

Database Systems

Spring 2003

Rolf Fagerberg

Database Systems

- the Complete Course

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Course Motivation

Databases are everywhere:

- Web
- Corporate records (sales, production, customers, employees, payrolls)
- Banking systems
- Stock exchanges
- Universities, (students, grades)
- Hospitals
- Airline systems
- CD collections at home
- ...

Course Motivation

- Very useful (cf. last slide).
- Interesting mix of many desired functionalities
 - Efficiency
 - Flexibility
 - Capacity
 - Reliability
- Interesting mix of many methodologies
 - Graphic and formal languages (modelling, querying)
 - Data structures and algorithms
 - Computer architecture
 - Concurrency issues

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- Career enhancement (\$\$)

Database Systems

Modelling

- E/R-model
- Relational model
- (semi) OO-models
- Semi-structured models (XML).

Querying

- Relational Algebra
- SQL
- OQL
- Datalog

Implementation

- Memory management
- Index structures
- Query parsing
- Query execution

Reliability

- Failure recovery
- Concurrency control
- Transactions

Integration

- Warehouses,...

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- E/R-model ★
- Relational model ★
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Reliability

- Failure recovery ★
- Concurrency control ★
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Integration

- Warehouses, ... ★

Formal Course Description

Prerequisites: dADS, (dPaSS)

Literature: Garcia-Molina et al.

Course language: Danish or English

Credits: 2 points/10 ECTS

Evaluation: Assignments and projects

Webpage: www.brics.dk/~rolfdt/DB

Informal Course Description

Read the book (cover to cover)

1100 pages/15 weeks = 74 pages/week