LU03 - RDB: concept & notation

Relational databases are fundamental to modern data management, offering a structured approach to storing and accessing data. The design of a relational database begins with conceptualizing the data and its relationships, forming the logical schema that represents real-world entities and their interactions within a system.

Data types are essential in this design process. They define how data is stored, classified, and processed, with common types including integers, strings, and dates. Correct data type selection ensures efficiency, data integrity, and optimized query performance.

Entity-Relationship Models (ERM) and Entity-Relationship Diagrams (ERD) are key tools in database design. The ERM outlines entities and their relationships, while the ERD provides a visual representation of this model. Entities represent objects or concepts, like customers or orders, and relationships illustrate how these entities interact within the system.

Crow’s foot notation, commonly used in ERDs, helps depict the cardinality of relationships—whether they are one-to-one, one-to-many, or many-to-many. This notation is crucial for clearly defining how entities connect, ensuring the database accurately reflects the intended data structure.

Theory

- LU04a - Concept of a RDB
- LU04b - Data-types
- LU04c - ERM and ERD
- LU04d - The Crow's Feet Notation

Assignments

- LU04.A01 - Choose data-types
- LU04.A02 - ERM: Travel_DB
- LU04.A03 - ERM: SchoolGrades_DB
- LU04.A04 - ERD: Travel DB
- LU04.A05 - ERD: SchoolGrades DB
- LU04.A06 - ERM vs. ERD
- LU04.A07 - ERD: Reingineering of an existing database

- LU03.A03: ERM: university_db - in due time
- LU03.A04: ERM: webshop_db - in due time
- LU03.A05: ERM: hobby_db - in due time

- LU03.A07: ERD_university_db - in due time
- LU03.A08: ERD: webshop_db - in due time

- LU03.A09: ERD: hobby_db - in due time

Solutions

- LU04.S01 - Choose data-types
- LU04.S02 - ERM: Travel DB
- LU04.S03 - ERM: SchoolGrades_DB
- LU04.S04 - ERD: Travel DB
- LU04.S05 - ERD: SchoolGrades_DB
- LU04.S06 - ERM vs. ERD
- LU04.S07 - ERD: Reingineering of an existing database

- LU03.L03: ERM: university_db - in due time
- LU03.L04: ERM: webshop_db - in due time
- LU03.L05: ERM: hobby_db - in due time

- LU03.L06: ERD: travel_db - in due time
- LU03.L07: ERD_university_db - in due time
- LU03.L08: ERD: webshop_db - in due time
- LU03.L09: ERD: hobby_db - in due time

Vocabulary

English	Deutsch
approach	Vorgehen, Ansatz
within	innerhalb
schema	Schema, Übersicht
entity	Wesen, Einheit, Gebilde
common	allgemein
to ensure	gewährleisten
to outline	skizzieren, umreissen
to depict	bildlich darstellen
notation	Schreibweise, Darstellungsweise
crucial	wichtig, entscheidend