

**Lecture: Program analysis  
Project**

<http://proglang.informatik.uni-freiburg.de/teaching/programanalysis/2010ss/>

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## Assignment 1: Correctness of Reaching Definitions

In this project you prove the correctness of the Reaching Definitions analysis.

Follow the steps of Mini Project 2.2. (p. 133) in the Nielson&Nielson book.

Your submission should contain all steps in detail, and it should motivate your solution. You have to submit a pdf using L<sup>A</sup>T<sub>E</sub>X for type-setting (no hand-written submission!).

## Assignment 2: Implementing a Control Flow Analysis

In this project you implement a 0-CFA analysis according to Mini Project 3.3 (p. 204) in the Nielson&Nielson book.

1. Implement the constraint based control flow analysis.
2. Implement the graph based algorithm for solving the constraints.
3. Incorporate data flow information as given in Sec. 3.5 of the book.

You may choose to implement the analysis in Haskell or Java. For both languages, you find a parser and pretty-printer for the FUN language on the home page of this course.

Your submission consists of the following items:

- a documented implementation in the language of your choice;
- 3 examples that illustrate the usefulness and power of your implementation; and
- a description (max. 5 pages) which explains the general structure of your implementation and motivates your design choices.

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### Submission

- You have to submit a solution to **one** of the assignments.
- Every student is required to submit her/his own solution. You may discuss with each other, but you have to write down and/or implement everything yourself. You might be asked to explain parts of your submission as part of the grading process.
- All submitted texts need to be in clear and understandable English or German. Please spell check your descriptions before handing them in!
- Dead line: 23.07.2010, 16:00.
- The grade for this project amounts to 30% to your final grade.