

CS 271 Computer Architecture and Assembly Language

Self-Check for Lecture#8

Solutions are posted

1.
 - a. Show the 16-bit representation of 2437(decimal).

 - b. Convert the 16-bit representation of part (a) to the corresponding odd-parity Hamming code. Add the appropriate number of parity bits.

2. Given the 21-bit even-parity Hamming code 100001100011100110101.
 - a. Which bit is incorrect?

 - b. After the error is corrected, what decimal number is represented by the Hamming code of part (a)?

3. Note: This is NOT a programming assignment (but you might enjoy programming it anyway).

I need a program to calculate the odds of winning a lottery. The user enters the range of possible numbers and the number of picks required. For example, the user might enter 42 for the range, with 5 picks on one ticket. This will involve calculating the number of combinations of r items taken from a set of n items (i.e., ${}^n C_r$).

The program should display the odds of winning with one ticket.

For example: The odds of winning with 5 picks from 42 lottery numbers: 1 in 850668

a. How would you modularize this problem?

b. Show a hierarchy chart of your modularization.