

Online Analytics Applications

a quick overview of the material

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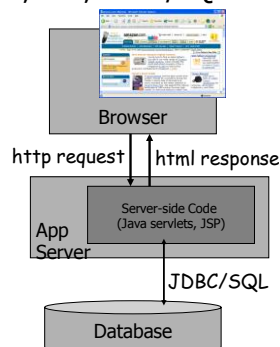
What is an online analytics application?

- User: A business user/analyst
- Goal: obtain insights into the data by online interaction with the application
- Typical functions: Aggregate across dimensions, drill-down, pivot,
 - Demo
- Also: what-if, classifications, recommendations and more
- Also: write down derived knowledge, share

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Basic Architecture: Pure server-side Web Application with Java, JSP, JDBC/SQL

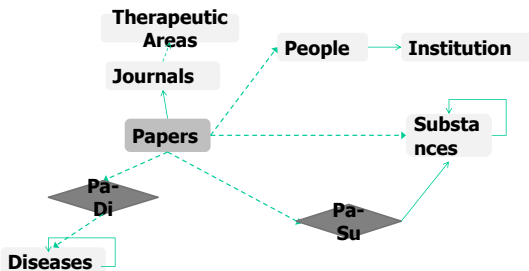
- Discussion of http, servlets, jsp
- Using the Java programming language (Java servlets and JSPs) and JDBC/SQL-based databases
- Key lessons:
 - The role of *application servers*
 - The role of database servers



Using relational databases, SQL

Database programming “fast track” course

- Practical database design techniques
- SQL programming
- Use of JDBC in web applications, connection pools
- PL/SQL basics



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Achieving high performance

- Database performance issues for applications where users issue demanding analytics queries
- Basics of performance tuning
 - Understand what’s happening in the database
 - Set up indices

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Advanced performance

- Utilize materialized views (precomputation)
 - How to use
 - How to maintain
 - Star schemas
- Utilize column databases
 - Emulate a column database with appropriate reorg of your basic database
- Utilize parallel databases
 - Effectively MapReduce for databases

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Visualization & Interaction w/ Ajax

- Maps, charts and other fancy JS components
- How to bring them cleanly in the architecture with aggressive application of Model-View techniques

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Grading & Projects

- Midterm: best of 12% or 15%
- Final: 35% or 38%
- Project: 50%
 - a subset of demo functionalities
 - teams of three
 - be careful: do not (over)split the work!

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Material & Communications

- Communication via csemoodle.ucsd.edu with your UCSD username/password
 - Extension students: Please email asap csehelp@cs.ucsd.edu
- "please add me to the CSE135 moodle"*
- Next lecture slides will be available online

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