

CS 485/ECE 440/CS 585 Homework 3
Due Friday, 30 October 2015

You may work in up to groups of four people to complete this assignment, but make sure you understand how the answers to the below questions are derived (i.e., don't just copy down answers someone else came up with) because you've already seen the socket system call API on the midterm and it will come up again and again in this class so you'd better understand it. You can work alone if you like, but in any case state at the top of your submission email who you worked with on the homework.

EACH INDIVIDUAL PERSON SHOULD TURN IN THEIR OWN HOMEWORK 3, even if your answers are identical to the people you worked together with. Submit your answers as single email to crandall@cs.unm.edu with all answers in the text body of the email. No attachments, no need to show your work, just state the answers. This assignment is intended as a way to help you understand the system call API that processes use to communicate over networks via sockets.

Refer to `hw3-new.tar.gz` in the `lecturenotes` directory to answer all questions. DO NOT USE THE OLD FILE, make sure “new” appears in the file name that you use to answer the questions.

Just send the answers to the following 10 questions (but be sure to state at the top who you worked with and include your own name in case it's not obvious from your email address):

1. For TCP, what port number did the server listen on?
2. For UDP, what port number did the server bind to to receive datagrams on?
3. For TCP, how long (in seconds) did the server wait between when it created the listening socket and when the client connected?
4. For UDP, how long (in seconds) did the server wait between being ready to receive UDP packets on its socket and actually receiving UDP packets from the client?
5. For TCP, how many packets did the server have to retransmit?
6. For UDP, how many packets were dropped en route to the server so that they were never received by the server-side kernel?
7. For UDP, how many packets were dropped by the server's kernel even though it received them (i.e., the packets appear in the packet capture but the application layer never received them)?
8. For TCP, what was the *maximum* flow control window size that the server ever advertised to the client?
9. For TCP, what was the *minimum* flow control window size that the server ever advertised to the client?
10. Which argument of the `socket()` system call gives you the best idea of whether the socket is going to be a UDP socket or TCP socket (e.g., first, second, third, etc.)?