

1 Homework Assignment 7

You are to build out your Lab 10 code to do things “right” this time.

Since this is the last assignment, I am not going to give you an `interface` or other hints or detailed directions. PART OF YOUR GRADE WILL DEPEND ON WHETHER YOU HAVE LEARNED ENOUGH TO BE ABLE TO CREATE CODE AS IF YOU HAD RECEIVED DETAILED DIRECTIONS. AND, AS ALWAYS, WE WHO ARE GRADING THE ASSIGNMENT ARE THE JUDGES OF WHETHER YOU HAVE DONE IT CORRECTLY.

IF YOU WISH TO DO SOMETHING THAT YOU THINK I MIGHT CONSIDER “NONSTANDARD” THEN YOU ARE FREE TO DO SO, BUT I AM FREE TO DECLARE IT TO BE UNACCEPTABLE. IF YOU WISH TO EXPLAIN WHY YOU ARE WRITING YOUR CODE THE WAY YOU ARE, THAT IS OK AND I MAY ACCEPT YOUR ARGUMENT. ABSENT AN ARGUMENT, I WILL GRADE IT UNDER THE ASSUMPTION THAT I AM THE EXPERT AND YOU ARE NOT (YET).

You must fix up your Lab 10 code to take care of the issues that made the lab code something of a hack.

- In your lab code you put all the packets into a single `TreeMap`. This time you will need to use a separate `TreeMap` for each message, which means that you will need to have a `TreeMap` of `TreeMaps`, with the outer `TreeMap` storing messages each of which consists of packets.
- In your lab code you assumed that all packets were distinct, so that you could tell when you had finished a given message simply by counting packets for that message. This time, you will need to worry about duplicate packets. As you read packets, you must check to see if you have already stored a packet for that `(messageId, packetSequence)` pair. If so, toss the earlier packet by overwriting it with the newer packet (thus making the assumption that the newer one is correct and the older one was re-sent because the system detected an error) and make sure that your count of packets per message is now counting not overall packets but unique packets by sequence number.
- This time you should bulletproof your input of data. Read an entire line of data and then parse that into the appropriate values. If you

don't have an proper line of data, meaning that you have not received a complete packet, then toss the line and continue.

- For this assignment it will be easier to delete the messages when they have been completely received and assembled, because you will be deleting an entire `TreeMap` and not trying to delete in the middle of an iterated loop.