CS448 Database Systems Implementation (Winter 2012)

Cheriton School of Computer Science

Winter 2012

Course Outline

Overview, System Architecture

Data Storage and Access Methods: data layout, data access

Query Evaluation: answering queries

Query Optimization: choosing a good ways to answer queries

Concurrency and Failures: transactions, synchronization, failure recovery

Distributed Database Management: distributed data, replication (time permitting)

Assumed Background

- operating systems
  - primary and secondary storage
  - file systems
  - processes, threads, virtual memory
  - process/thread synchronization
- relational data management
  - SQL DML: queries and updates
  - SQL DDL: tables, constraints
  - schema vs. instance
  - semantics and use of transactions

Assignments

- Assignments are based on the open-source PostgreSQL (aka Postgres) relational DBMS
  1. Prefix compression in B-Trees
  2. Symmetric hash join
  3. Exploiting tuple order in query optimization
- A1 must be done individually, A2 and A3 may be done in groups of two.

Evaluation (CS448)

- marking scheme:
  - assignments: 40%
  - midterm exam: 20%
  - final exam: 40%
- you must have a passing (weighted) exam average to pass the course

Evaluation (CS648)

- marking scheme:
  - assignments: 20%
  - midterm exam: 10%
  - final exam: 40%
  - project: 30%
- you must have a passing (weighted) exam average to pass the course

Textbook and Lecture Notes

- textbook: *Database Management Systems*. R. Ramakrishnan and J. Gehrke. McGraw-Hill. 3rd Edition.
  - textbook is optional, useful for alternative/supplemental presentation of course topics
  - relevant chapters listed on the course web page
  - will be available through Davis Centre Library course reserves
- lecture notes
  - slides will be available through the course web page in PDF format
  - not intended for stand-alone use
  - recommended printing: 2 slides per page, double sided

D2L and Piazza

- we will be using Piazza to host assignment and exam Q&A and course announcements
  - each registered student's official UW e-mail address should receive a Piazza invitation (today)
- CS448 and CS648 also exist in LEARN (UW's replacement for Ace), but LEARN will be used only for posting marks
- course personnel will not be monitoring the `uw.cs.cs448` newsgroup