



Supervisor's statement of a final thesis

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Student: Bc. Václav Král
Thesis title: Ahead-of-time compiler for the microC language
Branch / specialization: System Programming
Created on: 27 May 2022

Evaluation criteria

1. Fulfillment of the assignment

- ▶ [1] assignment fulfilled
- [2] assignment fulfilled with minor objections
- [3] assignment fulfilled with major objections
- [4] assignment not fulfilled

The assignment was fulfilled.

2. Main written part 95 /100 (A)

The written part is good: well written, logically organized with plenty of examples. There are just few typographic errors such as misaligned code snippets or somewhat weird syntax highlighting (e.g., p69). The goal here was twofold: describe the work done, i.e. the implementation of the optimizing compiler, but also do it in the form that would be helpful to the students of the program analysis course. I find the written part easy to follow and thus it will be good base for the additional study material for the NI-APR course.

3. Non-written part, attachments 95 /100 (A)

The implementation is good and fits well the original code base into which it was integrated. Because of the educational-purpose, I'm happy that the student did not go too wild with Scala advanced type features and focused rather on clarity than smart type tricks.

4. Evaluation of results, publication outputs and awards 95 /100 (A)

The result is an optimizing compiler for a small C-like language that will be used for the NI-APR class.

5. Activity of the student

- ▶ [1] excellent activity
- [2] very good activity
- [3] average activity
- [4] weaker, but still sufficient activity
- [5] insufficient activity

The student started early and overall it was a happy collaboration.

6. Self-reliance of the student

- ▶ [1] excellent self-reliance
- [2] very good self-reliance
- [3] average self-reliance
- [4] weaker, but still sufficient self-reliance
- [5] insufficient self-reliance

No problems, always prepared at a meeting.

The overall evaluation

95 /100 (A)

It is a pleasure to work with students like Vaclav. He was active, reliable and seemed to enjoy the topic.

The result has a potential to make the otherwise rather theoretical course on program analysis more interactive allowing the students to see the possibilities of the analyses they develop in program optimizations.

Instructions

Fulfillment of the assignment

Assess whether the submitted FT defines the objectives sufficiently and in line with the assignment; whether the objectives are formulated correctly and fulfilled sufficiently. In the comment, specify the points of the assignment that have not been met, assess the severity, impact, and, if appropriate, also the cause of the deficiencies. If the assignment differs substantially from the standards for the FT or if the student has developed the FT beyond the assignment, describe the way it got reflected on the quality of the assignment's fulfilment and the way it affected your final evaluation.

Main written part

Evaluate whether the extent of the FT is adequate to its content and scope: are all the parts of the FT contentful and necessary? Next, consider whether the submitted FT is actually correct – are there factual errors or inaccuracies?

Evaluate the logical structure of the FT, the thematic flow between chapters and whether the text is comprehensible to the reader. Assess whether the formal notations in the FT are used correctly. Assess the typographic and language aspects of the FT, follow the Dean's Directive No. 52/2021, Art. 3.

Evaluate whether the relevant sources are properly used, quoted and cited. Verify that all quotes are properly distinguished from the results achieved in the FT, thus, that the citation ethics has not been violated and that the citations are complete and in accordance with citation practices and standards. Finally, evaluate whether the software and other copyrighted works have been used in accordance with their license terms.

Non-written part, attachments

Depending on the nature of the FT, comment on the non-written part of the thesis. For example: SW work – the overall quality of the program. Is the technology used (from the development to deployment) suitable and adequate? HW – functional sample. Evaluate the technology and tools used. Research and experimental work – repeatability of the experiment.

Evaluation of results, publication outputs and awards

Depending on the nature of the thesis, estimate whether the thesis results could be deployed in practice; alternatively, evaluate whether the results of the FT extend the already published/known results or whether they bring in completely new findings.

Activity of the student

From your experience with the course of the work on the thesis and its outcome, review the student's activity while working on the thesis, his/her punctuality when meeting the deadlines and whether he/she consulted you as he/she went along and also, whether he/she was well prepared for these consultations.

Self-reliance of the student

From your experience with the course of the work on the thesis and its outcome, assess the student's ability to develop independent creative work.

The overall evaluation

Summarize which of the aspects of the FT affected your grading process the most. The overall grade does not need to be an arithmetic mean (or other value) calculated from the evaluation in the previous criteria. Generally, a well-fulfilled assignment is assessed by grade A.