TDT4205 Problem Set 5, Spring 2012

Part 1 - Theory due Wed Mar. 21^{th}, 20:00.
Part 2 - Programming due Wed Mar. 28^{th}, 20:00.

Part 1 needs to be passed in order for Part 2 to be evaluated!
ALL answers are to be submitted to *itslearning*

ALL OF THIS ASSIGNMENT IS TO BE DONE INDIVIDUALLY.
Cheating ("koking"), including using partial solutions from other students, will cause a failing grade for the whole course. We will be checking for this using a plagerism detecting as well as looking for suspiciously similar submissions.

All submitted source code MUST be able to compile and run on asti. **This assignment is PASS/FAIL.** Please read the assignment guidelines on itslearning before starting to work on the assignment. Requests for clarifications can be posted on the itslearning forum.

What to turn in
When turning in assignments, please turn in these files:

- (your_username)_answers.pdf : Answers to non-programming questions (Part 1)
- (your_username)_code.zip,tar.gz,tgz : All your code for this assignment, including makefiles and other necessary code (Part 2)

Part 2 - Programming (Code generation)

The file src/generator.c in the vslc subdirectory contains a structure to abstract the instructions we will need in assembly, and various utility functions to build and emit a linked list of such instructions, which will be our low-level intermediate representation. It also contains the function `generate`, which recursively traverses the syntax tree one final time, to create the instruction sequence. Your task is to add to this function, so that it correctly generates code for

- Function declarations
- Block statements
- Variable declarations
- Arithmetic expressions
- Integer constants
- Assignments of variables
- PRINT statements
- Return statements

For now, you may skip

- Array declarations (treat them as regular variables, ignoring the size parameter)
- Array lookups in expression (let any array lookup generate a zero)
- Array assignments (ignore these statements completely)