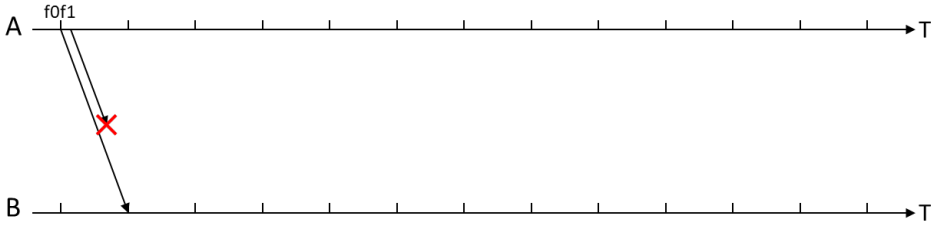
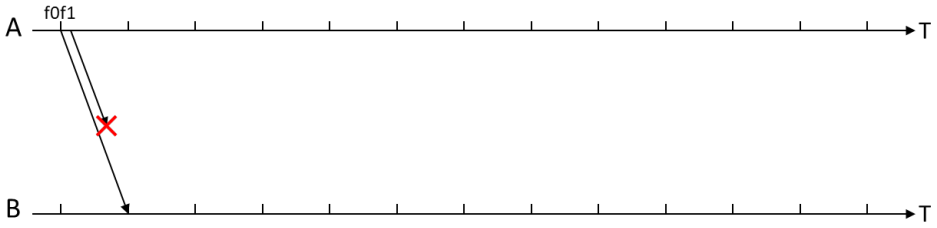
Cpr E 489 Spring 2024
Homework #3
Due Date: 3/5/2024 (Tue) by 11:59 PM
Type or scan your answers and submit on Canvas

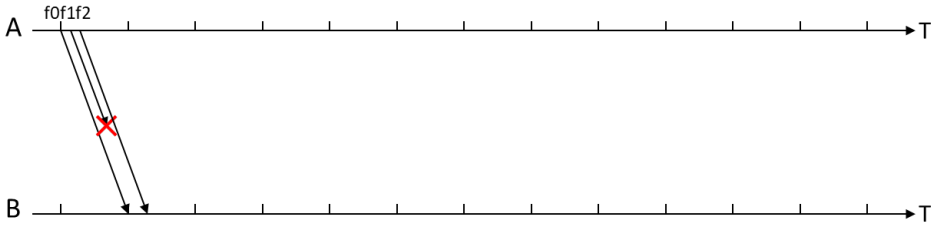
1. (60 points) Suppose A tries to send **four frames (f0, f1, f2, f3)** to B (i.e., no more frames to send after f3). Suppose that **f1 is lost on the first attempt**, while all other transmissions (including re-transmitted data frames and ACK/NAK frames) succeed. Suppose one-way propagation delay is 1 time unit, and timeout for each frame is 8 time units. Complete the frame exchange sequence until **all four frames** are delivered successfully with each one of the following ARQ protocols.
   i. (15 points) Go-Back-N ARQ protocol with N = 2.



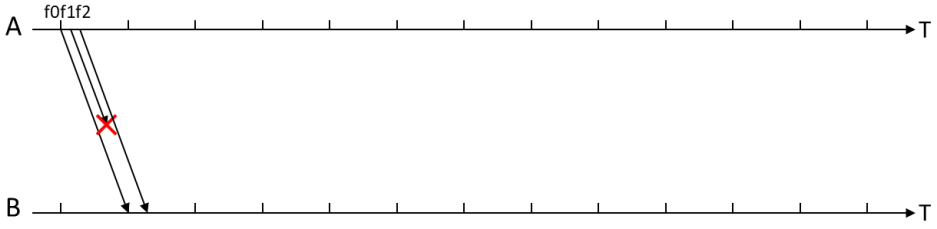
   ii. (15 points) Selective Repeat ARQ protocol with Ws = Wr = 2.



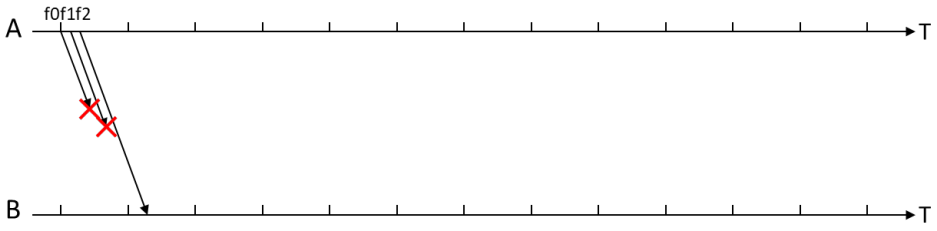
   iii. (15 points) Go-Back-N ARQ protocol with N = 3.



   iv. (15 points) Selective Repeat ARQ protocol with Ws = Wr = 3.



2. (40 points) Suppose A tries to send **five frames (f0, f1, f2, f3, f4)** to B (i.e., no more frames to send after f4). Suppose that **f0 and f1 are lost on the first attempt**, while all other transmissions (including re-transmitted data frames and ACK/NAK frames) succeed. Suppose one-way propagation delay is 1 time unit, and timeout for each frame is 8 time units. Complete the frame exchange sequence until **all five frames** are delivered successfully with each one of the following ARQ protocols.
   i. (20 points) Go-Back-N ARQ protocol with N = 3.



   ii. (20 points) Selective Repeat ARQ protocol with Ws = Wr = 3.