Databases and Information Systems

Prof. Dr. Norbert Ritter

Dr. Fabian Panse

Databases and Information Systems (DBIS)

Course Outline (1)

Part I: Norbert Ritter

- **A) Architectures of Database Systems**

- **B) Relational Database Systems**
  Focus on Transaction Management
  Correctness / Concurrency Control
  Logging and Recovery

- **C) Modern Database Technology**
  Distributed Database Systems
  NoSQL Database Systems
  Cloud Data Management

Course Outline (2)

Part II: Fabian Panse

- **Deductive Databases**

- **Data Warehouses and OLAP**

- **Data Mining**

- **Information/Document Retrieval**

- **Web/Text Mining**

- **Semantic Web**

References Part I (1)

- **Foundations/Prerequisites (cf. GDB)**

    - *Kemper, A., Eickler, A.:* **Datenbanksysteme – Eine Einführung**, 4. Auflage, Oldenbourg-Verlag, 2001

    - *Ullmann, J.D., Widom, J.:* **A First Course in Database Systems**, Prentice Hall

    - *Date, C.J.:* **An Introduction to Database Systems**, Addison-Wesley

- **A)**

    - *Härder, T.:* **DBMS Architecture – The Layer Model and ist Evolution**, Datenbank-Spektrum, dpunkt Verlag, Heft 13, 2005

    - *Härder, T., Rahm, E.:* **Datenbanksysteme – Konzepte und Techniken der Implementierung**, Springer-Verlag, Berlin, 2001

- **B)**

    - *Weikum, G., Vossen, G.:* **Transactional Information Systems**, Morgan Kaufmann Publishers, San Francisco, CA, 2002

References Part I (2)

- **C)**

  - *Rahm, E.:* **Mehrrechner-Datenbanksysteme: Grundlagen der verteilten und parallelen Datenbankverarbeitung**, Addison-Wesley, 1994, Online-Version 1997: http://dbs.uni-leipzig.de/buch

  - *Özsu, M.T.; Valduriez, P.:* **Principles of Distributed Database Systems**, Prentice Hall 1991, 1999

  - *Dadam, P.:* **Verteilte Datenbanken und Client/Server-Systeme**, Springer, 1996

  - *Tiwari, S.:* **Professional NoSQL**, John Wiley and Sons, 2011

  - *Gilbert, S., Lynch, N.:* **Brewer's Conjecture and the Feasibility of Consistent, Available, Partition-Tolerant Web Services,** SigAct News 2002

References Part I (3)

- **Journals**

  - *TODS* Transactions on Database Systems, ACM (quarterly)
  - *Information Systems*, Pergamon Press (6 times a year)
  - *The* *VLDB Journal* (quarterly)
  - *IFE Informatik - Forschung und Entwicklung* (quarterly)

- **Conference Proceedings**

  - *SIGMOD* ACM Special Interest Group on Management of Data
  - *VLDB*   Very Large Data Bases
  - *IEEE*   Int. Conf. on Data Engineering
  - *GI*   Conferences of the German Association of Computer Science (Gesellschaft für Informatik), Department of Information Systems
  - and many more …

Course Information/Docs and Exercises

- **Organizational Issues, Notes, Exercises**
  - https://vsis-www.informatik.uni-hamburg.de/oldServer/teaching/ss-19/dis/

- **Exercises**
  - Will start in second semester week
  - Will be introduced during exercise hours, be there!
  - Working time: usually 1 or 2 weeks
  - Handling
    - teams of students
    - mostly practical exercises
    - exercise hours in Stellingen, Building F, DBIS floor
    - you can also work on exercises at home or at IRZ
  - Demonstration
    - of results/solutions during exercise hours, see advisors!

Requirements to obtain Certificate

- **Attendance is obligatory:** in compliance with the examination regulations, a student may be absent without a valid excuse on at most one occasion. In case of illness, the submission of a medical certificate is required.

- **Successful and timely submission:** all but one exercise sheets have to be submitted and approved on time. What exactly is required for an approval, depends on the specification of the task. For theoretical tasks, 50% of the maximum points are required in any case.

- **Teamwork:** all participants work in groups of two, submitting one common solution. Attempted fraud may lead to the reduction of points or, in severe cases, even to the denial or withdrawal of the certificate.

- **Active participation:** an active participation in the exercises through presentation of solutions and through discussions is also required. Refusal to participate actively may lead to the reduction of points.

Written Examinations

- **1: Tuesday, 06.08.2019,**
  09:30-11:30 am,
  ESA A + ESA B

- **2: Monday, 23.09.2019,**
  09:30-11:30 am,
  Lecture Hall A, Chemistry Department