Welcome to TDDD37 / 732A57 Database Technology

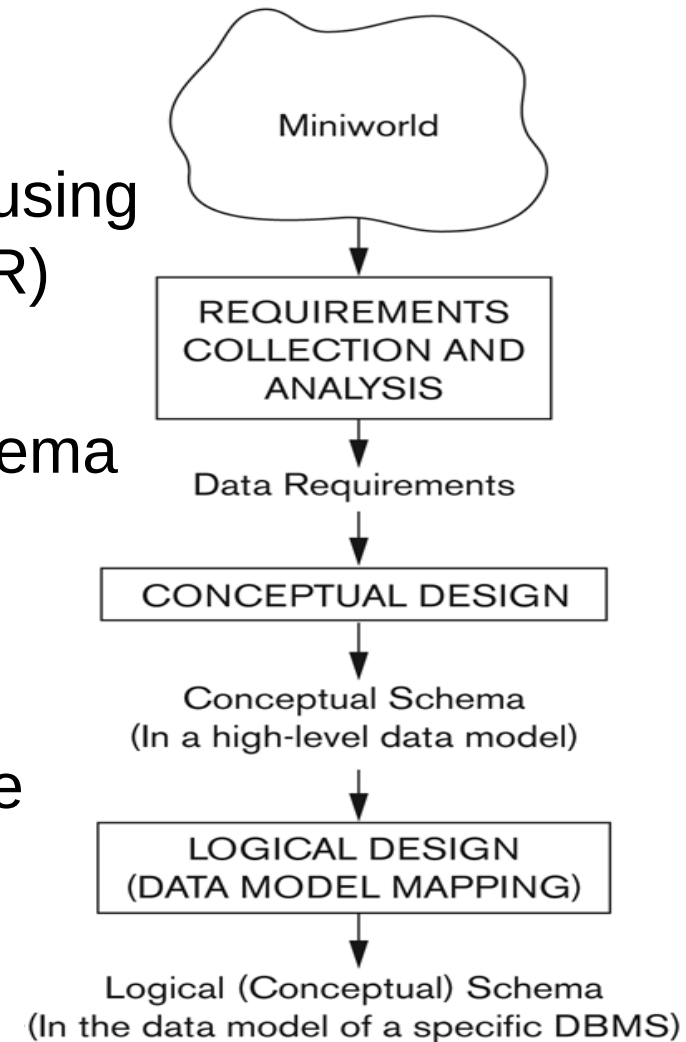**Olaf**   Ying   Mina   Julia   Sophie

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*.

Miniworld

↓

REQUIREMENTS COLLECTION AND ANALYSIS

↓

Data Requirements

↓

CONCEPTUAL DESIGN

↓

Conceptual Schema
(In a high-level data model)

↓

LOGICAL DESIGN
(DATA MODEL MAPPING)

↓

Logical (Conceptual) Schema
(In the data model of a specific DBMS)

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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 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

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

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   (before assignment 3!)
- To be solved in pairs
  - register with lab partner in Webreg before the end of this week
- Use MariaDB database server for assignments 2 and 4c
  - need access to the server provided by LiU IT
  - instructions on the course Website

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Organization of the Course

Structure of the Course

- Schedule on the course Website

- 12 lecture sessions
  - Flipped-classroom style

- 9 lab sessions
  - First three: focus on assignment #2 (SQL)
  - Remaining six: focus on assignment #4c
    (not all of these six lab sessions will be supervised)

- 1 teaching session
  - Discussion of #4a hand-ins (mandatory!)

- Text book: Elmasri and Navathe. *Fundamentals of Database Systems*, Addison Wesley, 7th edition
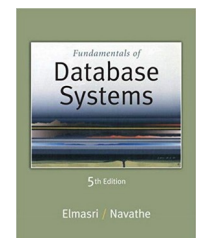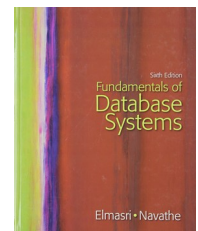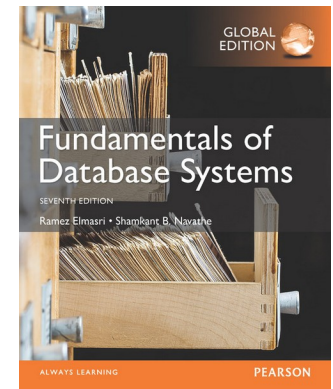
Flipped Classroom-like Model

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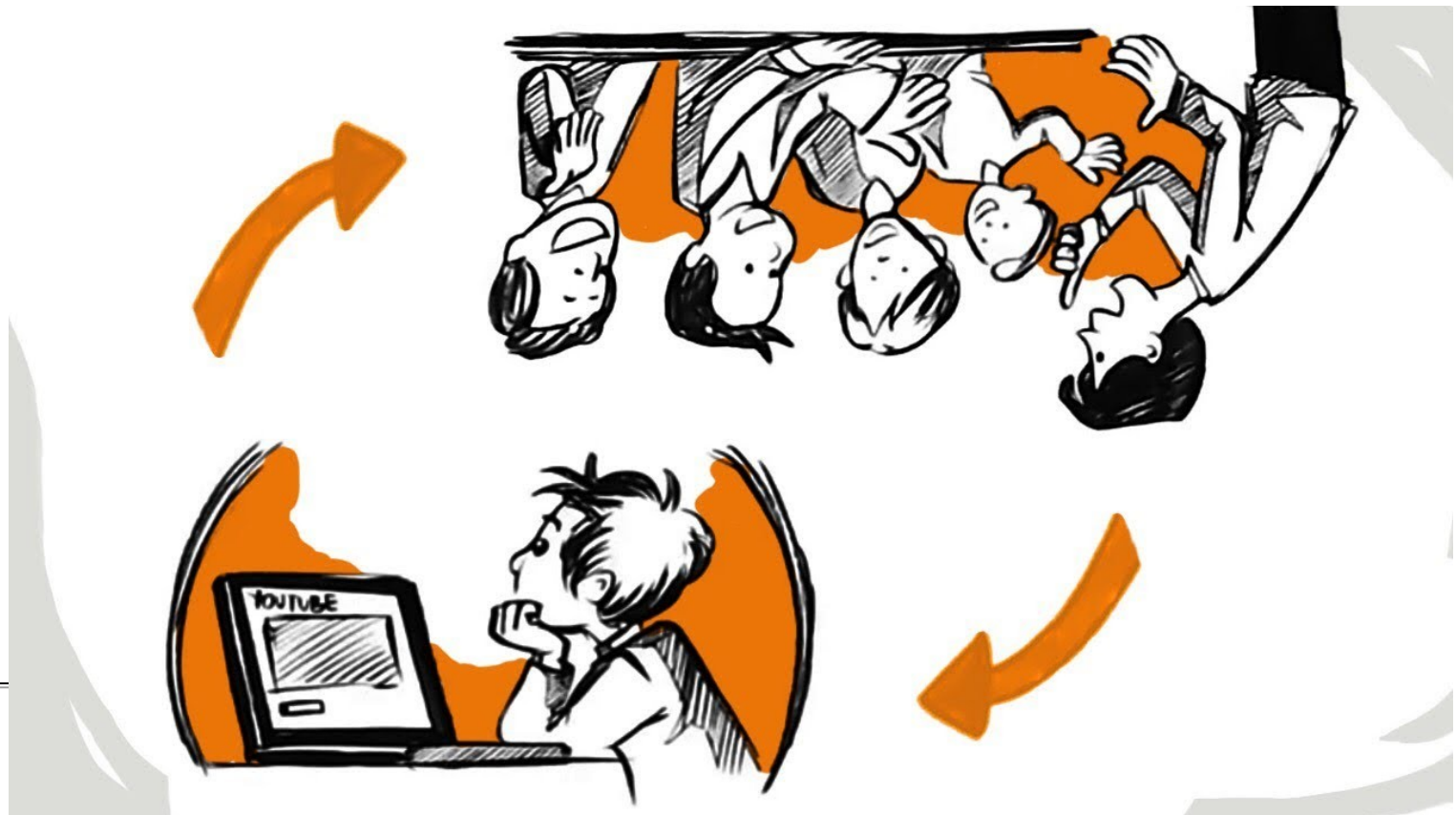
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  - we use the lecture session to do some quizzes, go through some additional examples, and discuss questions and things that were unclear to you in these video lectures

- 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
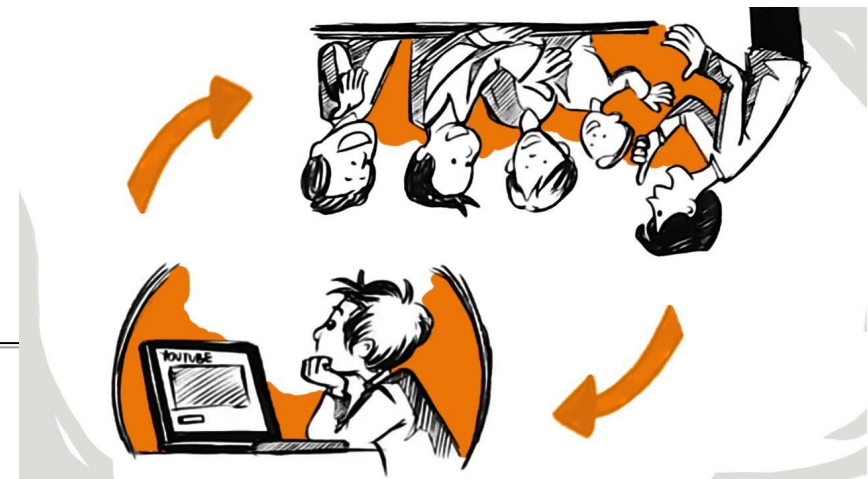
Did you watch the video lecture?

1) Yes, all of it

2) Yes, partially

3) No, sorry

4) Video lecture??

Earlier Versions of the Course

EvalLiUate Evaluations 2021–2023

	TDDD37 2021	TDDD37 2022	TDDD37 2023
Overall number of students	138	143	162
Students who answered	36 (26.1%)	46 (32.2%)	19 (11.7%)
Overall evaluation	4.31 (±0.75)	4.50 (±0.81)	4.84 (±0.37)

	732A57 2021	732A57 2022	732A57 2023
Overall number of students	19	11	33
Students who answered	4 (21.1%)	4 (36.4%)	11 (33.3%)
Overall evaluation	4.50 (±1.00)	5.00 (±0.00)	4.91 (±0.30)

What is different this year?

- Dropped one of the topics (DB recovery) to make more time for the data structures part (indexes, in particular)

- Schedule is a bit more squeezed (HT2 is shorter this year)

- Detailed assessment criteria
    - exams will be structured differently
    - for details, see the course Website

www.liu.se