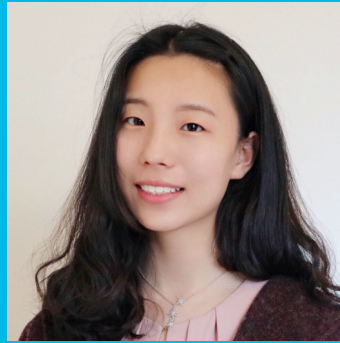


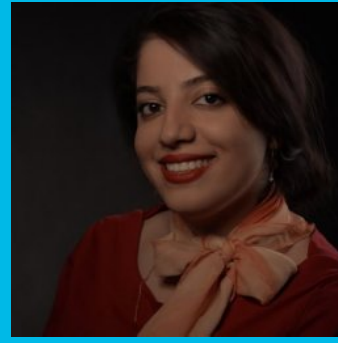
Welcome to TDDD81 Database Technology



**Olaf
Hartig**



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Cheng**



**Shahrzad
Khayatbashi**

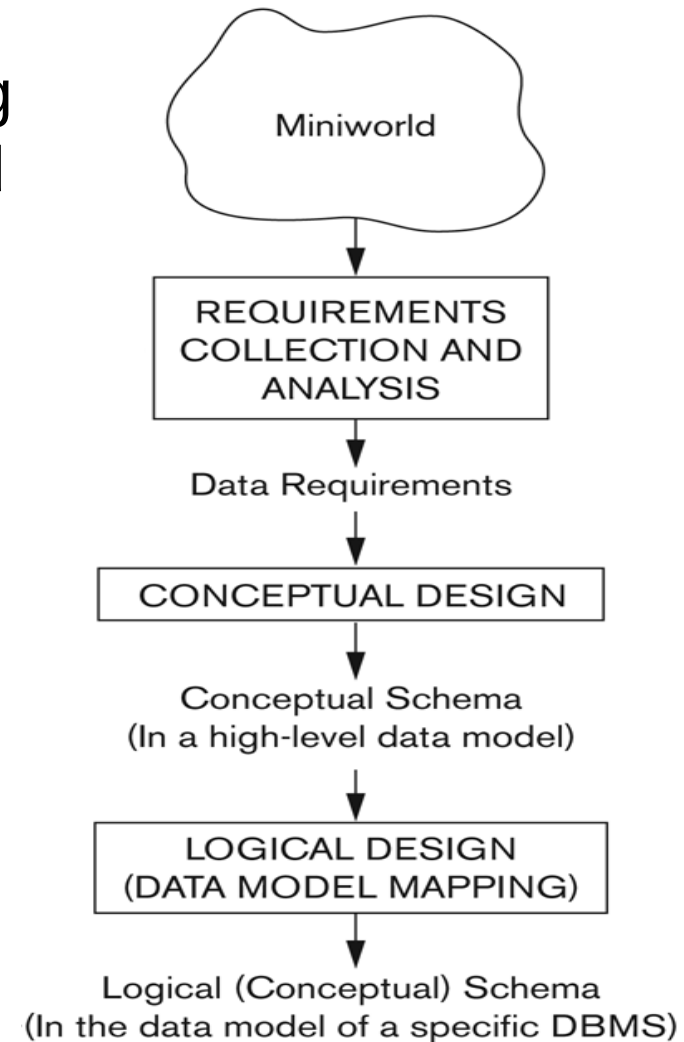
Topics and Intended Learning Outcomes

Course Topics

1. Fundamental concepts
2. Relational databases
3. SQL
4. EER modeling
5. Mapping of EER diagrams to relations
6. Functional dependencies and normalization
7. Stored procedures and triggers
8. Data structures for DBs
9. Introduction to Transaction Processing
10. Concurrency Control
11. Database Recovery
12. Query Processing

After the course you should be able to ...

- *Design relational databases* for different types of example domains by first creating a conceptual schema using the Enhanced Entity-Relationship (EER) model and then translating this conceptual schema into a corresponding logical schema captured in the relational data model.
- Analyze and improve the quality of given relational database schemas based on the formal measure of *normal forms*.



After the course you should be able to ...

- *Employ the SQL language* to query and to modify several example relational databases, as well as to create such a database with a given relational database schema.
- Compare the cost of finding and updating records in database storage files when using different approaches to organize and to index such files.
- *Apply basic techniques* that DBMSs can use to identify and to avoid problems that may occur when multiple users access a database concurrently.
- *Apply recovery algorithms* that DBMSs use to guarantee persistence of data even in the case of system failures.

Examination

Final Exam

- During the exam period after the course
- Dates: see pointer on the course Website
- Form of this examination still to be decided



Image source: [https://commons.wikimedia.org/wiki/File:ATC_Admission_Exam_\(2\).JPG](https://commons.wikimedia.org/wiki/File:ATC_Admission_Exam_(2).JPG)

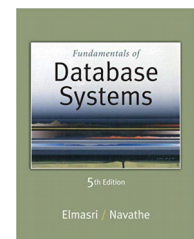
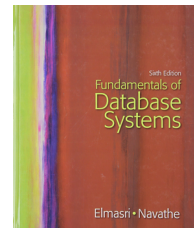
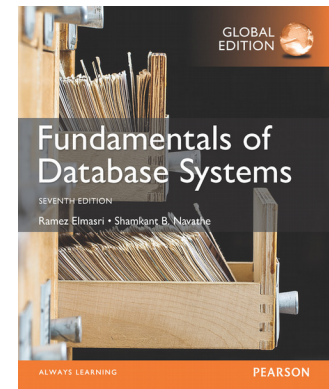
Four Assignments

1. SQL
 2. Database design and EER modeling
 3. Functional dependencies and normalization
 4. BrianAir project, *4a*: initial design, *4b*: improved design
4c: implementation, *4d*: urkund analysis
- Deadlines on the course Website
 - *hard deadlines* for assignments 4a and 4b (before assignment 3!)
 - To be solved in pairs or groups of three
 - register with lab partners in Webreg before the end of this week
 - Use MySQL server for assignments 1 and 4c
 - need access to MySQL server provided by LiU IT
 - instructions on the course Website

Organization of the Course

Structure of the Course

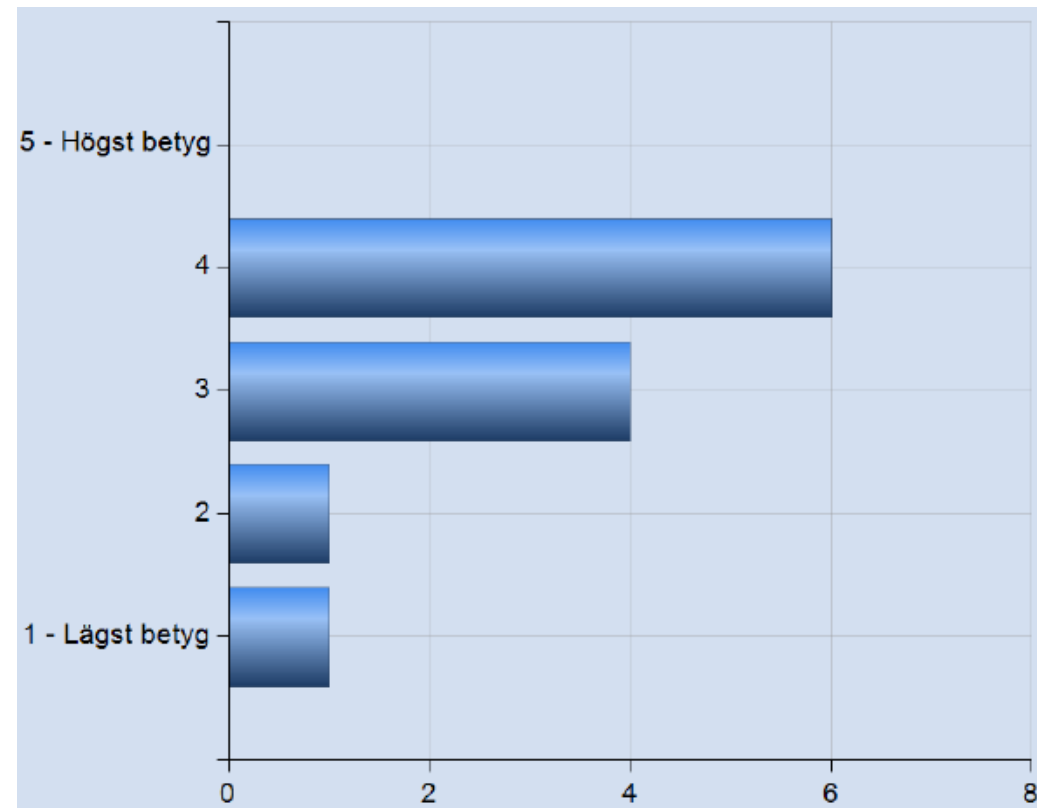
- Schedule on the course Website
- 12 lecture sessions (5 of them in VT2!)
 - Some traditional, some in flipped-classroom style
- 9 lab sessions (all in VT1)
 - First two: focus on assignment #1
 - Third one: focus on assignment #2
 - Remaining six: focus on assignment #4c
(only three of these six lab sessions will be supervised)
- 1 teaching session (in VT1)
 - Discussion of #4a hand-ins (mandatory!)
- Text book: Elmasri and Navathe. *Fundamentals of Database Systems*, Addison Wesley, 7th edition



Earlier Versions of the Course

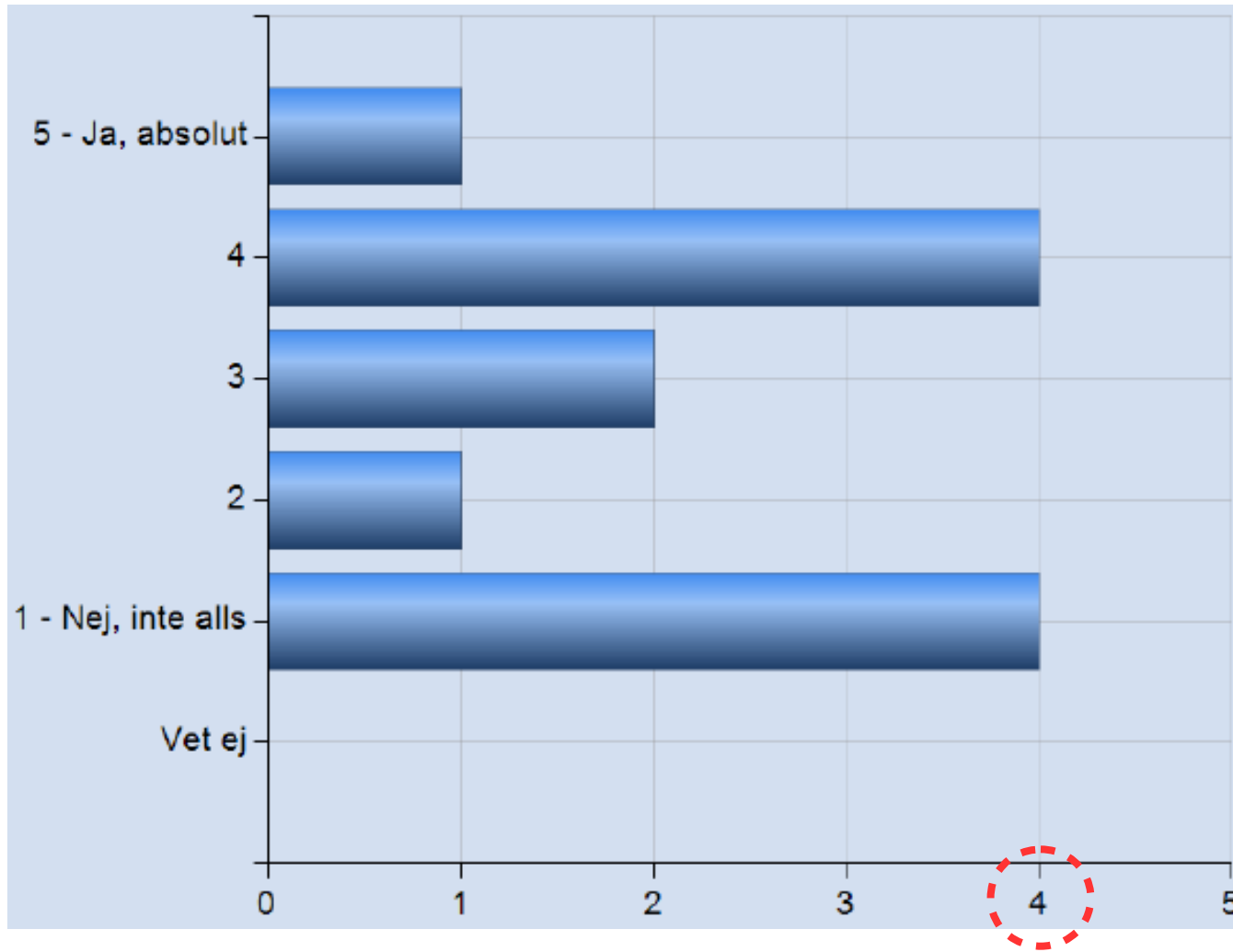
EvalLiUate Evaluations 2020

	TDDD81
Overall number of students	53
Students who answered	12 (22.6%)
Overall evaluation	3.25



EvalLiUate Evaluations 2020 (cont'd)

Question: The educational methods used in the course supported my learning.



Quotes from Free-Text Fields

- About one of the lab assistants:
 - *“Min labassistent har varit dålig. Det vore bra ifall det fanns handledare i denna kurs som är pedagogiska och vill lära ut/hjälpa studenter”*
lab assistant has been bad; would have been good to have someone who is pedagogical and wants to help the students
 - *“Vår handledare gjorde inga vidare ansträngningar för att hjälpa till med att öka förståelsen för ämnet”*
no effort made to help understanding the subject
 - *“Mer hjälpande än rättande inställning hos handledare hade varit bra.”*
 - *“While I am pleased with the laborations themselves, the lab assistants were not very good. They were not very pedagogical and didn't even answer questions half the time.”*
- This lab assistant is not working in this course anymore!
- Let me know if you have issues

Quotes from Free-Text Fields (cont'd)

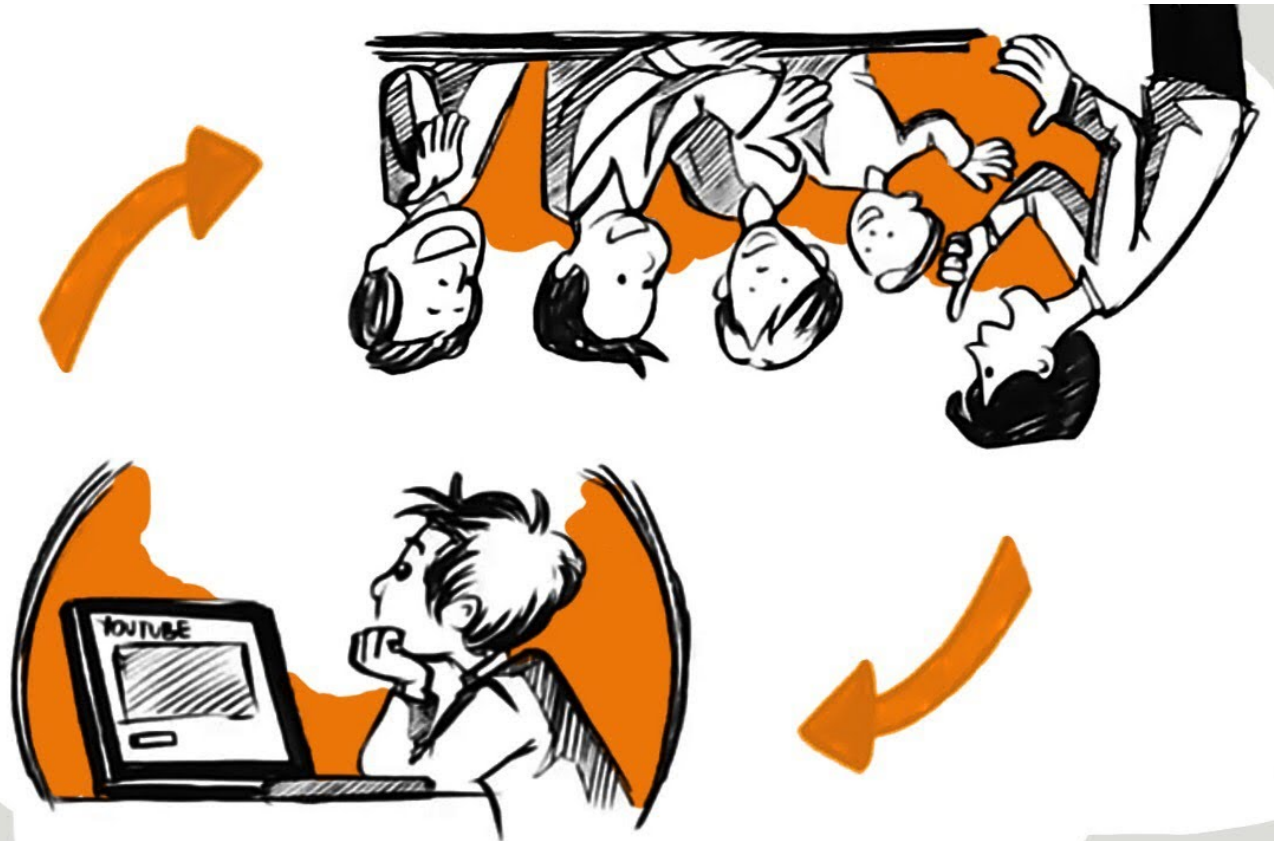
- About the schedule:
 - *“Borde ligga enbart på VT1, väldigt konstigt med flera månaders paus i föreläsningsserien i och med dess utspriddhet. Vore skönare att klara av kursen VT1 så man sedan kan ha fullt fokus på kandidaten”*
should only be in VT1; strange with the break in the lecture series
 - *“Labbtillfällena mer utspridda, speciellt till labb 4.”*
lab sessions should be more scattered, in particular for lab 4
- Note that VT1 2020 was still before the pandemic (everything still on campus), whereas VT2 2020 was completely in distance mode
- This time, all lab sessions in VT1 – finish all assignments in VT1!

Quotes from Free-Text Fields (cont'd)

- About the educational methods:
 - *“Online-föreläsningarna borde spelas in så att studenter kan kolla när de vill”* *the online lectures should be recorded*
 - *“Kul med labbar”* *great with the labs*
 - *“Uppskattade labb-serien”* *appreciated the lab series*
 - *“Laborationerna var bra”* *the labs where good*
 - *“bra med quiz på föreläsningarna”* *good with the quizzes in the lectures*
 - *Uppskattade “när föreläsaren gått tillbaka och förklarat svaren på sina quiz”* *appreciated when teacher went back and explained answers to his quizzes*
- Recordings of the lecture sessions will be made available this time
- Labs and assignments unchanged
- Let's try the flipped-classroom model this year!

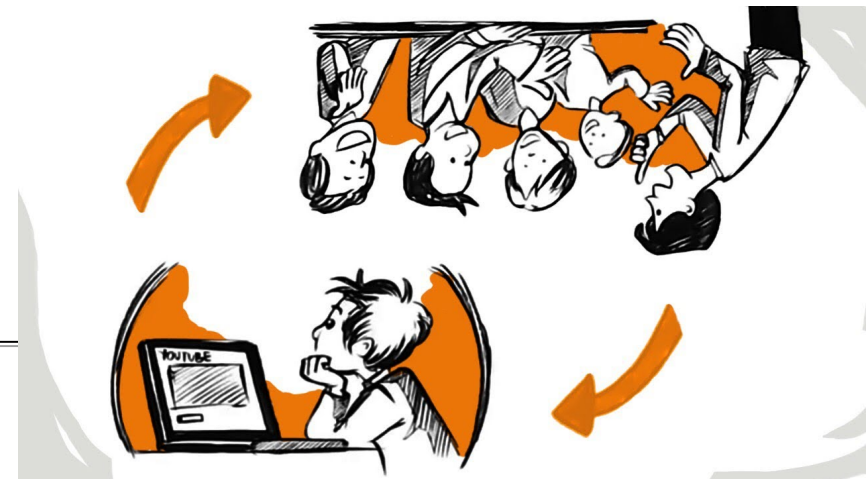
Flipped Classroom-like Model

- Idea:
 - you watch a video lecture *before* the lecture session
 - we use the lecture session to do some quizzes, go through some additional examples, and discuss questions and things that were unclear to you in these video lectures



Flipped Classroom-like Model

- Idea:
 - you watch a video lecture *before* the lecture session
 - we use the lecture session to do some quizzes, go through some additional examples, and discuss questions and things that were unclear to you in these video lectures
- In contrast to trying to replicate traditional lectures
 - more flexibility in terms of when you watch the videos (plus, you can pause, repeat, fast-forward, etc.)
 - role of the lecture sessions: give you ample opportunity to ask questions and to reinforce your learning of the concepts



Did you watch the video lecture?

- 1) Yes, all of it
- 2) Yes, partially
- 3) No, sorry
- 4) Video lecture??

Please bear with us!

- Not everything is guaranteed to run smoothly
- We are trying our best



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