

MCA316: Distributed Database Management Systems

Teaching Scheme
Lectures: 3 hrs/Week
Tutorials: 1 hr/Week

Credits: 4

Examination Scheme
Class Test -12Marks
Teachers Assessment - 6Marks
Attendance – 12 Marks
End Semester Exam – 70 marks

Prerequisite: - Database management system

Course Objectives:

The objectives of this course are

1. Enhanced the knowledge in the area of Distributed Database system.
2. Comprehend the Distributed query processing.
3. The subject explores the ideas of Transaction management and concurrency control.
4. Know the parallel database system architecture.

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5. Become conscious about current trends.

Detailed Syllabus:

UNIT I

Introduction: Distributed Data processing, Distributed Database Systems (DDBMSs), Promises of DDBMSs, Complicating factors and Problem areas in DDBMSs, Overview Of Relational DBMS, Relational Database concepts, Normalization, Integrity rules, Relational Data Languages, Relational DBMS.

UNIT II

Distributed DBMS Architecture: DBMS Standardization, Architectural models for Distributed DBMS, Distributed DBMS Architecture. Distributed Database Design: Alternative design Strategies, Distribution design issues, Fragmentation, Allocation. Semantic Data Control: View Management, Data security, Semantic Integrity Control.

UNIT III

Overview of Query Processing: Query processing problem, Objectives of Query Processing, Complexity of Relational Algebra operations, characterization of Query processors, Layers of Query Processing.

UNIT IV

Introduction to Transaction Management: Definition of Transaction, Properties of transaction, types of transaction. Distributed Concurrency Control: Serializability theory, Taxonomy of concurrency control mechanisms, locking based concurrency control algorithms.

UNIT V

Parallel Database Systems: Database servers, Parallel architecture, Parallel DBMS techniques, Parallel execution problems, Parallel execution for hierarchical architecture. Database Interoperability: Database Integration, Query processing.

UNIT VI

Distributed Object Database Management systems: Fundamental Object concepts and Object models, Object distribution design. Architectural issues, Object management, Distributed object storage, Object query processing. Transaction management.


Text and Reference Books

1. Principles of Distributed Database Systems, M.TamerOzsu, Patrick Valduriez, 2nd Edition, 1999.
2. Distributed Databases principles and systems, Stefano Ceri, Giuseppe Pelagatti, TMH, 2008.


Course Outcomes:

After completing the course, students will be able to:

1. Aware of fundamentals of Distributed Database systems.
2. Use the different techniques of Distributed query processing
3. Set the rules over management of transaction and concurrency control.
4. Familiar with parallel database system architecture.
5. Apprehend Machine Learning Algorithms.


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