



Review report of a final thesis

Student: Bc. Veronika Larionova
Reviewer: prof. Dr. Jan Verelst
Thesis title: Reverse Engineering of Legacy Software Code for Normalized Systems Expanders
Branch of the study: Web and Software Engineering

Date: 31. 1. 2019

<i>Evaluation criterion:</i>	<i>The evaluation scale: 1 to 4.</i>
1. Fulfilment of the assignment	<i>1 = assignment fulfilled, 2 = assignment fulfilled with minor objections, 3 = assignment fulfilled with major objections, 4 = assignment not fulfilled</i>
<i>Criteria description:</i> 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.	
<i>Comments:</i> The assignment was to explore the possibility of using reverse engineering approaches on legacy software code in the context of Normalized Systems expanders specification. This assignment was met through the combination of a literature study and experimentation, however, leading to the conclusion that with the approaches under study a direct link is not possible.	
<i>Evaluation criterion:</i>	<i>The evaluation scale: 0 to 100 points (grade A to F).</i>
2. Main written part	80 (B)
<i>Criteria description:</i> 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.	
<i>Comments:</i> The thesis is very well structured, and easy to read. It provides a well-structured, substantial and useful overview of the underlying theories (Normalized Systems and reverse engineering approaches), and a clear section on how the experimentation was performed and its conclusions. A drawback is the substantial number of minor grammatical or spelling errors (including for example, on pages 3,4,7,17,21,35,35,41,44).	
<i>Evaluation criterion:</i>	<i>The evaluation scale: 0 to 100 points (grade A to F).</i>
3. Non-written part, attachments	90 (A)
<i>Criteria description:</i> 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.	
<i>Comments:</i> The student showed exceptional dedication in going to the University of Lille to visit the research group on MOOSE. As MOOSE is a powerful and complex tool, this visit made a major difference to the thesis in the sense that was clearly preferable to investigating other, less powerful tools, especially from a conceptual and theoretical perspective. The student was also confronted with the setback, through no fault of her own, of the inability to obtain large-scale source code bases. This needs to be taken into account in judging this study. This also fully justifies her solution to use 4 smaller source code bases.	
<i>Evaluation criterion:</i>	<i>The evaluation scale: 0 to 100 points (grade A to F).</i>
4. Evaluation of results, publication outputs and awards	75 (C)

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 results of the thesis are useful for practitioners, even though they are essentially showing not the ability but inability to use reverse engineering techniques as inputs for the Normalized Systems expanders and prime radiant. The reasons why this is the case, are insightful for practitioners, and have to my knowledge influenced interested parties in looking for alternative approaches to reach the same goal, which proves the relevance of this study.

Evaluation criterion:

No evaluation scale.

5. Questions for the defence

Criteria description:

Formulate questions that the student should answer during the Presentation and defence of the FT in front of the SFE Committee (use a bullet list).

Questions:

- this thesis was focused on exploring whether reverse engineering techniques can provide inputs to the NS expanders and prime radiant, derived from legacy code. Did you find during this study, alternative techniques that could obtain this goal as the reverse engineering approaches are not able to deliver this ? For example, could techniques and/or tools in the domain of ontologies be useful as an input to the NS expanders and prime radiant ?
- in the conclusion, the following statement is made: 'However, for this case it was shown, that on seaming small projects it was not possible to find some general step sequence that could lead to successful results. '. However, literature contains several claims that reverse engineering can be successful in practice. Please provide insight into why this is possible in general, but based on this research, not in the case of applying reverse engineering in the context of Normalized Systems.

Evaluation criterion:

The evaluation scale: 0 to 100 points (grade A to F).

6. The overall evaluation

85 (B)

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:

In general, this is a very good master thesis, with the student demonstrating the ability to tackle a complex research question adequately through a literature study and experimentation, as well as are markable sense of commitment in personally going for a research visit to the University of Lille to get acquainted with MOOSE, which is one of the more powerful and complex tools in this area. The student has shown the ability to perform practical work at a high level as well as theoretical work at the level of the analysis of the available literature.

Signature of the reviewer: