**Go-Back-N ARQ** is a specific instance of the [automatic repeat request](http://en.wikipedia.org/wiki/Automatic_repeat_request) (ARQ) protocol, in which the sending process continues to send a number of [frames](http://en.wikipedia.org/wiki/Data_frame) specified by a *window size* even without receiving an [acknowledgement](http://en.wikipedia.org/wiki/Acknowledgement_(data_networks)) (ACK) packet from the receiver. It is a special case of the general [sliding window protocol](http://en.wikipedia.org/wiki/Sliding_window_protocol) with the transmit window size of N and receive window size of 1.

The receiver process keeps track of the sequence number of the next frame it expects to receive, and sends that number with every ACK it sends. The receiver will discard any frame that does not have the exact sequence number it expects (either a duplicate frame it already acknowledged, or an out-of-order frame it expects to receive later) and will resend an ACK for the last correct in-order frame. [[1]](http://en.wikipedia.org/wiki/Go-Back-N_ARQ#cite_note-KuroseRoss-1) Once the sender has sent all of the frames in its *window*, it will detect that all of the frames since the first lost frame are *outstanding*, and will go back to sequence number of the last ACK it received from the receiver process and fill its window starting with that frame and continue the process over again.

Go-Back-N ARQ is a more efficient use of a connection than [Stop-and-wait ARQ](http://en.wikipedia.org/wiki/Stop-and-wait_ARQ), since unlike waiting for an acknowledgement for each packet, the connection is still being utilized as packets are being sent. In other words, during the time that would otherwise be spent waiting, more packets are being sent. However, this method also results in sending frames multiple times – if any frame was lost or damaged, or the ACK acknowledging them was lost or damaged, then that frame and all following frames in the window (even if they were received without error) will be re-sent. To avoid this, [Selective Repeat ARQ](http://en.wikipedia.org/wiki/Selective_Repeat_ARQ) can be used