Supervisor’s statement of a final thesis

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Thesis title: Implementation of Object Oriented Languages
Branch / specialization: Web and Software Engineering
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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 topic of the thesis was to design and implement a minimal object oriented extension over the tinyC language already used in the NI-GEN course. Although the student did design and implement a minimal OO extension, the scope and quality of the presented design and its justification is not adequate: Important pieces are missing without reasonable alternatives and some of the selected features do not work properly the way they are implemented (see below for details).

2. Main written part

The written part is very short, and sadly not executed well. Its chapters do not always provide the required information, such as the introduction section lacking proper motivation, or conclusion without future work. Chapters 1 and 2 which should have been the core of the thesis is very shallow. Pretty much only C++ is covered in the language features missing any other OO concepts, such as prototypes, etc. Often the information provided is extremely general and without any substance (such as the Virtual Inheritance section on page 6). The situation improves a bit in the discussion of students own implementation but still the organization of the chapter is unpredictable at best. I completely agree with the student that performance evaluation was currently not possible, but other forms of evaluation should be attempted, i.e. the analysis of the generated code, proper discussion of the memory footprint, etc. Finally, the conclusion lacks any mention about future work.
3. Non-written part, attachments 55 /100 (E)

I am generally happy with the quality of the code. I approve of its minimalism and am happy that it mostly integrates with tinyVerse used in Ni-GEN well. However, crucial OO features and not implemented at all (such as any form of checked upcasting), or are implemented in a wrong way - such as the resolution of calling a superclass implementation, which changes the type of *this* pointer not to the superclass, but to the transitive superclass which implements the method, rendering any polymorphic calls afterwards possibly invalid. I am happy for the lack of multiple inheritance, but would welcome inclusion of interfaces or some other feature to similar extent, but this is definitely not a deal breaker.

4. Evaluation of results, publication outputs and awards 50 /100 (E)

During the course of the work the student had some very nice ideas that can benefit the course as the thesis was planned to, such as the typed vtables. Unfortunately, the work departs from standard terminology and/or implementation (such as the base class resolution) in many places severely limiting its use in the course as-is.

5. Activity of the student

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

Student was reasonably active during our collaboration, especially during the intensive parts (see below).

6. Self-reliance of the student

[1] excellent self-reliance
[2] very good self-reliance
[3] average self-reliance

The student was, at least initially perhaps a bit too self-reliant and communication was not frequent enough. When stuck, he developed own solutions rather than reaching out. While sometimes this has led to improvements, overall it had detrimental effect on the thesis (features selected, their implementation, etc.).

The overall evaluation 45 /100 (F)

Due to miscommunication between the student and myself, during the initial phase of the thesis I was planning for a summer due date. Unfortunately, once I was informed that this is not the case, there was not enough time for the student to implement the features and write the thesis to acceptable levels. I strongly believe that this is the only reason
for the failure, had there been more time I am confident the student would have submitted a very good thesis. At this point, however, there is simply not enough in either the thesis or the code. That said, I do encourage the student to finish the thesis after the final exam and I look forward to it.
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 fulfillment 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.