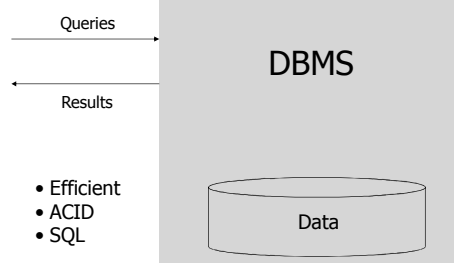


CS422 Principles of Database Systems

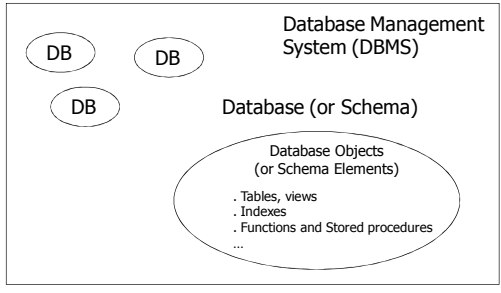
Course Overview

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Database Management Systems (DBMS)



The Big Picture



Database

students

id	name	address
1	John	123 Main St.
2	Jane	456 State St.

departments

name	acronym
Computer Science	cs
Mathematics	math

- Other**
- views
 - indexes
 - functions/procedures

Schema

students

id	name	address
----	------	---------

departments

name	acronym
------	---------

- Other**
- views
 - indexes
 - functions/procedures

Schema

students

id	name	address
----	------	---------

Table schema

departments

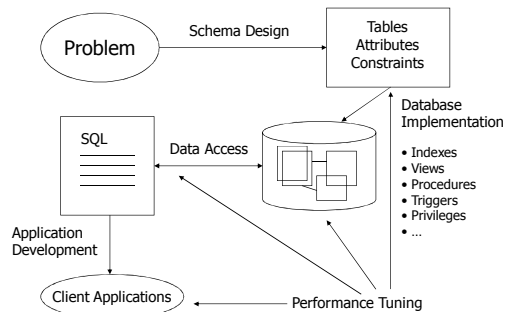
name	acronym
------	---------

- Other**
- views
 - indexes
 - functions/procedures

Table schema

Database Schema

Database Development



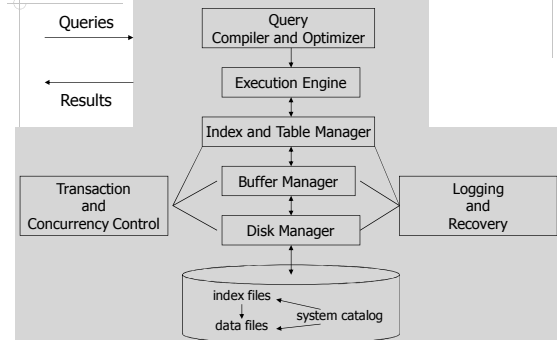
Schema Design

- ◆ Entity-Relationship (ER) model
- ◆ Relational model
- ◆ ER → Relational conversion
- ◆ Normalization

Implementation and Access

- ◆ SQL
- ◆ Transactions
- ◆ Stored procedures and triggers

DBMS Internals



Database Internals

- ◆ Query processing
- ◆ Disk access
- ◆ Record organization
- ◆ Memory management
- ◆ Concurrency control
- ◆ Failure recovery
- ◆ Indexes