

Database Management System

Chapter 1: Relational Databases

- 1.1 Purpose of Database System
- 1.2 Views of Data
- 1.3 Data Models
- 1.4 Database System Structure & Architecture
- 1.5 Introduction to Relational Databases
- 1.6 Relational Model
- 1.7 Keys
- 1.8 Relational Algebra
- 1.9 SQL Fundamentals
- 1.10 Advanced SQL Features
- 1.11 Embedded SQL
- 1.12 Dynamic SQL

Chapter 2: Database Design

- 2.1 Entity-Relationship Model and ER Diagram
- 2.2 Enhanced ER Model
- 2.3 ER Model to Relational Model
- 2.4 Functional Dependencies
- 2.5 Lossless Decomposition
- 2.6 Normal Forms
- 2.7 Multi-valued Dependencies and Join Dependencies

Chapter 3: Transactions

- 3.1 Transaction Concepts
- 3.2 ACID Properties
- 3.3 Serializability
- 3.4 Schedules
- 3.5 Concurrency Control
- 3.6 Transaction Recovery Techniques
- 3.7 Save Points and Isolation Levels
- 3.8 SQL Facilities for Concurrency and Recovery

Chapter 4: Implementation Techniques

- 4.1 RAID (Redundancy Array of Independent Disks)
- 4.2 File Organization and Organization of Files in Records
- 4.3 Indexing and Hashing

- 4.4 B+ and B-Tree Indexing
- 4.5 Query Processing
- 4.6 Query Optimization using Heuristics

Chapter 5: Advanced Topics

- 5.1 Distributed Databases
- 5.2 Object-Based Databases
- 5.3 XML Database
- 5.4 Information Retrieval

