

# **Database Design II**

## **5 credits, period 2**

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# Data



- A fundamental asset in nearly all organizations, vital to enable basic operations.
- Phenomenal growth in data generation
  - Social media
  - Sensors
  - Relational Database Management Systems (RDBMSs).
- In this course, we focus on technical issues in managing, storing, indexing large amounts of data

# Database Design II

- System internals.
  - Hashing,
  - Indexing (B+trees, etc.)
  - Query Processing and Optimization
- Big Data
  - Phenomenal growth in data generation
  - Volume, velocity, variety
    - Social media
    - Sensors
    - Communications networks and satellite imagery
    - User-specific business data

# Database Design II

- Non-relational (NoSQL) and specialized database systems.
  - Geographical Information Systems.
  - Key-value stores.
  - Etc.
- Transactions, Concurrency Control, Recovery
- Streaming data management.

# Examination

- Assignments (group work).
  - Hashing, Indexing (B+trees, etc.)
  - Query Processing and Optimization
  - Big Data
  - Non-relational (NoSQL) systems.
- Written exam.