Assignment – Interpreter "BigCalcProg"

The provided interpreter "BigCalc" supports the evaluation of expressions with decimal numbers of arbitrary length and precision (Java **`BigDecimal`**).

Develop, based on BigCalc, an extended interpreter "BigCalcProg" for processing of programs. The following additional functionality must be supported:

- A program consists of one or more statements, each terminated with ';'.
- A statement is an assignment statement (e.g., t = 7;) or an expression statement (e.g., 1 + 2 * s / u;).
- Expressions may contain variables and parentheses, e.g., (1+x)*3.
- Variables are comprised of one letter and zero or more digits.
- Undefined variables have the value 0.
- The result of the last statement in a program shall be printed on the console using the same formatting as BigCalc.

The implementation of BigCalc can be found in **`Assignment4PLC22WS.zip`** as well as an example program (**`program.bc`**).

Notes

- Lexical and syntactic errors shall be handled with the default mechanisms of ANTLR, without any additional program code.
- The provided means for handling of "whitespaces" must not be modified.
- Exception Handling shall be done in the same way as in **`BigCalc.java`**.

Submission

Deadline: **Wednesday, 31.1.2024 11:00**

The ANTLR grammar **`BigCalcProg.g4`** and the Java files **`BigCalcProg.java`** and **`BigCalcProgVisitorImpl.java`** have to be submitted before the deadline on the online platform after all checks have been passed. Further information is provided in the lectures, tutorials and on Moodle.