Learning Goals:

This course is designed to provide students with an in-depth overview of database architectures -- both the mainstream traditional architecture and also more modern architectures that are especially prevalent in cloud implementations. Students will be trained to reason about different architectural choices for different application spaces, and the tradeoffs inherent in these choices. Students will also get experience with building different parts of database systems. Although the main focus of the course will be database systems, the course will also touch on architectural choices in other types of systems -- including file systems and general distributed systems.

The course will be designed to assume that students will already have taken an introductory database course such as CMSC 424. Undergraduates that have taken CMSC 424 should feel comfortable taking 624 afterwards.

Assignments:

In the first half of the course, there will be 2 or 3 database implementation programming assignments. These assignments are designed to give students experience building parts of database systems. All assignments will be written in C++.

In the second half of the course, each lecture will discuss a particular database architecture example. Students will submit a 1/2 page "reaction" prior to each lecture in the second half of the course. The goal of these reaction papers is to get the students thinking critically about the different proposed architectures.

In some years, students may have the opportunity to present an idea for a database architecture to the rest of the class. No more than four class periods will be devoted to student architectural presentations.

A final project is due at the end of the course. This is designed to give students an in-depth experience working with a particular database architecture.

Grades:

Programming Assignments: 15%
1/2 paper "reactions": 15%
Class participation: 10%
Paper presentation: 5%
Midterm Exam: 30%
Final project: 25%
Readings:

Readings will be from:


- The same lecture notes that Mike Franklin used to use when he taught CMSC 624 two decades ago.

- Selected other readings found on the Web (that may vary from year to year).