



Assignment of bachelor's thesis

Title: TinyC Compiler Frontend
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Study program: Informatics
Branch / specialization: Software Engineering 2021
Department: Department of Software Engineering
Validity: until the end of summer semester 2025/2026

Instructions

The aim of the project is to design universal compiler frontend for the TinyC programming language as used in the NI-GEN course that can be given to its students so they can focus on the middle- and back-end work. The frontend should be implemented in C++. It should parse the TinyC language into an abstract syntax tree whose representation should follow established Object Oriented Programming principles. It should be available either as a library with the AST classes directly usable by students, or as a standalone executable that will output the parsed AST in a standardized JSON format (including source location information).

The thesis should:

- 1) Analyze the landscape of language parsers and language agnostic AST representations (such as babel/parser for JavaScript)
- 2) Design and document AST representation for TinyC and its JSON format.
- 3) Design, document, implement and test the TinyC parser.
- 4) Discuss further development of the project.