Given any initial natural number, consider the sequence of numbers generated by repeatedly following the rule:

* divide by two if the number is even or
* multiply by 3 and add 1 if the number is odd.

The Collatz conjecture states that this sequence always terminates at 1. For example, the sequence generated by 23 is:

23, 70, 35, 106, 53, 160, 80, 40, 20, 10, 5, 16, 8, 4, 2, 1

Write a Python program that takes a global variable n and uses a timer callback to repeatedly apply the rule above to n. Use the code from the previous question as a template. I suggest that your code prints out the sequence of numbers generated by this rule. Run this program for n = 217. What is the largest number in the sequence generated by this starting value?

To test your code, starting at n = 23 generates a sequence with a maximum value of 160.

def number(n):

if n % 2 == 1 :

return n\*3 +1

else:

return n / 2

a=[0]\*30

a[0]=23

a[1]=number(a[0])

for i in range(16):

if a[i] != 1:

a[i+1]=number(a[i])

else:

print a[:i]

print max(a)

b=[0]\*100

b[0]=217

b[1]=number(b[0])

for i in range(30):

if b[i] != 1:

b[i+1]=number(b[i])

else:

print b[:i]

print max(b)