

# Database Theory

VU 181.140, SS 2018

Report and Presentation

Reinhard Pichler

Institut für Informationssysteme  
Arbeitsbereich DBAI  
Technische Universität Wien

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# Outline

1. General Information (Recapitulation)
2. Assignment of Articles
3. Important Dates (Provisional Plan)

# Course Overview

## Fundamental aspects of (relational) query languages

- Relational algebra vs. relational calculus vs. SQL
- Introduction to datalog
- Codd's Theorem: relational algebra vs. First-Order logic
- Trakhtenbrot's Theorem: some undecidability results
- Complexity of Query Evaluation
- (Acyclic) Conjunctive Queries
- Inexpressibility Results (Ehrenfeucht-Fraïssé Games, 0-1 Laws)

# Assessment

## Components

- 1** Individual work on **1 article from database theory research**
  - Details (e.g. assignment of articles) to be provided later
  - **Short written report** of this article (2–3 pages)
  - **Oral presentation** (ca. 20 min, depends on number of participants)
  - Sufficient to get **mark 3 (or worse)**
  
- 2** **Oral exam**
  - positive assessment of report & presentation required
  - exam not compulsory, but required for **marks 1 and 2**

# Assessment of Report & Presentation

## Criteria of a good report & presentation

- reasonable effort (30 - 40 hours)
- basic understanding of the article
- honestly identify parts which you did not understand (give a justification: which prerequisites were missing?)
- relate the article to the contents of the course
- quickly check important background articles
- (presentation) being able to answer questions (in particular, those relating the article to the course)

# Assignment of Articles

## 3 overall topics

- Query Evaluation and Optimization
- XML and RDF Data
- Datalog

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## Selection / Assignment of Articles

please choose one article in class.

# Important Dates (Provisional Plan)

## Submission of the Report

- Submission by mail to [pichler@dbai.tuwien.ac.at](mailto:pichler@dbai.tuwien.ac.at)
- Deadline: 12 June, 2018

## Presentation

- 2 classes: 19 + 26 June, 2018
- definitive plan will be announced by mail after the submission deadline (depends on exact number of students)
- presence at the presentations is compulsory (not just for the speaker, also for the audience)

preferences concerning the date of the presentation: per mail together with the submission of the report (first-come, first-served)