Circular buffer (long buffer)

Goal: Implement the difference equation

$$y(n) = b0\ x(n) + G\ x(n-4)$$

using a buffer of length 7.

The buffer stores the previous 7 values of the input signal.

Initialize buffer to zeros:

[0 0 0 0 0 0 0]

At initialization (n = 0), the values represent:

[x(-7) x(-6) x(-5) x(-4) x(-3) x(-2) x(-1)]

Initialization of indeces:
kw = 0
kr = 3 = 7 - 4 = BUFFER_LEN - N

With each step through the difference equation, we have:

at n = 1:
[x(0) x(-6) x(-5) x(-4) x(-3) x(-2) x(-1)]

at n = 2:
[x(0) x(1) x(-5) x(-4) x(-3) x(-2) x(-1)]

at n = 3:
[x(0) x(1) x(2) x(-4) x(-3) x(-2) x(-1)]

at n = 4:
[x(0) x(1) x(2) x(3) x(-3) x(-2) x(-1)]

at n = 5:
[x(0) x(1) x(2) x(3) x(4) x(-2) x(-1)]

at n = 6:
[x(0) x(1) x(2) x(3) x(4) x(5) x(-1)]

at n = 7:
[x(0) x(1) x(2) x(3) x(4) x(5) x(6)]

at n = 8:

[x(7) x(1) x(2) x(3) x(4) x(5) x(6)]

at n = 9:

[x(7) x(8) x(2) x(3) x(4) x(5) x(6)]

at n = 10:

[x(7) x(8) x(9) x(3) x(4) x(5) x(6)]