Database Management Systems -II

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CSEDU

Course Outline

- DBMS Implementation Technology: (7)
  - **Storage and File Structure**: different storage types, RAID and RAID levels, file and record organization, data dictionary storage
  - **Indexing and Hashing**: basic concepts, ordered indices, B+-tree index files, B-tree index files, static & dynamic hashing, comparison of ordered indexing & hashing
- Information Retrieval (5)
  - **Query Processing**: overview, measures of query costs, selection operation, sorting, join operation, other operations and evaluation of expressions.
  - **Query Optimization**: introduction, transformation of relational expressions, evaluation plan, cost-based optimization and heuristic optimization, optimizing nested sub-queries, materialized view and view maintenance

Course Outline

- Introduction of Modern Databases: (3)
  - **Object-relational and Object-oriented Databases**: complex data types - structured, array and multiset types, inheritance, object identity and reference types, object-relational query, implementation, persistent programming languages, Introduction to other databases: temporal, spatial, multimedia and mobile databases.
- Data Processing and visualization (3)
  - **Data Object and Attribute Types**: nominal, binary, ordinal, numeric, basic statistical description of data, measuring data similarity and dissimilarity
  - **Data Preprocessing**: data cleaning, integration and reduction, Data transformation and data discretization
  - **Data Visualization**: Pixel-oriented, geometric projection, icon based, hierarchical and visualizing complex data and relations.

Course outline

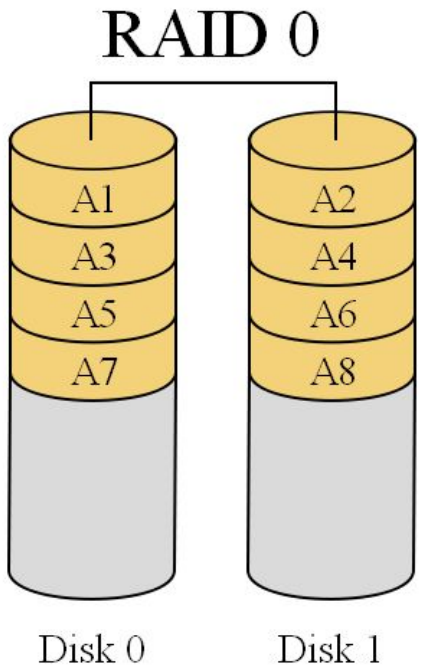
- Database System Architecture: (7)
  - **Centralized and client-server architecture**;
  - **Parallel Databases**: architecture, speedup and scaleup, interconnection networks, I/O parallelism, interquery and intraquery parallelism, cost of parallel processing, design of parallel systems.
  - **Distributed Databases**: homogeneous and heterogeneous, distributed data storage: data replication and fragmentation, failure handling, distributed query processing.
- Introduction to Data Mining and Machine Learning: (5)
  - Decision support systems, OLAP implementation
  - Data warehousing- components, schemas
  - Data mining concept, applications – association rules, classification, clustering

Text Books

1. Database System Concepts Authors: Abraham Silberschatz, Henry F. Korth, S. Sudarshan Edition: 7th Publication Year: 2019 Publisher: McGraw-Hill ISBN:978-0-07-802215-9 Web: http://www.db-book.com
2. Data Mining: Concepts and Techniques Authors: Jiawei Han, Micheline Camber, Jian Pie Edition: 4th Publication Year: 2023 Publisher: Morgan Kaufmann Publishers

Marks Distribution

- Attendance 5%
- Assignment 5%
- Incourse 20%
- Final 70%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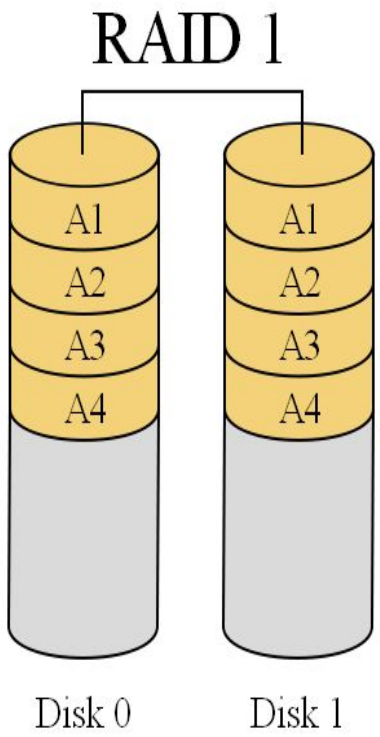
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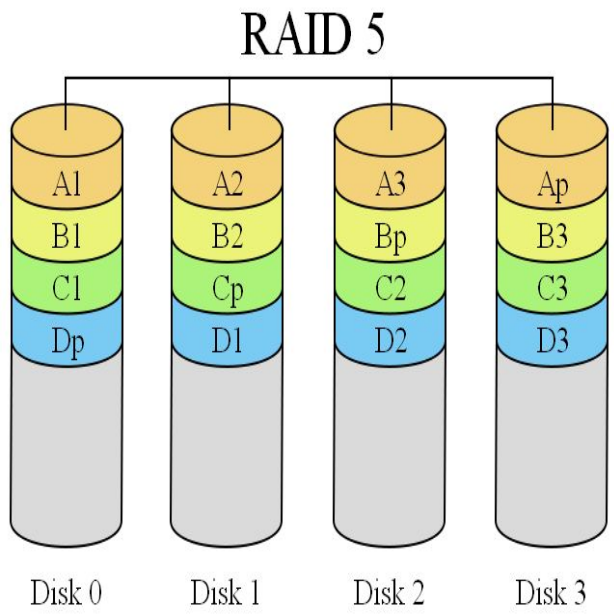
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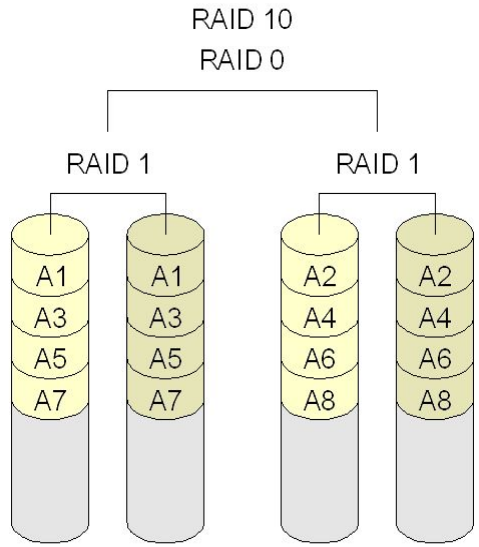
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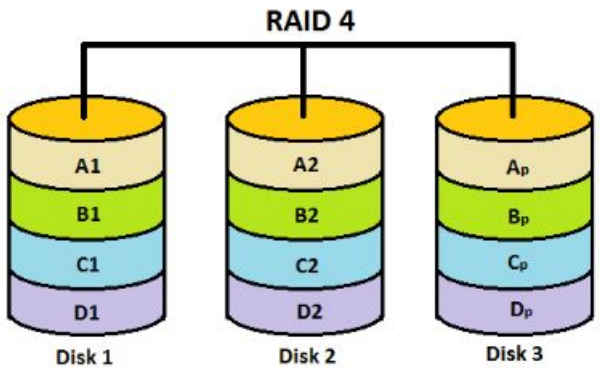
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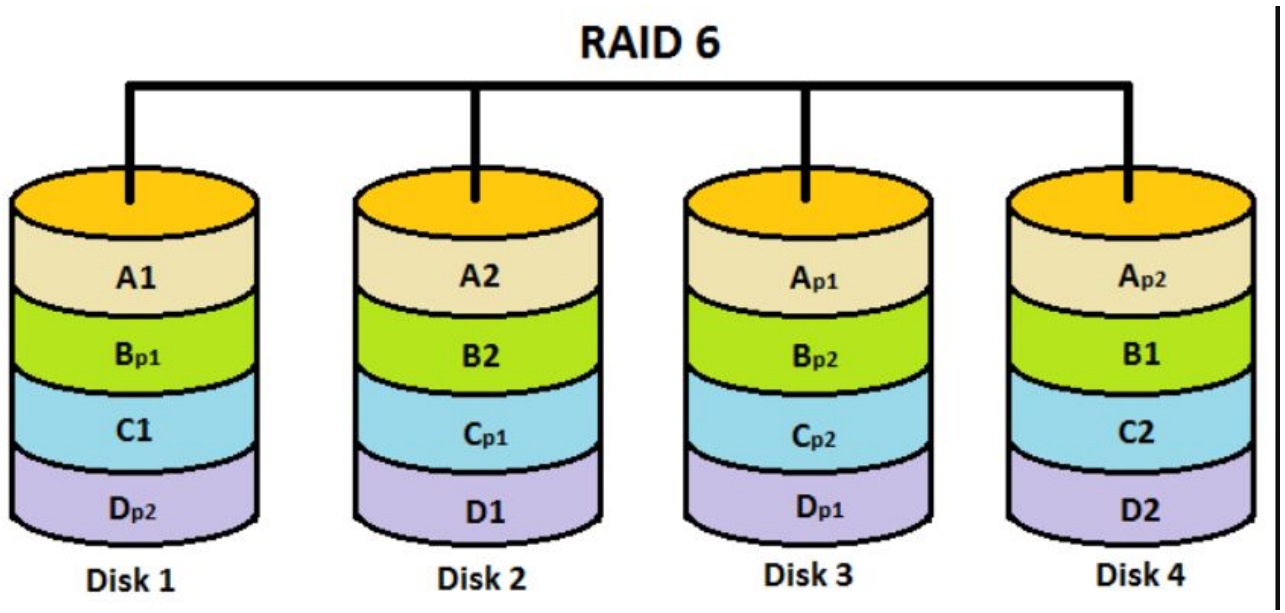
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