Distributed Database Systems IT 504 (3-0-2-4)

MTech ICT-SS Core, Open for BTech VI Semester

Prerequisites: Fundamental Course on DBMS

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Objectives:

Collection of correlated databases distributed over a cluster of servers can facilitate scalable query processing. Course includes foundational work, recent developments and trends in scalable database management systems. Modern Data Storage and Query processing for Parallel and distributed databases will be discussed. Students will be working on projects in the domain of modern distributed data storage and query processing during labs. Students will be using various SQL and NoSQL database management tools for implementing their projects.

Coverage of Topics:

- Overview, Basic definitions
- Relational Model basics
- Distributed architecture
- distributed database design considerations and strategies
- fragmentation, distribution and replication models
- Distributed and Parallel Query Processing, scalability and optimization
- query cost estimation
- distributed transaction management
  - concurrency control
  - crash recovery
- database interoperability
- various data models
  - SQL and NoSQL databases
  - RDF and graph databases
- static and streaming data
- research issues in modern distributed database management

Resources:

- Research Papers

Evaluation Scheme:

- InSem Exam: 25%
- Assignments and Project: 35%
- Final Exam: 40%

The Assignments and project will be evaluated in the form of lab vivas, presentations, demonstrations, and write-ups.