Course Evaluation
DM803 – Advanced Data Structures
Spring 2022

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This document contains a summary of the evaluation as well as the lecturer's comments and conclusions.

Lecturer's Comments and Conclusions

First of all, I would like to thank the students for participating in the evaluation and thereby helping to improve course parts for future students.

Overall the course has been well received.

Criticism has been directed towards some of the literature – the material on persistency in particular. I wouldn't characterize the article as bad or incorrect (one comment could be interpreted in that direction), but I agree it's one of the harder articles to read, since algorithms are explained in text, rather than using some algorithmic notation. I will have to think about what could be done about this. It is also part of the experience, however, to become more familiar with reading articles, where notation and definitions can vary, as opposed to having one textbook. I have of course also made a note of the fact that the quality of the literature is rated significantly lower than the quality of the other course parts.

It is also interesting how the topic of persistency divides the student group – it is the high score both in the category of most interesting and least interesting (the number of students having mentioned a topic is given in

parentheses after the topic). Other than that, it varied a lot what was found most interesting and not many topics were considered uninteresting.

With regard to time consumption for the project, my calculations allow for approximately 100 hours for the project in total (roughly a third of the course load). The students' numbers average 71 hours, with a median of around 62 hours, and three students surpassing 100 hours. It is not formally objectionable, I believe, but a little higher than I intended, and I will think about the persistency assignment in particular. It got a little complicated, but (to comment on some speific remarks) the assoc field served a purpose: had I just used a linked list, inverse (predecessor) pointers and copy pointers would not be necessary and post-processing would not need to be kept in a set for incremental treatment. Thus, one would not learn about all the features. I will think about if it's possible to get the full experience in a simpler setting (but still one that must be harder than plain linked lists).

The final repeated comments are about getting lecture notes. I understand, but I am also uncertain as to what is best. Will (even) more students decide not to come to lectures, if the know that they get slides/notes anyway? This is also something I will think more about. One might think that I could have thought about this years ago, but the request for notes has become much more dominant since Covid-19.

Summary

The evaluation is based on 14 filled-in questionnaires.

Marks in between two boxes has been counted as half in each.

For interval ranges of time consumption, the average has been used, and then the average over all students has been calculated.

IMADA, SDU May 2022

EVALUATION OF DM803

This evaluation form may be answered in Danish or English

Prerequisites:

Have you passed all courses recommended for taking this course?

Yes	14	No	0

How do you feel the recommended courses have prepared you for this course?

Unsatisfactorily	0	1	$3\frac{1}{2}$	$9\frac{1}{2}$	Satisfactorily

Which prerequisites (if any) have you missed?

Content:

What was your outcome of the course?

Low	0	0	4	10	High

How do you evaluate the quality of the following parts of the course

Lectures	Low	0	0	3	11	High
Exercises	Low	0	1	6	7	High
Literature	Low	1	5	6	2	High

Is there something you would emphasize as an outcome from this course?

Topic-wise, were there any extreme points for you:

What was the most interesting topic(s)?

What was the least interesting topic(s)?

Continues on the back!

Your impression of the lecturer (Kim Skak Larsen):

How good or bad is his preparation in general?

Bad	0	0	0	14	Good

How good or bad are his abilities to explain the material?

Bad	0	0	2	12	Good

How well does he react when you ask questions?

Poorly	0	0	0	14	Well

Do you have advice on how the course should be run another time:

What should the lecturer keep doing?

What would you recommend the lecturer to change?

Time and participation:

What has your participation frequency been in:

	0–25%	25–50%	50–75%	75–90%	90–100%
Lectures	0	0	1	1	12
Exercises	0	0	0	3	11

On average, how many hours weekly have you spend on the course *in addition to* your participation in lectures and exercises (thus, do *not* count participation in lectures and exercises, but only preparation and post-processing time)?

7

If you skipped lectures or exercises frequently, please explain why this was.

Can you estimate how much time you have spent on the project?

Part 1: 30

Part 2: 41

Additional remarks:

Comments on the forms

Translated, if in Danish. Some comments have been moved to another headline, if it was more appropriate there.

Emphasized outcome

- Much deeper understanding of data structures.
- Better at analyzing algorithms and data structures.
- Educated on data storage.
- A deeper knowledge of data structures.
- Good to be introduced to amortized complexity.
- I think the course should be mandatory.
- Good overview and concept understanding – hands-on knowledge to use in industry.

Most interesting topic

- Persistency (3).
- Amortized analysis (2).
- Cuckoo hashing (2).
- Level ancestors (2).
- Skip lists (2).
- Scapegoat trees.
- X- and Y-fast tries.
- The various heaps.
- Skew heaps.

- Disjoint sets.
- Splay trees.
- Generally very interesting.
- Most was exciting.

Least interesting topic

- Persistency (4) – hard to read.
- Van Emde Boas (2) – difficult to follow without a more graphical representation.
- Hashing.
- Disjoint sets.

Keep up

- Outlines on blackboard for clarification.
- Everything done in class.
- It's good that Kim runs the exercises.
- Exercises are inclusive and often give the best intuition.
- Good explanations – always helpful in connection with questions.
- Taking questions well.
- Keep exercises as discussions.
- Explaining the intuition in what we do in analyses and treatment of data structures in general.
- Sketch and explain.
- The blackboard illustrations and notes – and the lecture structure.

Improve

- Better literature for some topics.

- Better literature.
- Explain runtime etc. better.
- In lectures, show the examples first, and then go into the math.
- It would be nice to get the lecture notes.
- The exam project, part 2 was too big.
- The assoc field in the persistent list of the second assignment - it added a lot of confusion without giving a deeper understanding of how to implement persistent data structures, and also pushed part 2 to become too big.
- Upload notes after lectures or give references to further papers on the topics.
- Publish sketches and other blackboard material after class so one can focus on the understanding in class.
- Better literature - some old articles are not well explained and there are not a lot of alternatives.
- More slides with diagrams/drawings ("the whole story"); there is no place to get a recap, several times mentioned that something was hard to grasp and the article was bad – well what are the alternatives for us students to make sure our notes are right?
- Better explanations on analysis in practice.
- Adjust the pace slightly – it's a little too fast.

Skipped classes

- Corona (2).
- Conflict with other course and travel.
- Busy with other courses – had to skip up to deadlines.

Additional remarks

- Proofs are hard.

- One of my all time favorite courses.
- The project was interesting.
- For disjoint sets and van Emde Boas, it became a little chaotic if one should have time to take notes.
- Maybe too many questions for the oral exam.
- Fibonacci heaps were interesting but hard.