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Видання містить методичні матеріали, англійською мовою, які охоплюють основні принципи та деякі моделі побудови баз даних.

Для студентів спеціальностей «Комп'ютерні науки» та «Системний аналіз»

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Contents:

1. Introduction
2. Definition, Goals and Aspects of Database Systems
3. Data modeling
4. Entity–Relationship Model
5. Functionality of Relationships and (Min, Max) Notation
6. Extended ER Modeling
7. Relational Data Model
8. Relational Algebra
9. Mapping the Entity–Relationship Model to Normalized Relations.
10. SQL
11. Query Examples
12. Sorting
13. Aggregate Functions
14. Group by and HAVING
15. Joins
16. Set Operations
17. Subqueries
18. Correlated Subqueries
19. EXISTS ANY ALL
20. DML Statements – Data Manipulation
21. Batch and Stored Procedures
22. Normalization Theory / Database Design Theory
23. Normal Forms
24. Advanced Grouping Operations
25. Reporting Function
26. Partitioning
27. References

1. Introduction

Relational databases are the foundation of western civilization

In the modern digital world, data plays a crucial role in almost every field, including education, business, healthcare, and engineering. The ability to efficiently store, manage, and retrieve data has become a fundamental requirement for organizations and individuals alike. Databases are the core technology that enables these processes.

A database is an organized collection of data that can be easily accessed, managed, and updated. Database systems are designed to handle large volumes of information while ensuring accuracy, consistency, and security. The software used to manage databases is called a Database Management System (DBMS), such as MySQL, PostgreSQL, and SQLite.

This teaching manual is intended to provide students with a comprehensive introduction to the fundamental concepts of database systems. It covers both theoretical foundations and practical skills required to design, implement, and interact with databases. The manual emphasizes the relational database model, which is the most widely used approach in modern applications.

Students will learn key concepts such as data models, normalization, entity-relationship modeling, and Structured Query Language (SQL). Special attention is given to practical tasks, allowing students to develop hands-on experience by creating databases and writing queries to solve real-world problems.

The goal of this manual is not only to introduce basic principles but also to develop analytical thinking and problem-solving skills in the context of data management. By the end of the course, students will be able to design simple database systems, perform data manipulation operations, and understand the role of databases in modern information systems.