Lecture 20: Final Review

Thursday, March 8, 2001

The Final

1. SQL problem
2. XML problem
3. Theory problem
4. Datalog problem
5. Database implementation problem

1 SQL Problem

- Select-from-where
- Group-by, having
- Insert, delete, modify tables
- Create tables
- Need to understand E/R diagrams

Not included: constraints, triggers

2. XML

- Basic syntax (well-formed XML documents):
  - Elements
  - Attributes
- Connection between XML and data
  - How to encode relational data in XML
  - Why we can encode more (semistructured data)
- DTDs (valid XML documents)
- Query languages (XML-QL, Xpath)

3. Theory Problem

- Generic, domain independent, computable queries
- First Order Logic
- Expressive power
- Query complexity
- Conjunctive queries

4. Datalog

- Write a recursive query or reason about a recursive query
- datalog¬
- Semantics:
  - Stratified
  - Inflationary
  - Partial

Database Implementation

- Data storage
- Indexing
  - B^+ trees
  - Hash tables (extensible)
- Execution
  - Various algorithms and their complexity
- Optimization
  - Know basic algebraic laws
  - Dynamic programming

And finally...

- Enjoy the final !
- I enjoyed teaching this class a lot ☺