Supervisor's statement of a final thesis

Supervisor:	Ing. Štěpán Plachý
Student:	Aleksandr Levin
Thesis title:	Parsing of General Expressions and Describing Programming Language Syntax using Expressions
Branch / specialization:	Computer Science 2021
Created on:	20 June 2024

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 without objections. The student was supposed to implement a parser for general expressions and explore, whether such paradigm alone can be used to parse a programming language. The student identified obstacles in this approach and also proposed solutions, which can be further explored.

2. Main written part   55 /100 (E)

The written part was, unfortunately, written at the last moment and there was not enough time for me to provide thorough checking and feedback. As a consequence, the quality of the written part is not the best. For example, there is an inconsistency in operator priority layer numbering, where in the theoretical part the highest layer has the lowest priority, and in the practical part it has the highest priority. The theoretical part overall contains some unnecessary notions while lacking others.
Practical chapters well describe encountered issues and solutions.
The overall structure as well as language is good. There are some typographical errors.

3. Non-written part, attachments   75 /100 (C)

The code student wrote is in proof-of-concept stage and with a further work on user interface can become a viable tool or library. The submitted repository is not the cleanest, it contains some unnecessary temporary and environment files. Importantly though, the implemented algorithm seems to work correctly.

4. Evaluation of results, publication outputs and awards   80 /100 (B)

The thesis provides a working LL(1) parser for general expressions, which in literature and practical use-cases are not explored in their full generality. The thesis also describes a different paradigm for parsing of programming languages, demonstrates its viability for syntax description, and identifies requirements for semantics checking, which is a topic for further research.

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 worked on the thesis throughout the year and consulted his work the whole time with various intensity. The activity rose exponentially as the deadline was approaching, which negatively impacted the overall quality. The amount of work done near the deadline is, however, very impressive, and should not go unnoticed.

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

The student identified many obstacles in the assignment and in the majority of cases was able to propose solutions, which he then consulted with me.

The overall evaluation   65 /100 (D)

The thesis would need more time to be refined. Overall, however, the student did a good job and as such I recommend the thesis for defense with mark D.

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.