Welcome to TDDD81 Database Technology
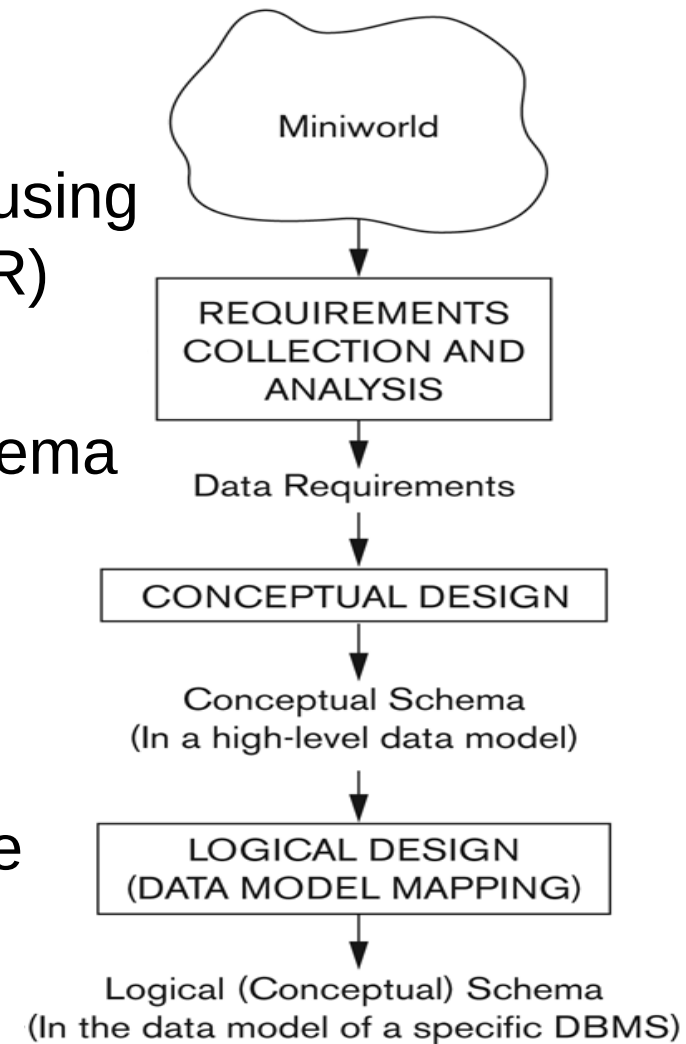

Olaf

Stephanie

Alireza

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)

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 Jan.25

- Use MariaDB database server for assignments 2 and 4c
  - need access to database 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 (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 (mandatory!)

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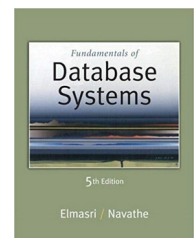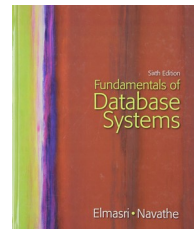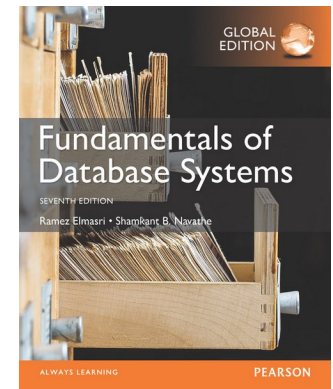
Flipped Classroom-like Model

- 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


LiU LINKÖPING UNIVERSITY
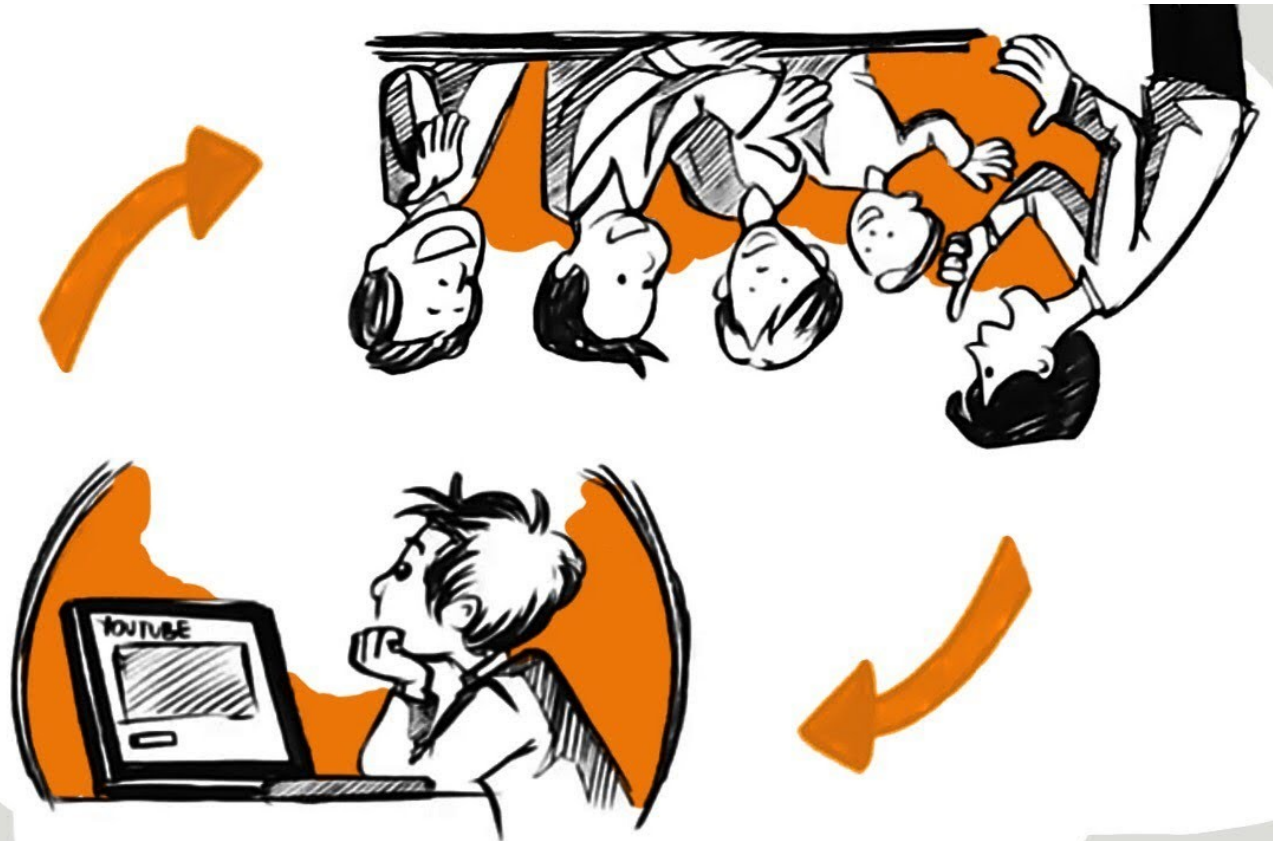
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- In contrast to traditional lectures
  - more flexibility in terms of when you watch the videos (plus, you can pause, repeat, fast-forward, etc.)
  - role of the lecture sessions: give you ample opportunity to ask questions and to reinforce your learning of the concepts
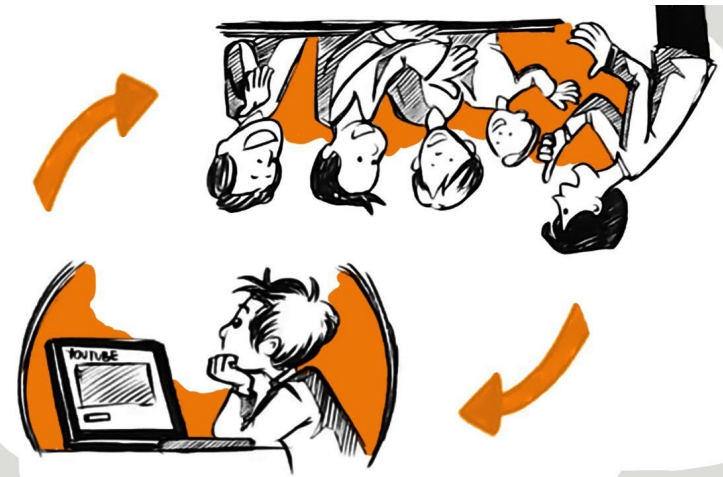
Did you watch the video lecture?

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

Earlier Versions of the Course

EvalLiUate Evaluations 2020–2023

	2020	**2021**	**2022**	2023
Overall number of students	53	90	76	71
Students who answered	12 (22.6%)	22 (24.4%)	19 (25.0%)	22 (31.0%)
Overall evaluation	3.25 (±0.97)	3.68 (±1.17)	4.26 (±0.87)	4.27 (±1.03)

Quotes from Free-Text Fields

- *"Not many students went to the lecture sessions but I thought they were great, and I really understood the material from the videos a lot better after hearing further explanations and examples."*

- *"I really enjoyed the hybrid format of lectures. I did not attend the in person classes later on, but that was not because I didn't think they were good, it was because the bachelors project took all of my academic time."*

- *"… just do the whole course VT1. It doesn't help with the bachelor and it is more a forgotten course on the side that no one focuses on because of the bachelor."*

  – when to place the course moments is an ongoing issue :-(

  – noteworthy this time:

    - all but the BrianAir project and the DBMS internals-related lectures in VT1, but spread out more evenly over all of VT1

    - BrianAir project in VT2, including the corresponding lab sessions

    - Deadline for completing BrianAir project: mid VT2 (i.e., not at the end of VT2 when you will have to wrap up your kandidatprojekt)

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