

2. David E. Culler, Jaswinder Pal Singh, Anoop Gupta: Parallel Computer Architecture, A Hardware / Software Approach, Morgan Kaufman, 1999.

ADVANCED DBMS

Subject Code: 10CS751
Hours/Week : 04
Total Hours : 52

I.A. Marks : 25
Exam Hours: 03
Exam Marks: 100

PART - A

UNIT - 1 **7 Hours**
Overview of Storage and Indexing, Disks and Files: Data on external storage; File organizations and indexing; Index data structures; Comparison of file organizations; Indexes and performance tuning
Memory hierarchy; RAID; Disk space management; Buffer manager; Files of records; Page formats and record formats

UNIT - 2 **7 Hours**
Tree Structured Indexing: Intuition for tree indexes; Indexed sequential access method; B+ trees, Search, Insert, Delete, Duplicates, B+ trees in practice

UNIT - 3 **6 Hours**
Hash-Based Indexing: Static hashing; Extendible hashing, Linear hashing, comparisons

UNIT - 4 **6 Hours**
Overview of Query Evaluation, External Sorting : The system catalog; Introduction to operator evaluation; Algorithms for relational operations; Introduction to query optimization; Alternative plans: A motivating example; what a typical optimizer does.
When does a DBMS sort data? A simple two-way merge sort; External merge sort

PART - B

UNIT - 5 **6 Hours**
Evaluating Relational Operators : The Selection operation; General selection conditions; The Projection operation; The Join operation; The Set operations; Aggregate operations; The impact of buffering



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UNIT – 6 **7 Hours**
A Typical Relational Query Optimizer: Translating SQL queries in to Relational Algebra; Estimating the cost of a plan; Relational algebra equivalences; Enumeration of alternative plans; Nested sub-queries; other approaches to query optimization.

UNIT – 7 **7 Hours**
Physical Database Design and Tuning: Introduction; Guidelines for index selection, examples; Clustering and indexing; Indexes that enable index-only plans; Tools to assist in index selection; Overview of database tuning; Choices in tuning the conceptual schema; Choices in tuning queries and views; Impact of concurrency; DBMS benchmarking.

UNIT – 8 **6 Hours**
More Recent Applications: Mobile databases; Multimedia databases; Geographical Information Systems; Genome data management

Text Books:

1. Raghu Ramakrishnan and Johannes Gehrke: Database Management Systems, 3rd Edition, McGraw-Hill, 2003.
(Chapters 8, 9, 10, 11, 12, 13.1 to 13.3, 14, 15, 20)
2. Elmasri and Navathe: Fundamentals of Database Systems, 5th Edition, Pearson Education, 2007.
(Chapter 30)

Reference Books:

1. Connolly and Begg: Database Systems, 4th Edition, Pearson Education, 2002.

DIGITAL SIGNAL PROCESSING

Subject Code: 10CS752
Hours/Week : 04
Total Hours : 52

I.A. Marks : 25
Exam Hours: 03
Exam Marks: 100

PART - A

UNIT – 1 **7 Hours**
The Discrete Fourier Transform: Its Properties and Applications : Frequency Domain Sampling; The Discrete Fourier Transform: Frequency Domain Sampling and Reconstruction of Discrete-Time Signals, The Discrete Fourier Transform (DFT), The DFT as a Linear Transformation, Relationship of the DFT to other Transforms. Properties of the DFT: Periodicity, Linearity and Symmetry Properties, Multiplication of Two DFT's and Circular Convolution, Additional DFT Properties; Linear Filtering

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