Supervisor's statement of a final thesis

Student:	Toghrul Sultanzade
Supervisor:	Ing. Ondřej Guth, Ph.D.
Thesis title:	DET language IDE
Branch of the study:	Computer Science

Date: 11. 6. 2020

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 assignment is entirely fulfilled.

Evaluation criterion:	The evaluation scale: 0 to 100 points (grade A to F).
2. Main written part	*70 (C)*

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 work is appropriately long. However, there are some unnecessary parts, particularly in chapters Realisation and Theoretical background. It is not clear how most of the Theoretical background is related to the thesis.

The logical structure of the text does not often work. In many places, the reader does not know why something is mentioned or essential. Some information or context is missing entirely, and other is presented later (wrong order). This impression is particularly strong with Theoretical background, Analysis and Design and Realisation. For example, it would be much better to know earlier that student proposes a web-based IDE.

Although the thesis is quite long, the impression is that it just scratches the surface. Most parts of the Theoretical background are important. However, they are not connected, and the reader does not know why they are there. The Theoretical background does not go much into depth, and a curious reader does not learn much about used algorithms, principles or ways of use of technologies. The description of the Chomsky hierarchy of grammars (section 1.5.2) is incorrect. Research of IDEs is quite thorough about two desktop IDEs (still, not deep enough). However, it just lists three existing web-based IDEs, while the thesis focuses on the latter. Overall, the Theoretical background seems to be there just to write something instead of being written seriously.

An interesting and well-written part is about Current State (currently used IDE).

In the description of the student's IDE, the choice of the Monaco web editor is not well reasoned (section 3.3). It is not clear why should the editor be integrated with Visual Studio Code, nor why should Microsoft support it. Mentioning Monaco comes as a surprise in section 3.2.2 before any reasoning about it in the later sections.

The chapter about testing is rather weak. Testing of any correctness is not mentioned at all. Instead, it focuses on users' satisfaction. Some problems are mentioned; they involve both incorrect behaviour and latency. These problems are not specified precisely, there is no way to reproduce these tests. It is also written that there were no attempts to correct the issues, while some of them (latency when the code is over 140 lines long, errors with auto-completion) are severe.

Typography is ok (one issue is disturbing: missing space before every "(") and the language is acceptable as well. The single-side printout looks poor in combination with the two-page design of headers and footers.

I do not suspect any unethical behaviour. However, there are issues with citing and using external sources. Many of the references are incomplete or incorrect (e.g., [1] is a bachelor's thesis, [18] has unpaired parenthesis, [27] is partially in German). Many of the citations seem to be unnecessary, e.g., [11] in the context of ambiguous grammar or [13-15] in the context of graph theory. The impression is that the list of references is instead a list of Google results than the list of really used information sources.

Evaluation criterion:	*The evaluation scale: 0 to 100 points (grade A to F).*
3. Non-written part, attachments	*91 (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 main non-written result is the new web-based IDE for the proprietary scripting language. The software is just a prototype; however, it works quite well and seems to be usable. The IDE supports syntax highlighting of basic constructs (keywords, numeric literals, identifiers, operators). Code completion (based on backend-defined objects, local variable names (based on block scope), and keywords) is supported as well. Basic error recognition (based on syntax and known identifiers) also works.

Although there exist real-world IDEs with better features, this is undoubtedly an excellent result of a bachelor's thesis.

Evaluation criterion:	*The evaluation scale: 0 to 100 points (grade A to F).*
4. Evaluation of results, publication outputs and awards	*90 (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 prototype is usable for basic editing as-is.

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:

The student did almost not request meetings, and he worked very individually.

Evaluation criterion:	*The evaluation scale: 0 to 100 points (grade A to F).*
6. The overall evaluation	*80 (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:

The text needs much polishing and style improvement. The implementation is very good and really usable. Therefore, I recommend grade B.

Signature of the supervisor: