Supervisor's statement of a final thesis

Student:	Bc. Andrej Taňkoš
Supervisor:	Ing. Jan Trávníček, Ph.D.
Thesis title:	Dataflow extraction tool for Cobol programming language
Branch of the study:	Computer Science

Date: 21. 1. 2021

Evaluation criterion:	The evaluation scale: 1 to 4.
1. Fulfilment of the assignment	**_1 = assignment fulfilled,_** _2 = assignment fulfilled with minor objections,_ _3 = assignment fulfilled with major objections,_ _4 = assignment not fulfilled_

Criteria description:
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.

Comments:
The first thesis's objective was to analyze the Cobol programming language to be able to extract metadata and dataflow among variables from Cobol programs. The second objective was to implement a prototype of a tool actually extracting the metadata and dataflow from Cobol programs. Both objectives were accomplished, a) in a form of the submitted text and b) as a supplementary Java code.

Evaluation criterion:	The evaluation scale: 0 to 100 points (grade A to F).
2. Main written part	*90 (A)*

Criteria description:
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. 26/2017, 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.

Comments:
The thesis is written in English. Despite being very well written, the text contains occasional grammatical mistakes, for instance, in articles.

Section 1.3 introduces static dataflow analysis from a theoretical point of view, however, it explains lexical analysis referencing finite automata, without their introduction. Also, no theoretical introduction is made to the topic of a parser generation.

The Cobol programming language is extensive and it is reflected in the analytical part of the thesis. Cobol syntax and other aspects necessary to understand the subsequent dataflow analysis are described in the thesis in a detailed and comprehensible way. Most language fragments benefit from minimal examples featuring the syntax.

Typographic issues:
Figures 1.2, 2.1, 2.3, 2.4, and 6.3 are bitmaps whereas the images could be vectors. (They seem to be taken from source publications; in that case, I'm missing references.)
A hyphen is consistently used in place of a dash symbol.

Evaluation criterion:	The evaluation scale: 0 to 100 points (grade A to F).
3. Non-written part, attachments	*98 (A)*

Criteria description:
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.

Comments:

The student used all the facilities available in the Manta system correctly and fully. The implementation is well documented and tested with unit tests. Throughout the time of the implementation, a collection of regression tests was also created. The implementation itself follows guidelines for a code at Manta.

Evaluation criterion:	The evaluation scale: 0 to 100 points (grade A to F).
4. Evaluation of results, publication outputs and awards	*100 (A)*

Criteria description:
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.

Comments:

The proof of concept implementation is already part of Manta's code collection and will be a part of a stable release of dataflow analyzing tool in the near future.

Evaluation criterion:	The evaluation scale: 1 to 5.
5. Activity and self-reliance of the student	5a: **1 = excellent activity,** 2 = very good activity, 3 = average activity, 4 = weaker, but still sufficient activity, 5 = insufficient activity 5b: **1 = excellent self-reliance,** 2 = very good self-reliance, 3 = average self-reliance, 4 = weaker, but still sufficient self-reliance, 5 = insufficient self-reliance.

Criteria description:
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 (5a). Assess the student's ability to develop independent creative work (5b).

Comments:

Consultations with the student were always fruitful. During the implementation of the proof of concept, he was also able to solve many issues efficiently and alone.

Evaluation criterion:	The evaluation scale: 0 to 100 points (grade A to F).
6. The overall evaluation	*95 (A)*

Criteria description:
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.

Comments:

Both the text and supplementary parts of the thesis are of very high to excellent quality. I have identified only some minor issues with the text, on the other hand, the implementation of the proof of concept is broader than usual. (Mostly because the topic of the thesis, i.e. Cobol programming language, is broader than usual.) Considering the quality of implementation, I recommend accepting the thesis for defence and I recommend evaluating it with 95 points, i.e. grade A (excellent).

Signature of the supervisor: