# Database Management Systems


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# Conclusion to DBMS course

innovate achieve lead

## 1. Introduction and Overview of DBMS

- Introduction to database systems
- Advantages
- Three schema architecture
- Data Independence
- Architecture
- Database users

# 2. Conceptual Database Design (ER Modeling)

- Database Design process
- ER constructs
- Notations
- Class hierarchies

## 3. Relational Data model and Constraints

- Relations, tuples, and keys
- Integrity Constraints

## 4. Mapping from ER to Relational Schemas

- Mapping Entities, Relations, Constrints
- Mapping Class hierarchies

# 5. Relational Algebra and Calculus

- Relational operators
- Join operation
- Grouping

# 6. SQL-99

- DDL
- DML
- Views in SQL

## 7. Functional Dependencies

- FDs
- Inference rules

## 8. Database Design and Normal Forms

- Rules for Normal forms
- Decomposition
- Lossless and Dependency preserving Decomposition

## 9. Storage and File structures

- Disk storage
- File and Record Organization

## 10. Hashing

- Internal Hashing
- Collision resolution
- Static and Dynamic eternal Hashing

# 11. Indexing

- Primary and Secondary Indexing
- Spare and Dense Indexing
- Multilevel Indexing
- B+ Tree Indexing

# 12. Transaction Model

- Advantages
- States
- Transaction Schedules

# 13. Concurrent Transactions

- Concurrent Transactions and Schedules
- Advantages and Disadvantages
- Serial and Serializable Scheduls
- Conflict Serializability

# 14. Concurrency Control

- Serializability
- Lock-based Protocols
- Timestamp-based protocols
- Deadlocks

# 15. Database Recovery

- Log-based Recovery
- Deferred and Immediate modification techniques
- Checkpointing
- Shadow pagng

# Thanks
# &
# Good Luck..