



FRIEDRICH-SCHILLER-  
UNIVERSITÄT  
JENA

# Seminar: Moderne Datenbanksysteme

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# Modern Database Systems

- traditional database systems (Oracle, SQL Server, PostgreSQL, MySQL) all use a very similar architecture
- this architecture is not very efficient on modern hardware (large RAM capacities, many CPU cores, Cloud)
- in the last decade, many new database systems have been developed are very different from traditional systems, but are also very different from each other
- in this course we will study and compare these modern database architectures

# Seminar Goals

- read, understand, and critically judge scientific/technical texts
- give talks
- write technical texts
- learn about modern database systems

# Organization

- everyone will give a 20 minute presentation (this is a hard upper limit) on one of the topics listed on the website
- in addition, everyone will read the papers of additional, related topics
- after the talk, there will be a 15-20 minute discussion on the paper
- the readers will be responsible for keeping the discussion alive (by asking questions), but everybody can discuss
- we will try to do 2 talks in each meeting

- giving good talks is very important, but also requires lots of effort
- shorter talks are more difficult: cannot cover everything, must decide what is important
- schedule an appointment with Adnan Alhomssi (adnan.alhomssi@uni-jena.de) at least one week before your talk to discuss the slides
- nice presentation guide:  
<https://www.inf.ethz.ch/personal/markusp/teaching/guides/guide-presentations.pdf>

- short summary of the paper/talk
- at most 4 pages in ACM sigconf format:  
`https://www.acm.org/publications/proceedings-template`
- you must have a related work section that discusses the related papers covered in the course
- due date: August 1
- may send a draft to Adnan Alhomssi (adnan.alhomssi@uni-jena.de) for feedback two weeks before the deadline

- 50%: talk
- 20%: questions/discussion throughout the semester
- 30%: write-up

- OLAP:
  - compilation: HyPer compilation, Hekaton compilation
  - vectorization: Vectorwise, compilation vs vectorization
  - vectorized column stores: SQL Server Apollo, IBM BLU
- OLTP:
  - Silo, logging
  - Hekaton, MVCC
  - LeanStore, logging
- Cloud:
  - Amazon Aurora (OLTP)
  - Amazon Redshift (OLAP)
  - Snowflake (OLAP)



- decide topics
- schedule talk dates