Review report of a final thesis

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Student: Bc. Bruno Kraus
Thesis title: Analysis of Multi-Stage Recommendation Systems
Branch / specialization: Knowledge 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

Bruno Kraus conducted a comprehensive study on multistage recommender systems, effectively fulfilling the assignment requirements. Particularly noteworthy is his thorough exploration of different methods and metrics related to the topic in the experimental section, that, in my opinion, goes beyond the assignment.

2. Main written part
   92 /100 (A)

The text is well-written and easy to understand. The thesis is divided into four chapters, with an introduction and conclusion, which is well-suited for an academic work. However, in my opinion, there are areas for improvement in both the introduction and conclusion. In the introduction, the work could be more effectively motivated and linked to the current literature, demonstrating the demand for multistage recommenders. The conclusion is relatively brief and does not adequately summarize the comprehensive experimental section, nor does it provide systematic future directions. Both, introduction and conclusion, are important chapters that demonstrate how the student organize their ideas and understand their results. Note, for instance that “The results demonstrated that the multi-stage approach improves on using single recommendation algorithms or their ensembles” is an overstatement. Although I recognize the time-consuming and outstanding experiment section, the results are taking from a single dataset, and the statement could apply just for the case-study but not in general. Nevertheless, these flaws do not significantly compromise the overall quality of the work.
3. Non-written part, attachments 100/100 (A)

The code is meticulously documented, follow reproducibility criteria and adheres to the best practices in software development.

4. Evaluation of results, publication outputs and awards 98/100 (A)

I believe the work has a significant impact on the application of recommender systems and it tackles a less explored paradigm in the field.

The overall evaluation 95/100 (A)

Overall, the student successfully achieves the objective of the assignment, with an exceptional experimental section.

Questions for the defense

1. How applicable is your implementation to other recommendation scenarios that are not session-based?
2. How practical is the application of a multi-stage recommender in real-world scenarios, considering the time constraints of online recommendations that need to be solved within milliseconds? What are the primary infrastructure challenges associated with this?
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.

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.