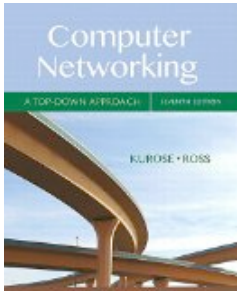
COMP 375: Lecture 20

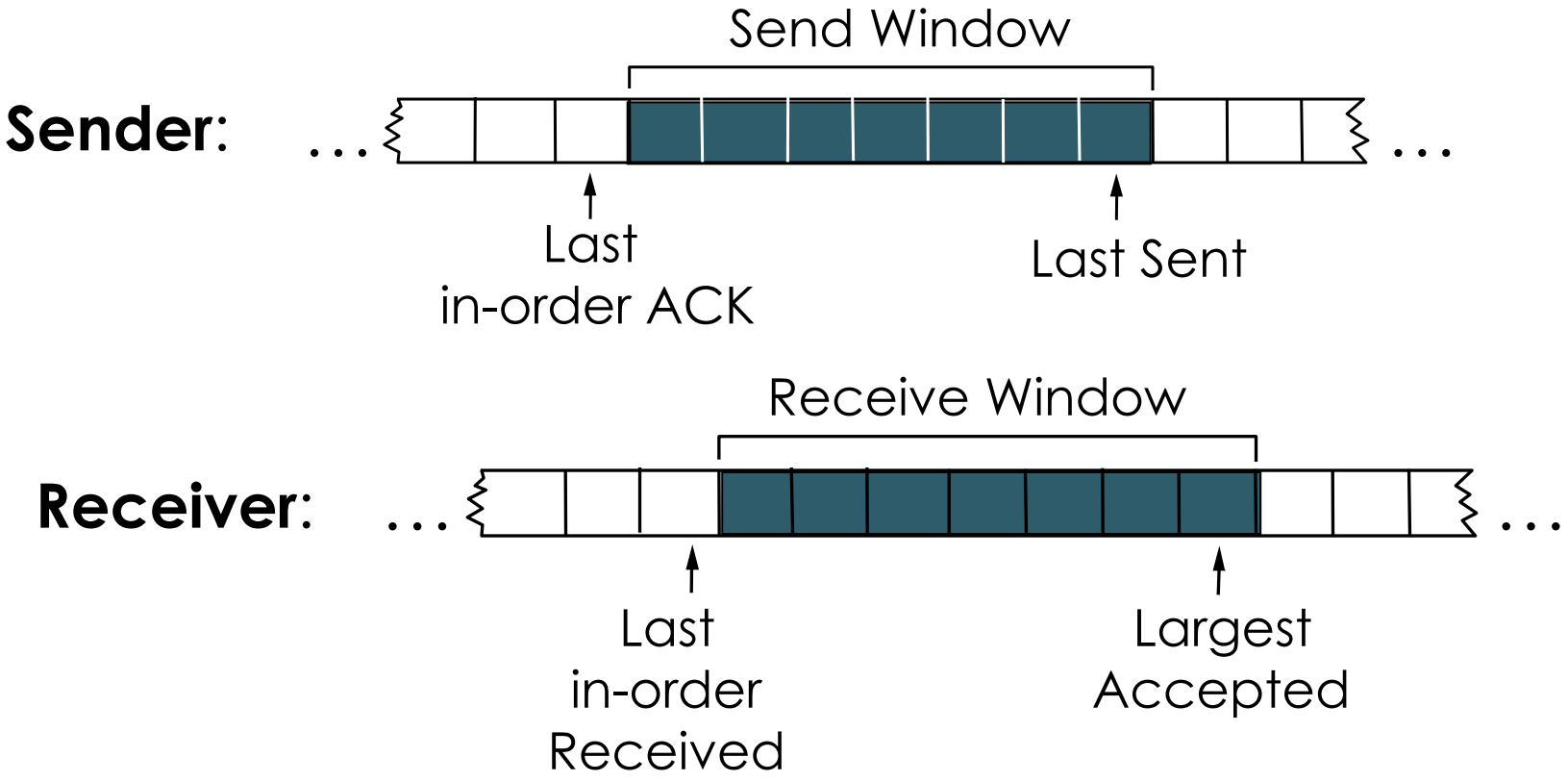


- **News & Notes:**
  - Project #3 due Friday
  - Happy Pi Day!
- **Reading (Fri, March 16)**
  - Sections 3.5.{5,6} (Flow Control and Connection Management)

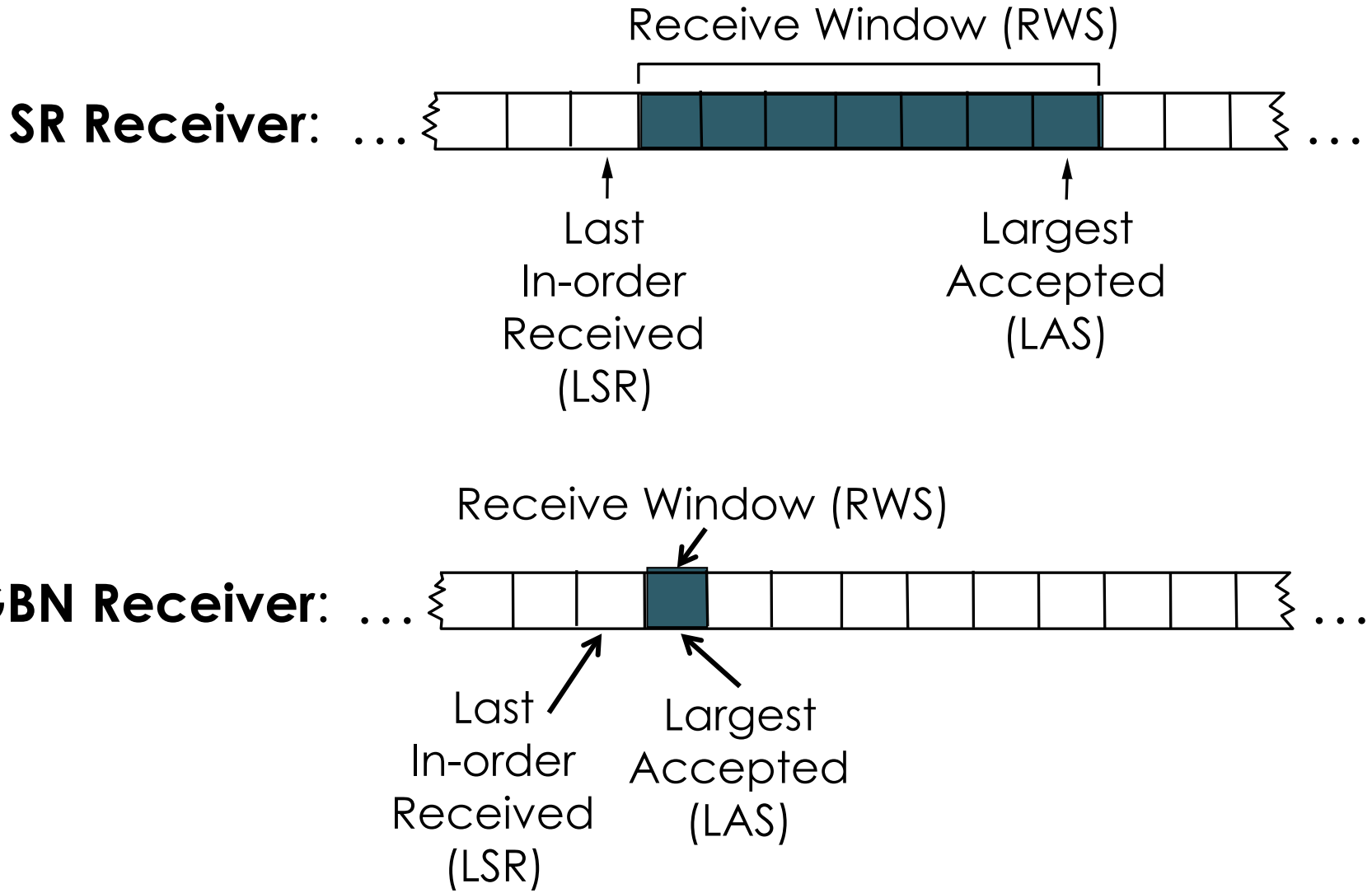
Sections 3.4.{3-4}

PIPELINED RELIABLE TRANSPORT

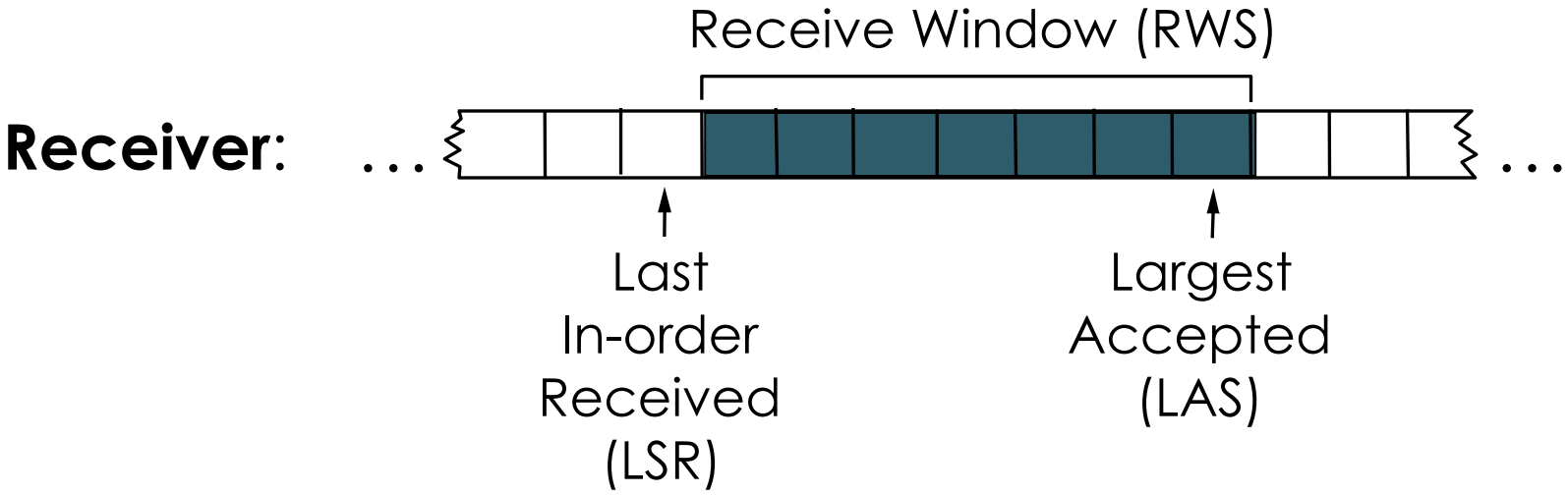
Sliding window allows pipelined, reliable, in-order delivery with flow control.



The receiver has its own, independent window that can limit flow of data.



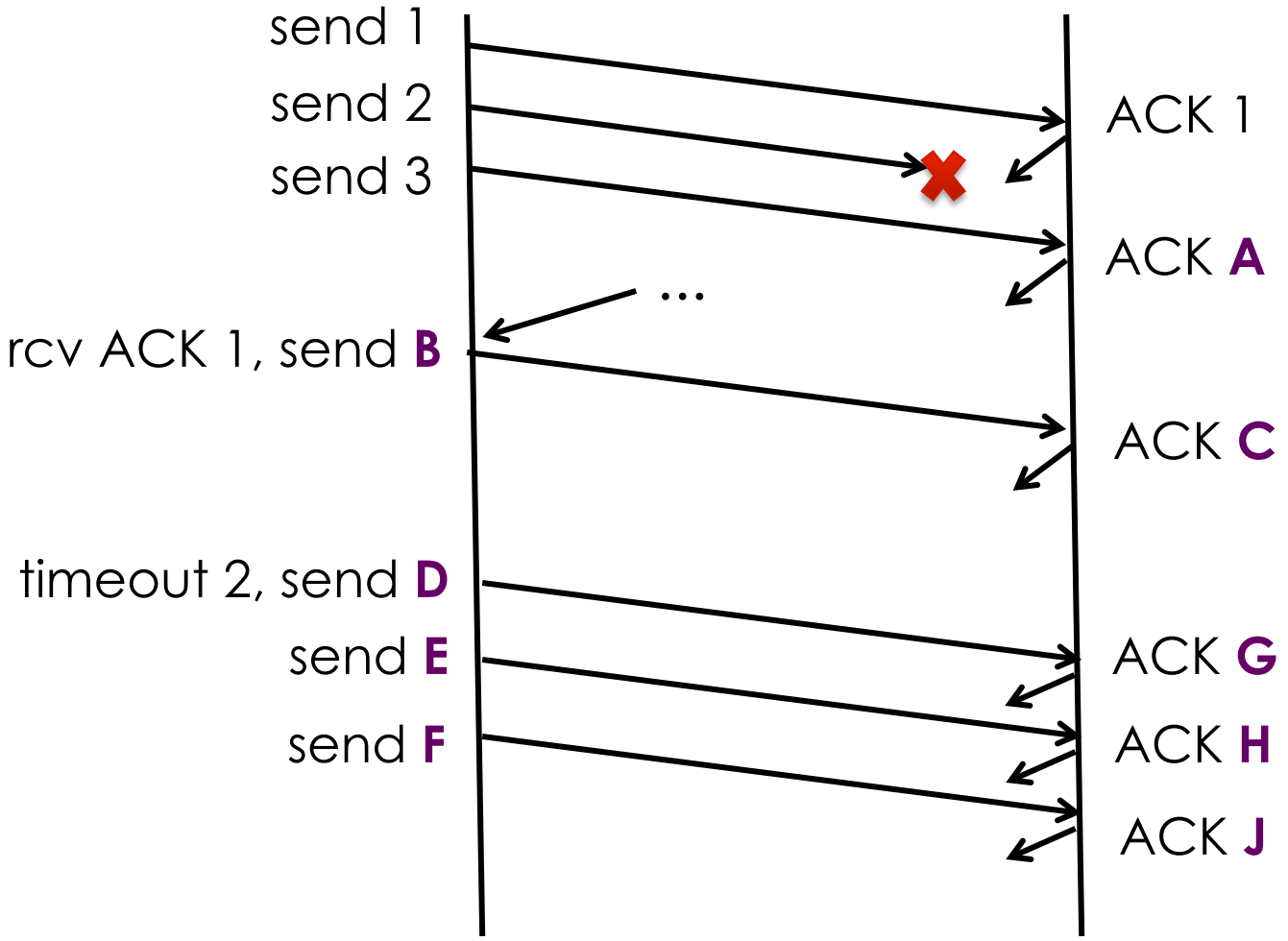
How do we handle the following scenarios in our **SR receiver**?



1. Received out-of-order segment within window.
2. Received segment **past** the window.
3. Received a segment its already ACK'd.

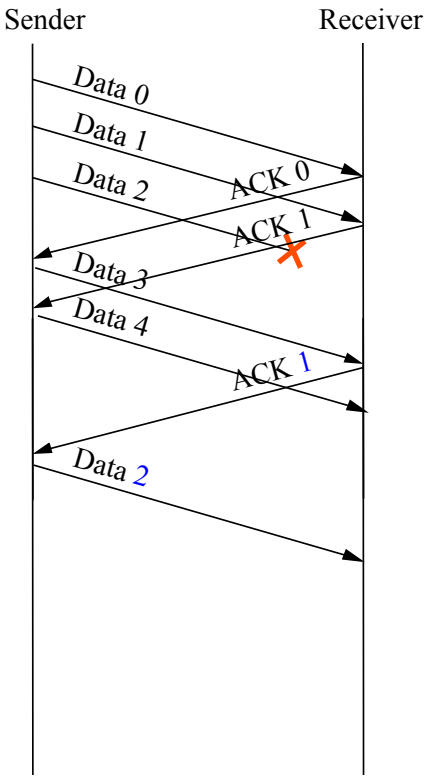
Fill in the missing spots (A – J) with correct number, assuming GBN with a sender window size of 3.

Think. Pair. Share!



Out-of-order segments usually imply a loss, which can allow us to shortcut the timer.

- **Option 1**: Send NACK
- **Option 2**: Fast retransmit



Fast retransmit: Instantly retransmit with you've received *N* consecutive duplicate ACKs.

Assume NASA wants to communicate with a satellite orbiting Pluto.

Which protocol would you use to communicate with that satellite?

A.	Stop & Wait
B.	GBN
C.	SR
D.	They are all good options.
E.	None of them are good options.

ARQ protocols are not well-suited for some specific environments.

What type of environments might we search for an ARQ alternative?

The main alternative to ARQ is to utilize **redundancy**.

- **Option 1**: Send same segment N times
- **Option 2**: Erasure coding