Final Review

CS 6800
Utah State University

Structure

- Structure
  - Thursday April 23, 9:00-11:20AM
  - 7-10 pages of short answer, essay questions
  - Be precise, be verbose
  - Comprehensive
  - Closed book, notes

- Readings
  - Lecture notes
  - Codd, Pregel, Aurora, and Cypher Update papers
  - ElMasri and Navathe (relevant chapters are on lecture notes page)

Query Languages

- Domain relational calculus, tuple relational calculus, Datalog, Cypher, Pig Latin, XQuery
  - Be able to write queries in
    - XQuery
    - Pig Latin
    - Cypher
    - Datalog
    - TRC
    - DRC

Transaction Protocols

- Serial vs. serializable
- Protocols
  - Two-phase locking
  - Timestamp ordering
  - Multiversioning
  - Optimistic CC
- Strict vs. non-strict
- Cascading aborts/rollback

Recovery

- More practical than theory
- Reasons for failure
- Recovery log
- Recovery strategies
  - Undo/redo
  - Undo/no-redo
- Checkpoint

Data Mining and IR

- Need for
- Association rules
  - Support and confidence
- Information retrieval
  - Precision and recall
  - Search engine techniques
Big Data & OLAP

- Map/Reduce Pig Latin architecture
- Graph Databases
- Column store DBs
- Star vs. snowflake schema