CPE 464 – Stop and Wait Design Requirements Document

See PolyLearn for due date

You may work on this in groups (up to 3 people). You only need to turn in one assignment for the group. All group members must be present for all work (except the final write-up). If you work in a group, you must provide a hardcopy of a picture of your group with some flow diagrams in the picture… and you MUST be smiling since its network related[1]!

Remember – You are NOT going to implement this program. We are focusing on the design of this program. You will use what you learn to help write program #3.

Note - Not all of these cases may be relevant for your design. These are just cases that need to be considered. If the case cannot happen or is handled some other way, just state that and if necessary explain why. Remember – design is a process not a direct journey. There are no correct answers, only some that work and some that don't. And yes, there are better designs and worse designs and that is part of the learning process.

PART I – Design questions

1) Very High level: Draw a packet flow diagram of the following scenarios (use a diagram similar to the ones done in class – labeled arrows between rcopy and server, include setting a timer (i.e. calling select()) in your diagram.) and discuss what implications this has on your server/client:
    a. No packets lost
    b. Data packet lost
    c. ACK lost

2) Draw a packet flow diagram for the following scenarios for the **filename** exchange or connection establishment exchange. End each diagram with the ACK for the second data packet being received.

    a. No packets lost
    b. First packet sent by rcopy (filename or establishment packet) is lost
    c. First two packets sent by rcopy are lost.
    d. Second packet sent by rcopy is lost (this might be the ACK for the 1st data packet)
    e. First packet sent by the server is lost.
    f. First two packets sent by the server are lost.
    g. First data packet sent by the server is lost

3) Looking back at questions #1 and #2, list the possible packet scenario(s) that will cause select() to time out.

[1] Worthy pictures will find a spot on my office door. If you don't want your picture on my office door, please put a note on the picture.

4) Regarding the following possible scenarios for receiving data. Explain **how** this scenario can happen and list **what action** you will take with the data and how you will reply to the sender:

    a. Data sequence number is the one you expect
    b. Data sequence number is a duplicate of one you have already received
    c. The data packet is corrupted
    d. The ACKis corrupted

5) Give a packet flow diagram on how you will handle the last packet of the file.
    a. Last data packet is lost
    b. ACK from rcopy for last data packet is lost.

6) **Make a copy of your answers to this assignment** … you will not get this back in time to write the program.

Part II – State diagrams

Turn in a state diagram for rcopy and another for server (so two diagrams). These diagrams should start with the filename exchange and cover the sending/acking of the last packet.

Make a copy of your packet flows and state diagrams before you turn them in… you will not get them back in time to design and write the next program.