# Summarising Data

Name: Algorithms and Datastructures
Course Code: DD1338

Examination Components:

- HEM1 6 HP

Number of Students: 231
Performance Rate: 75% (~25 students have late grades so expected is 86%)

Teacher Activities:

- Lecture (2hr)
- Laboration (2hr)
- Övningar (2hr)

Teachers: Marcus Dicander, Richard Glassey
Examiners: Richard Glassey

# Summary of Course Evaluation

There was a disappointingly low engagement rate with the LEQ survey (16/231 or 6.93%). As such, the evaluation will treat this as anecdotal and combine it with the impressions from the teaching team (teachers and teaching assistants.

The course continues the same structure as DD1337 and students continue to comment positively both to the consistency and the structure of the assignments. At this stage, students also remark that they appreciate the additional skills development in using Git and GitHub to manage their weekly work. This is reinforced in the lectures that change management is an important skill to continuously develop - it feels that a nice balance is achieved in that we do not expect too much from students (they only need to master 4 bash commands to use Git effectively for the course) and they get lots of opportunities to practice in a safe way that is not affecting their development in algorithms and datastructures.

Students do remark that the descriptions of tasks could be improved. This is perhaps a creep in level of detail as over the years we have observed that students (as expected) attend to the assignments the most, compared with other aspects such as the lecture, the coursebook, the course online material and the open labs. Thus, more information has ended up in the assignment text. Students make a really good suggestion to include more of a checkbox system. This has been on our minds for some years now as whilst we list the learning objectives per task (not just course level), there may be a missing checklist that students can verify themselves.

As with DD1337, the online learning material was noted in the feedback as positive, but students recommended making the signup process more effective and less cumbersome. Ironically, the efforts to integrate the system into Torus to avoid students creating accounts was not seen as good at all, and it was much preferred by students to make their own accounts and go directly to the material.

# Analysis

## Changes from previous course analysis

The opening part of the course was managed by another teacher (due to sabbatical). As such there were no major changes from the previous course analysis other than the normal continuous improvement applied to the series of assignments. As these assignments are quite mature, the impacts were minimal.

As can be expected the most of the changes have come more dynamically as the proliferation of generative AI continues. However, as this course is much more on theory, a new problem emerges where students stressed by both increased theory demands and still fragile knowledge of programming that there is an increased suspicion that additional help is being overused. In the next iteration of the course there will be much more thorough  discourse throughout the course on positive and negative usage.

## Summary of teacher's views

DD1338 continues the series of first year courses that introduce students broadly to important topics in computer science. It is a course that often tightens the gap between the advanced programmers and new programmers as the addition of theory starts to demand new skills to be developed. The course feels like it is in good shape in terms of the overall offering and students continue to appreciate the way it is delivered. It is a continuous project and will continue to improve. Internally, there will be efforts to improve the learning material that supports the students - it will be updated to be more constructively aligned to the tasks and more targeted towards efficiency - students have asked broadly in first year for lighter and more focused material and it seems like a good thing to invest more time in. Finally, generative AI will continue to be unavoidable so we will endeavor to present this as a part of their future that they must master whilst not sacrificing their learning of timeless results in computer science.

## Proposal for potential changes

1. Generative AI presents new opportunities and threats. Introductory programming is a topic that must adapt to both. In particular there will be a shift in narrative during the

lectures to include demonstration of generative AI as a tool, both the positive and negative for learners.

2. The Question-based learning material has served its purpose well, however there is an opportunity to move forward into pure question-based learning. As noted, students had detected some drift between the QBL material and the present task, so this presents a chance to correct this alignment.
3. Already summer work has begun to investigate the use of generative AI in personalizing the tasks that we offer students. For many years the tasks have been iteratively improved and are well regards, however efforts will be made at a small scale, single group level, to try out what happens when tasks are generated with input from students.
4. TAs choosing to manage group tasks elsewhere will be required to share alternative tasks with all students in case of interest or summer activity.
5. A new strategy is needed for the low engagement with LEQ.