Institut for Matematik og Datalogi
Syddansk Universitet

September 17, 2008
JFB

Introduction to Computer Science
E08 – Week 5

Lecture, September 15

We covered up through section 4.4 of chapter 4 (section 4.5 will be covered later in the course).

Lecture, September 17

Kim Skak Larsen lectured on databases from chapter 9 of the textbook. (His slides are now available from the homepage for the course.)

Lecture, September 22

We will begin on chapter 5.

Lectures, September 29 and October 1

We will cover chapter 5 in the textbook and introduce Maple as an example of a programming language (note that there are notes on the course's homepage about Maple).

Discussion section: week 40

Discuss the following in groups of three or four (the page numbers and problem numbers are from the textbook):

1. Page 239–240: Problems 1, 2, 3.
2. Page 250–251: Problem 5, 6, 7.

3. Page 260: Problem 2, 3, 4.

4. Pages 270: Problem 3.

5. Pages 271–276: Problems 50, 53 (what precondition and loop invariant should hold)?

6. Consider the following problem (mentioned in lecture): There are three politicians, A, B, and C. You know that one of them always tells the truth, one of them always lies, and one of them sometimes tells the truth and sometimes lies. You are allowed to ask these three politicians any three true/false questions you like, and you may choose which politician is asked which question. How would you determine how to order the politicians by how often they tell the truth? This problem is quite difficult. Try your problem solving abilities, but do not be disappointed if you fail.

7. Page 277 questions 1, 2, 3, 4, 6.

Assignment due 12:15, October 6

Late assignments will not be accepted. Working together is not allowed. (You may write this either in English or Danish, but write clearly if you do it by hand.) Next to your name, write the section you are in.

Do the following problems in the textbook:

1. Page 272: Problem 11. Express the algorithm in pseudocode. Find a fundamental operation and use big theta notation to express how long your algorithm takes. Express this as a function of the positive integer N which is input, and also as a function of the length of N (the number of bits in N).

2. Page 272: Problem 17. Express the algorithm in pseudocode.

3. Page 273: Problem 23.