------------------------------------------------

def Occurs( x, s ) :

    # Is 'x' an element of sequence 's' ?

    i = 0

    while i < len( s ) and s[ i ] != x :
        i += 1

    return i < len( s )

#-------------------------------------------------------------------------------

def DigitCount( n ) :

    # The number of decimal digits in the integer 'n'

    if n < 0 :
        n = -n

    digitcount = 1
    poweroften = 10

    while poweroften <= n :
        digitcount += 1
        poweroften *= 10

    return digitcount

#-------------------------------------------------------------------------------
```

```
>>> CountUp( 3, 8 )
3
4
5
6
7
8
```

```
>>> for n in [ 0, 1, 2, 4, 8, 9, 196, 197 ] :
...     print( n, IsSquare( n ) )

0 True
1 True
2 False
4 True
8 False
9 True
196 True
197 False
```

```
>>> Occurs( "a", "bread" )
True

>>> Occurs( "A", "bread" )
False

>>> Occurs( "a", "" )
False
```

```
>>> DigitCount( 5 )
1

>>> DigitCount( 0 )
1

>>> DigitCount( 481 )
3

>>> DigitCount( 12345678901234567890123456789012345678901234567890123 )
53

>>> DigitCount( -12345 )
5
```