COSC 264 – Introduction to Computer Networks and the Internet

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Questions:

1. A deadlock is a situation where a loop of systems are all waiting on input or output from another system. In the context of networking it could be that a server is waiting for a response packet and the receiver is waiting on a data packet because of packet losses in the system. In our case a deadlock occurs when the final data packet from the sender, the purposely empty packet, is lost. The receiver thinks there is still more data to come so is waiting for an arriving packet, but the sender has finished and is not waiting for an acknowledgement, so will not resend the final packet.
2. The magicNo field is useful for identification of related packets. For example a single sender and receiver could be attempting to send and receiver multiple files simultaneously or close together and the field could be used to differentiate between them. It is also useful as a quick check of packet validity before moving to the checksum.
3. We solved the issue of bit errors by adding a checksum field to the end of the header, which is calculated over only the preceding header fields. This means that either sender or receiver can see if the packet header has changed during transmission, protecting against bit errors. \*\*\* This could be extended to cover the data field as well to protect against bit errors in the payload \*\*\*
4. The select function call is a blocking call that waits until one or more of the given file descriptors are ready for input. Blocking means that the call does not use CPU time until there is some input available, this is handled by the OS.
5. \*\*\* we haven’t \*\*\*
6. \*\*\* will do in lab, easier to repeat with the opening script \*\*\*
7. \*\*\* Toohey is good at stats, not scones \*\*\*