

Introduction to Programming – Concepts and Tools

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Week 1

Today's Goals

- Introduction
- Practical Information
- Course Outline
- Lecture

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Practical Information

- Course: Friday, 9:00 – 12:00 in room 0.19
 - Exercise classes/Labs: Friday, 13:00 – 16:00 in rooms 3.14, 3.15, 4.04, 4.05
 - Lecturer: Carsten Butz, office 1.17, email: butz@it-c.dk
 - Office hours: Monday, 12:00 – 13:00, Friday, 16:00 – 17:00
 - Teaching assistants:
 - Karen Binderup Jørgensen
 - Lars Rune Christensen
 - ?
 - Course homepage: <http://www.it-c.dk/courses/IPBR/F2003/>
 - Usually updated Thursday evening before the course
- All material will be posted on the webpage

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Practical Information

- Assignments: 11 Assignment sheets of which at least 8 have to be completed successfully to be allowed to sit the exam.
 - Assignments have to be handed in on Fridays ideally at the start of the lab sessions (1pm), latest at the end at 4pm.
 - Hand in your assignment to your lab assistant.
 - The written part of the assignment has to be stapled, with the front page being the cover sheet to be found at the coursepage.

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Practical Information

- Exam: June 6th, 2003.
 - Open book (i.e., you are allowed to bring your textbook and notes to the exam room)
 - Language dictionaries are allowed
 - No electronic devices are allowed (including electronic dictionaries!)
 - Graded on the Danish 13 scale

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Practical Information

- Workload:
 - 36 hours of lectures
 - 36 hours of lab sessions with lab assistants
 - 4 hours exam
 - 74 hours of self study

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Project Period

- When: April 28 – May 30 (12:00)
- What: Larger programming projects in groups of 2 to 5 students.
- Value: 7.5 ECTS
- Examples:
 - Search engine
 - Servlet/Database applications like
 - Online registration of student's course wishes
 - Simple game with ranking system
 - Webbased discussion forum
 - Analysis of server log-files
 - Etc.



Textbook and Other Resources

- Textbook: Pohl/McDowell, Java by Dissection. The essentials of Java Programming. Addison-Wesley, 2000 or later.
- Material posted on the course page, including
 - Slides from the lectures
 - Assignment sheets
- Internet resources



Why English?

- There are foreign students here who don't speak Danish.
- English is the lingua franca for Information Technology and Internet Technology.
- Many potential employers expect that you are fluent in English.
- Text, documents, descriptions, etc. both in written form and on the internet of often in English, and English only.
- ...
- ... your lecturer might not be speaking Danish !



Classroom Etiquette

- Be concentrated, come on time (as do I).
- Don't disturb the atmosphere by talking to you neighbour.
- Questions are allowed, preferably in English, but Danish is fine.
- However, I may not be able to answer all questions, and may refer you to the text or to the office hours.



Your Teacher

- Native German
- Master's in Mathematics (minor in Computer Science)
- Ph.D. in Mathematics from Utrecht University (The Netherlands)
- Researcher and Lecturer in Aarhus, Montreal and Edinburgh before coming to Copenhagen
- Research area: Foundations of mathematics and computer science, logic, semantics of programming languages.



Contents

- Introduction to concepts standard to most common programming and scripting languages
 - Programming process
 - Variables, identifiers
 - Control structures
 - Data types
 - Algorithms and algorithm analysis (searching, sorting)
 - Introduction to object oriented programming (inheritance, encapsulation, polymorphism)
 - Exception handling
 - Graphical user interfaces (if time permits)
- All this is (programming) language independent!



Contents

- Introduction to a high level programming language: Java
 - How the concepts are realised in Java
 - How to write programs using Java



Motivation

- Why learning programming?
 - Needed skill for all technical courses
 - The only way to understand possibilities and limitation of information technology
 - Helps understand potential or new products or solutions
 - Vital skill for the job market
 - Full of transferable skills
- Why Java?
 - Solid high level object oriented programming language
 - Well suited for internet applications and user interfaces
 - Good language for teaching abstracting away some technical details



Homework

- Check the course homepage
- Create the folder `tio` where you want to maintain your Java source files, and copy the 5 files
 - `Console.java`
 - `FormattedWriter.java`
 - `PrintFileWriter.java`
 - `ReadException.java`
 - `ReadInput.java`into that folder.
- Read Sections 1.1–1.4, 2.* (i.e., all of section 2) of the book
- Download the assignment sheet from the homepage and complete the tasks until next Friday.



Homework – Etiquette

- Find a partner and submit your homework in groups of 2 (i.e., one submission for each group).
- Make sure that you do work together on all questions, and that you do not divide the questions among you (then each of you will learn only half of what you should).
- Do not copy from other students (this constitutes student misconduct called plagiarism or, in its weaker form, collusion). If we find identical or close to identical solutions among different student groups then those groups will fail that particular assignment.