

Welcome to TDDD81

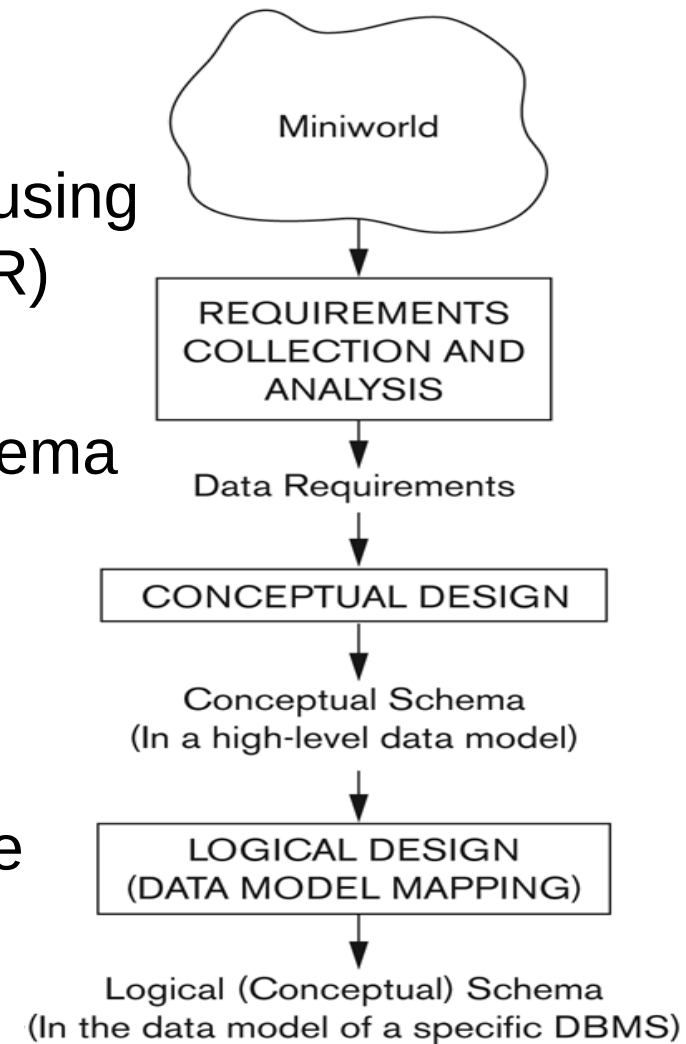
Database Technology

Olaf Hartig

Intended Learning Outcomes

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.
- Explain and apply basic concepts and techniques that database management systems (DBMSs) use internally to provide their main functionalities, which are
 - the persistent storage and efficient retrieval of data,
 - the efficient processing of queries, and
 - the handling of concurrent access to a database.

Examination

Final Exam

- During the exam period after the course
- Dates: see pointer on the course Website



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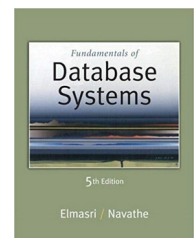
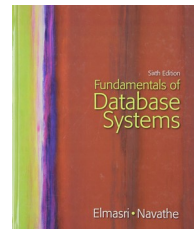
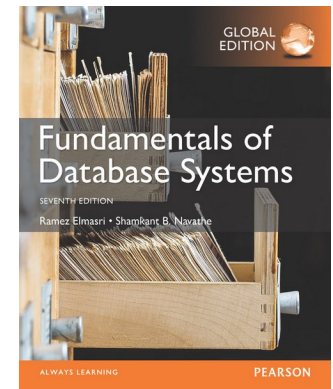
Four Assignments

1. Database design and EER modeling
 2. SQL
 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
 - To be solved in pairs
 - register with lab partner in Webreg no later than Feb. 12
 - Use MariaDB database server for assignments 2 and 4c
 - access to the server is provided by LiU IT
 - instructions on the course Website

Organization of the Course

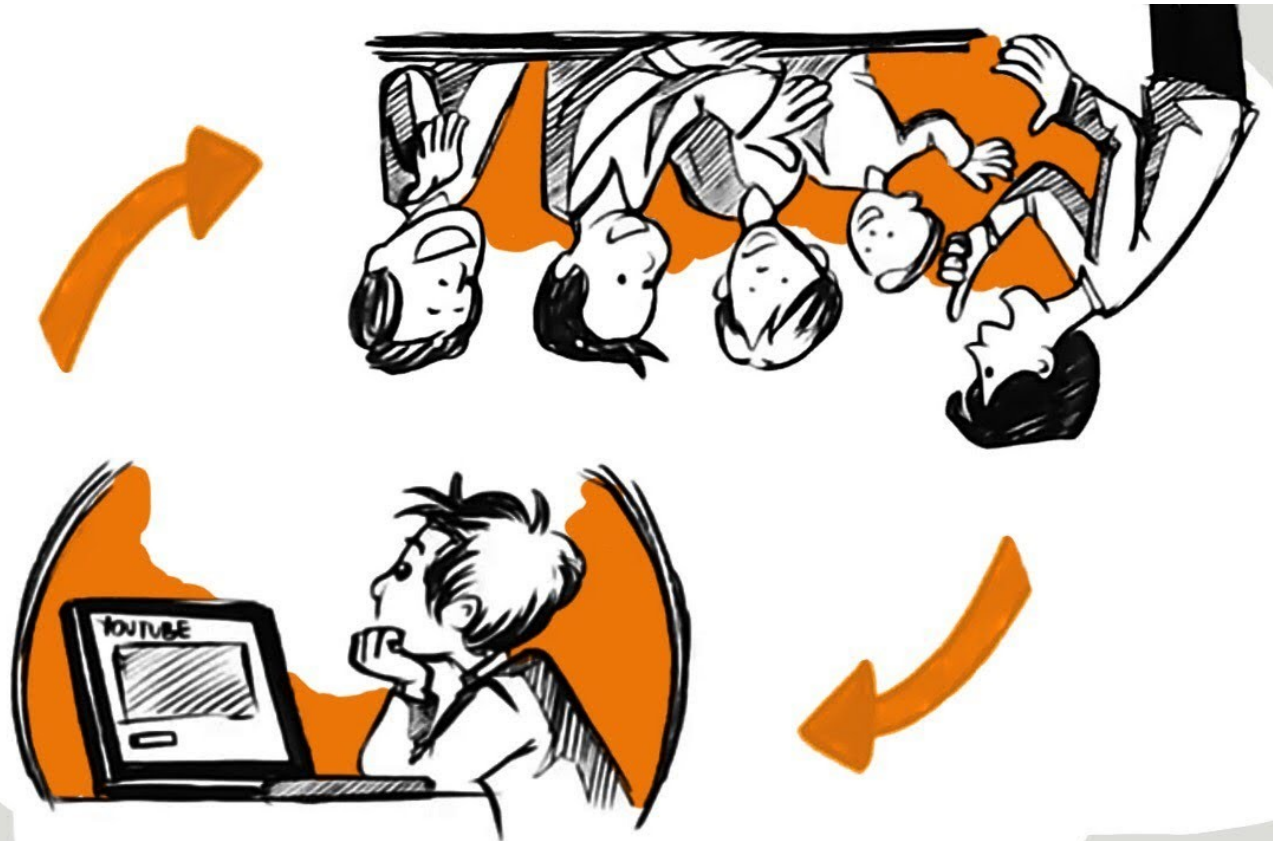
Structure of the Course

- Schedule on the course Website
- 12 lecture sessions (4 of them in VT2!)
 - Flipped-classroom style
- 9 lab sessions
 - First three: focus on assignment #2 (SQL), in VT1
 - Remaining six: focus on assignment #4c, in VT2 (not all of these six lab sessions will be supervised)
- 1 teaching session (beginning of VT2)
 - Discussion of #4a hand-ins (attendance mandatory!)
- Text book: Elmasri and Navathe. *Fundamentals of Database Systems*, Addison Wesley, 7th edition



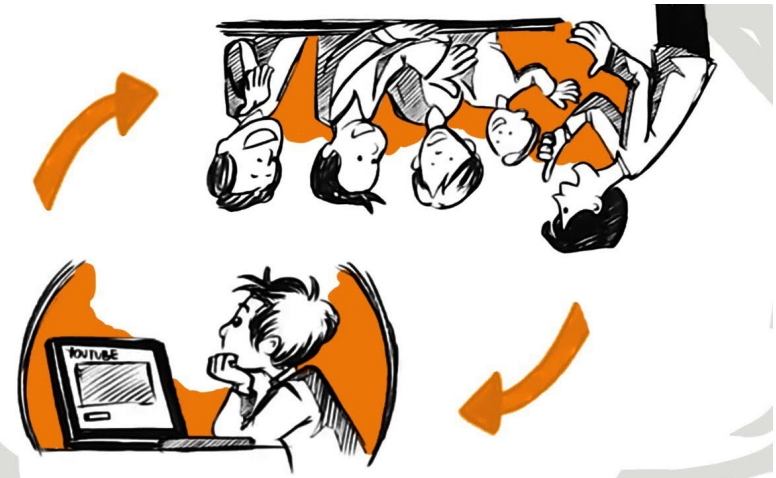
Flipped Classroom-like Model

- 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



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 - 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 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??

Changes to Earlier Versions of the Course

What is different this year?

- Dropped one of the topics (DB recovery) to make more time for the data structures part (indexes, in particular)
- Improved the description of the assignment tasks, especially for the BrianAir project (assignment 4)
- Assignments 4a and 4b only EER diagram
- Detailed assessment criteria
 - exams will be structured differently
 - for details, see the course Website

www.liu.se