

Functional language compiler to WebAssembly - Expert meeting

Presentation of the current state of the compiler to the experts.

Location: C20.19 HEIA-FR

Date: 04.07.2024 10:30 - 11:30

Agenda

- Presentation of the current state of the compiler and its features
- Questions and answers
- Next steps

Participants

- Valentin Bourqui (expert)
- Baptiste Wicht (expert)
- Noah Godel (student)

Information shared

- The student presented the current state of the compiler and its features. The compiler is able to compile a simple functional language to Wasm and execute with different Wasm runtimes. The standard library was used to show an example of the different language features. Then an example of embedding the language in Rust was shown (how to use functions and how to parse lists from Waskell to Rust).
- The student also commented on 2 different bugs that are currently present in the compiler. The first one is related to the application of functions that are passed as values and the second one is related to the passing of data structures from the host language to Waskell.
- M. Bourqui made the remark that the meeting should have started with a more global view of the project and how it progressed before diving into the details of the compiler.
- The student then explained the different steps that were taken to reach the current state of the compiler.
 - The first step was to implement the parser, lexer, symbol checker, type checker and code generation for a minimal example (square function).
 - The next step was to progressively add more features to the language (arithmetic operation, importing / exporting functions, partial application, parametric polymorphism in the type checker, simple data types and finally generic data types).
 - The last step was to implement the standard library and end-to-end tests on the standard library to ensure that the compiler was working correctly.

- M. Wicht made the remark that since the only is one week left, the student should finish the implementation as soon as possible and focus on the documentation of the project. If there still is time, the student could try to fix the bugs that were mentioned, but as long as the remaining bugs are documented, it should be fine.

Decisions

- The student will finish the implementation of the compiler today and focus on the documentation of the project for the remaining time.
- The student should be careful to use diagrams in the documentation to make it clearer for everyone since not everyone has the same level of understanding of the project. The student shouldn't assume that the reader knows everything that was done.
- The documentation should help the reader to understand the different steps that were taken to reach the current state of the compiler and illustrate the work that was effectively done.

Tasks

What?	Who?	Deadline
Finish the implementation phase	Mr. Godel	04.07.2024