

Introduction to Computer Science E09 – Week 7

Lecture: Monday, November 2, 12-14 (U140)

Tao Gu will lecture on Networking, Internet, and error-correcting codes based on Chapters 4 and 1.9.

Lecture: Wednesday, November 4, 14-16 (U28)

Daniel Merkle will lecture on Bioinformatics.

Lecture: Monday, November 9, 12-14

Lone Borgersen will give an introduction to software engineering.

Discussion section: November 3, 10:15-12 (U148)

1. Page 180. Problem 2.
2. Page 189. Problems 2, 3, and 6.
3. Page 199. Problems 1 and 3.
4. Page 206. Problem 2.
5. Page 215. Problem 4.
6. Pages 215-217. Problems 6, 13, 20, 28, 29, and 48.

Assignment due 14:15, November 12

Late assignments will not be accepted. Working together is not allowed. You may write this either in English or Danish. Write clearly if you do it by hand. Even better, use L^AT_EX.

1. Page 216, Problems 14 and 15.
2. Compute the Hamming distance of the following code:

0000011110001111

0001011010011110

0010010110101101

0011010010111100

3. Consider the single-bit error correction code discussed in the class. Suppose we want to transmit messages of 15 bits.
 - (a) How many redundant bits are required?
 - (b) What will be the codeword transmitted by the sender if the message is 110101001111010?
 - (c) This scheme is meant for correcting single bit errors. Give an example to show that when two bits are wrong, this scheme fails to detect it.