

# CS 6320 Intro

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# Course Organization

- **Lecture Times**

- Tuesdays & Thursdays
- 1:25 PM to 2:40 PM
- Bard Hall 140

- **Office Hours**

- Wednesday 3 PM to 4 PM
- 411b Gates Hall

- **Web site** (online this evening):

- <http://www.cs.cornell.edu/courses/cs6320/2020sp/>

# Course Components

- Paper **presentations** & discussion (50% of Grade)
- Course **project** (50% of Grade)

# Presentation

- Two (to three) papers on related topics
- Often mixing seminal with recent papers
- Duration: 1h15 for presentation **& discussion**
- Two students per presentation
- Need to send in slides at least **one day** in advance!

# Presentation Hints

- One **common story**, not two separate papers
- Presentation should encourage **discussions**
  - Don't hesitate to throw questions at the audience!
- Make sure to leave enough time for discussions
- Time should be **approximately split** between papers
- Ideally: presentation teams of senior/junior students

# Participation Hints

- Read the papers in advance!
- Don't hesitate to ask questions during the presentation
- Will **check attendance** starting from next week!

# Section 1: Foundations

- Indexing
- Join algorithms
- Query optimization
- Concurrency control
- Logging & recovery
- Buffer management

# Section 2: Efficient Query Processing

- Main memory databases
- Query compilation
- Approximate processing
- Processing on novel hardware
- Massively parallel processing



# Section 3: Transaction Processing

- CAP Theorem and NoSQL
- NewSQL systems
- Deterministic DBMS
- Coordination avoidance
- Concurrency control on multi-cores

# Section 4: Beyond Relational Data Processing

- Graph databases
- Databases for time series
- Stream processing
- Spatial databases
- Systems for declarative ML

# Section 5: Interfaces

- Data visualization
- Voice-based interfaces
- Query by example
- Gestural query interfaces and Augmented Reality

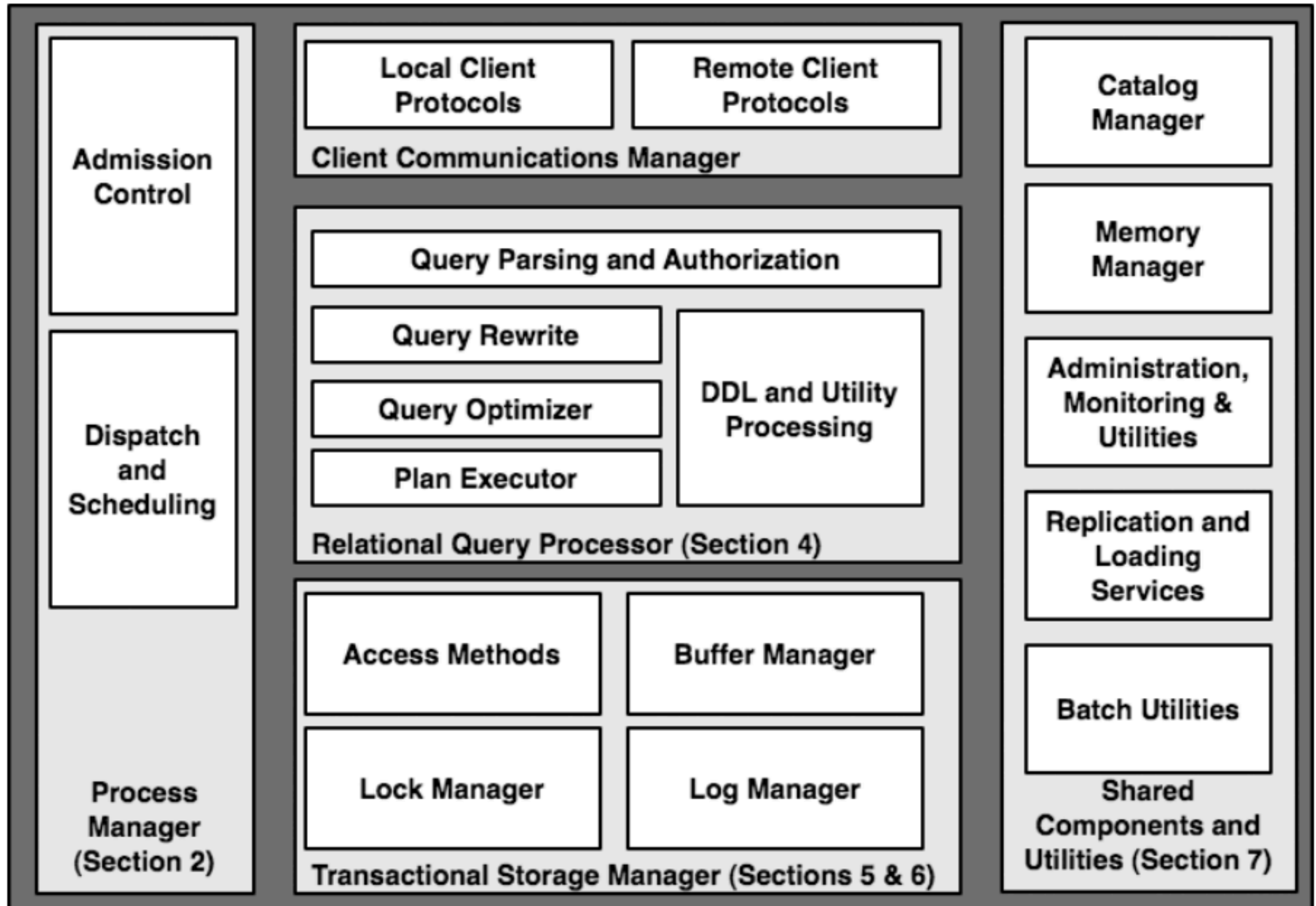
# Course Project

- **Up to three students** can work on the same project
- Topic must relate to the **broad database area**
  - Can be a topic you're working on anyway
- Some high-level topic **ideas**
  - Deterministic approximation
  - Reinforcement learning for query optimization
  - Voice query interfaces
  - ...

# Project Timeline

- First **two weeks**: select a topic, write one page summary
- Until **March 15**: progress report (2 pages)
- Until **May 7**: final report (6 pages)
- Ideally your report turns into a research paper ...
- Send all reports to [itrummer@cornell.edu](mailto:itrummer@cornell.edu)

# Next Lecture



**Questions?**