

## Introduction to Computer Science E08 – Week 7

### **Announcement**

Homeworks cannot be turned in to a mailbox, either mine or an instruktør's.

### **Repeat Announcement**

All discussion sections in week 41 will be in the Terminal Room. Sections S72's times have been moved in that week. They will meet Wednesday, October 8, 10:15-12, and Friday, October 10, 10:15-12. The two other times are cancelled for section S72. This only applies to week 41.

### **Lectures, September 29 and October 1**

We covered chapter 5 in the textbook and introduced Maple as an example of a programming language (note that there are notes on the course's homepage about Maple). Types and parameter passing were discussed through examples in Maple. We also covered sections 6.6 and 6.7 of chapter 6.

### **Lecture, October 6**

We will begin on chapter 12.

### **Lecture, November 3**

We will continue with chapter 12.

## Lecture, November 5

Rolf Fagerberg will lecture on section 9.5 in the textbook (merging and hashing).

## Discussion section: week 45

Do problem 15 on page 608 before coming to discussion section, so that you can compare solutions. Discuss the following problems in groups of three or four.

1. Questions 2, 3, and 5 on page 580.
2. Question 3 on page 587.
3. Questions 2, 3, and 5 from page 602.
4. Compare your solutions to problem 15 from page 608.
5. Problems 20, 25, 27, 29, 31, 32, 33, 37, 42, 44 on pages 608–610.
6. Discuss how the Shortest Path Problem (defined in lecture – given two cities, find the shortest path between them) and the Traveling Salesman Problem differ.
7. Discuss the social issues 1 and 5 on pages 611–612.

## Assignment due 12:15, November 10

Late assignments will not be accepted. Working together is not allowed. (You may write this either in English or Danish.) Explain your answers.

1. Do problem 4b on page 607.
2. Do one of the two following problems:
  - (a) Do problem 14 on page 608. (Note that the pattern should stay between the original asterisks, so every bit should be moved.)

- (b) Design a Turing machine that reads a string of zeros and ones between two asterisks and does the following: (Assume it starts on the asterisk to the left of the string.) If the number of bits in the string is not divisible by three, the string should keep its original value. Otherwise, the bit at position  $n/3$ , where  $n$  is the length of the string should be complemented, but all other bits should retain their original values. Note that you can use symbols other than 0, 1, and \*.