

Kurose & Ross, chapters 5.1-5.5

Suppose a packet's data bits are 1010101010101011. An even parity Hamming code is used for error correction. What are the bits after encoding? (*Note: A single Hamming code is applied to all 16 data bits, not two Hamming codes to the two 8-bit data bytes.*)

Using the same Hamming code as Problem 1, give the data bits after performing error correction if the received packet is:

- a. 000011111110111011011
- b. 111010011000111000101

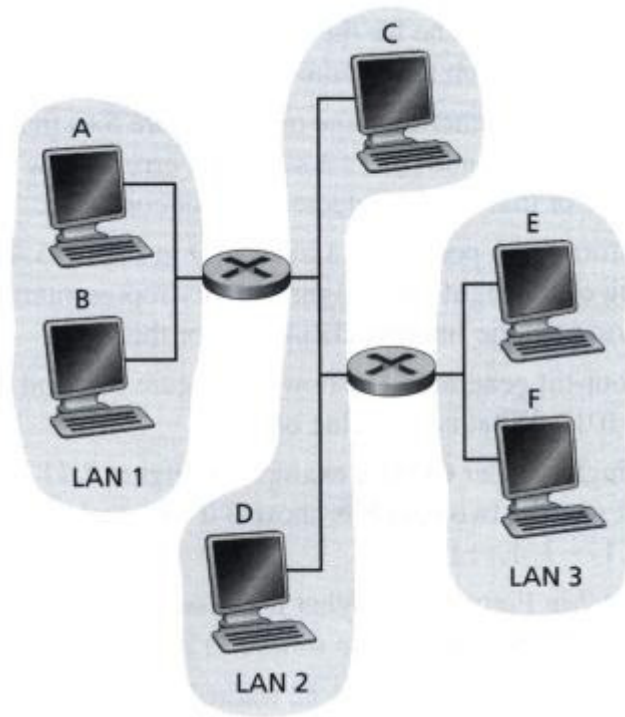
[Kurose & Ross, Chapter 5, Problem 3] Suppose the information portion of a packet (D in Figure 5.4) contains ten bytes consisting of the eight-bit unsigned binary representation of the integers 0 through 9. Compute the Internet checksum for this data.

[Kurose & Ross, Chapter 5, Problem 4] Consider the four-bit generator, G , shown in Figure 5.8, and suppose that D has the value 10101010. What is the value of R ?

[Kurose & Ross, Chapter 5, Problem 5] Consider the single-sender CDMA example in Figure 5.11. What would be the sender's output (for the two data bits shown) if the sender's CDMA code was (1, -1, 1, -1, 1, -1, 1, -1)?

[Kurose & Ross, Chapter 5, Problem 7] Suppose that the receiver in Figure 5.12 wanted to receive the data being sent by sender 2. Show (by calculation) that the receiver is indeed able to recover sender 2's data from the aggregate channel signal using sender 2's code.

[Kurose & Ross, Chapter 5, Problem 12] Consider three LANs interconnected by two routers, as shown in the diagram below.



- c. Redraw the diagram to include adapters.
- d. Assign IP addresses to all of the interfaces. For LAN 1 use addresses of the form 111.111.111.xxx; for LAN 2 use addresses of the form 122.122.122.xxx; and for LAN 3 use addresses of the form 133.133.133.xxx.
- e. Assign LAN addresses to all of the adapters.
- f. Consider sending an IP datagram from host A to host F. Suppose all of the ARP tables are up-to-date. Enumerate all the steps as done for the single-router example in Section 5.4.2.
- g. Repeat (d), now assuming that the ARP table in the sending host is empty (and the other tables are up-to-date).