

Datenbanken 1

Lehrveranstaltung von Prof. Scerbakov Nicolai

Lukas Prokop

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1 Basic Relational Data Model

- A Data Model consists of a collection of data structure types, a collection of operators and rules and a collection of general integrity rules (implicitly and explicitly)
- Database Transactions have to be ACID (atomic, consistent, isolated and durable)
- A relation is a mathematical term for a two dimensional table
- A tuple is the set of values in a row
- Columns are assigned distinct names called attributes
- A domain is a set of different values with the same property types
- A relation of degree N and cardinality M is a table of N columns and M rows
- The schema of a relation refers to the permanent characteristics of a relation
- A candidate key is uniquely identifying a tuple in a database. In RDBMSs one of the candidate keys has to be declared as the primary key
- A foreign key is an attribute which holds the primary key of another relation

2 Relational Database Model

- A relation definition includes definition of attribute names and definition of the primary key
- Manipulation includes insertion, deletion, modification and selection
- NULL values are possible
- integrity constraints

- implicit
 - entity integrity** A primary key cannot set to NULL.
 - referential integrity** A foreign key can have only two possible values either the relevant primary key or NULL value.
- explicit
 - Domain** upper and lower limits for integer values
 - Tuple** if $\text{attr1} == x$ then y has to be < 50
 - Relation** duplicates in primary key columns

3 Normalization

- A determinant is an attribute or a set of non-redundant attributes which can act as a unique identifier of (a set of) another attribute of a given value

4 Glossary

RDBMS Relational Database Management System

DBMS Database Management System

DDL Data Description Language

DML Data Manipulation Language

DBA Database Administrator