ECE 303 HW02

The brute force method is not efficient in high order filter because as the order of the filter increased, the data that we need to shift when a new data coming in also increase. The time that shifting takes is linear proportional to the number of orders.

If we use the circular buffer method, shifting the pointer instead of data, the shifting time is constant. In other words, if we use brute force method (FIR30th), the time complexity is O(n), while the time complexity for circular buffer algorithm (FIR90th) is O(1) (aka constant).