

# Advanced Database Systems (ADBS)

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# Teacher's information

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  - ▶ [Home] >> Teaching >> Advanced Database Systems
- ▶ **office hours:** Tuesday, 16:30-18:30 (or by appointment)
  - ▶ appointment is always preferable
- ▶ more info (**cell**, **skype**, ...) on my webpage

# Course structure

- ▶ Part 1: Advanced concepts in relational database systems
- ▶ Part 2: Non-relational systems (semi-structured and non-structured data)

# Overview of Part 1

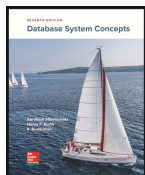
## Advanced concepts in relational database systems

- ▶ Query processing and optimization
  - ▶ Query processing
    - ▶ algorithms for evaluating operations (e.g., selection, join)
  - ▶ Cost-based optimization and heuristics
    - ▶ choice of “best” evaluation plan
- ▶ Distributed database architectures
  - ▶ An introduction to distributed DBMS
  - ▶ Distributed database design (fragmentation and allocation)
  - ▶ Distributed query processing and optimization
  - ▶ Transaction management in distributed databases
    - ▶ distributed concurrency control (two-phase locking – 2PL)
    - ▶ distributed DBMS reliability (two-phase commit – 2PC)

# Material about Part 1

- Database System Concepts  
Silberschatz, Korth, Sudarshan  
7th Edition (or 6th Edition)  
McGraw-Hill, 2020

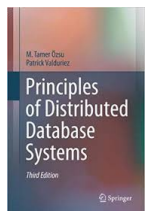
<https://www.db-book.com/index.html>  
(extra contents: original slides, solutions, etc)



- Principles of Distributed Database Systems  
Özsu and Valduriez  
3rd Edition  
Springer, 2011

ISBN: 978-1-4419-8833-1 (hard cover)  
978-1-4939-4174-2 (soft cover)  
978-1-4419-8834-8 (electronic)

<https://extras.springer.com/?query=978-1-4419-8833-1>  
(original slides)



- other material (e.g., slides, other books) will be announced at due time and made available on my webpage