CS 5363: Programming Languages and Compilers

The University of Texas at San Antonio
Spring Semester, 2013

TL13 Language
Informal Semantics

- Only those variables which have been declared can be assigned to or used.
  - All int variables and array elements are considered to have initial values of "0".
  - All bool variables are considered to have initial values of "false".
- All binary operators operate on signed integer operands:
  - "x * y" results in the product of x and y.
  - "x div y" which results in the integer quotient of x divided by y when y is not 0. A hardware exception may occur if y is 0.
  - "x mod y" is the results in the remainder of x divided by y when x and y are non-negative. Otherwise it may produce any integer.
  - "x + y" results in the sum of x and y.
  - "x - y" is the difference of y subtracted from x.
  - "x = y" is true if x and y are the same, otherwise it is false.
  - "x != y" is false if x and y are the same, otherwise it is true.
  - "x < y" is true if x is less than y, otherwise it is false.
  - "x > y" is true if x is greater than y, otherwise it is false.
  - "x <= y" is true if x is less than or equal to y, otherwise it is false.
  - "x >= y" is true if x is greater than or equal to y, otherwise it is false.
  - Computations should be done using integers using a 32-bit 2's complement representation. Overflowing computations should simply "wrap around".
- "if" statements evaluate their expression, if the expression is true, then the "then-statements" are executed, if it is fales, the "else-statements" are executed.
- "while" statements first evaluates its expression. If it is false, execution continues after the end of the "while" statement. If it is true, the statements in the body of the "while" loop are executed. After they finish executing, the expression is re-evaluated. As long as the expression is true, the process repeats itself, alternatively evaluating the expression and executing the statements in the body. Once the expression is false, execution continues after the end of the "while" loop.
- "writeInt" evaluates its expression and outputs the result to the console and causes the cursor to move to the beginning of the next line.
- "readInt" reads an integer from the console and updates an integer variable to hold that value.

Errata/Clarifications

CS 5363
Jeffery von Ronne
Department of Computer Science
The University of Texas at San Antonio

Last Modified: 1/22/2013