CSE 453 High Performance Database System

3 hours in a week, 3.00 credits

My content

1. High performance database systems: **Parallel Database Architecture, partitioning, replication, indexing and Query processing**
2. **Distributed Database Architecture, Storage and Query processing, transaction management, concurrency control and Design**
3. **Query optimization in centralized and distributed database**
4. **High performance data models: NoSQL, semi-structured and column-oriented etc.**
5. **Big data and Data Analytics: overview, Data warehousing: Storage structure and star schema, design and OLAP**

Existing syllabus

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High performance database systems: client-server databases, parallel and distributed databases, cloud databases; Transaction oriented computing: transaction models, at transactions, nested transactions, distributed transactions, long-lived transactions, transaction processing monitors; Concurrency control: isolation theorems, locking, nested transaction locking, scheduling and deadlock, deadlock detection and management; Failure and recovery; Replica management, Transactional and tuple oriented -le system; Transaction and database performance benchmarks; NoSQL systems: data models, system architecture, transactions, elasticity, and optimization

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Failure and recovery; Replica management, Transactional and tuple

oriented -file system;

Transaction and database performance benchmarks;

NoSQL systems: data models, system architecture, transactions, elasticity,

and optimization