San José State University
Computer Science Department
CS267 – Topics in Database Systems, Section 2, Spring 2026

Course and Contact Information

Instructor:	Fain (Frank) Butt
Office Location:	MH224 / Online
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Email:	Frank.Butt@sjsu.edu
Office Hours:	MW 7:15 PM - 8:45 PM (Or by appointment)
Class Days/Time:	MW 4:30 - 5:45 PM
Classroom:	MacQuarrie Hall 224
Prerequisites:	CS 157B and Graduate standing

Course Format

This is an in-person class.

All your programming project deliverables must be able to compile and run before packaging for submission. Otherwise you will not earn many points if we can't verify your results. You are expected to spend 15-20 hours a week on homework and/or project.

Faculty Web Page and MYSJSU Messaging

Course syllabus and the rest of the course information will be published via Canvas. You are responsible for regularly checking with the messaging system through MySJSU and Canvas to learn of any updates. Make sure you use your preferred email address in Canvas.

Course Description

Computing topics of current interest in industrial practice. This class focuses on query optimization as well as knowledge based system vs AI. We will use DB2 for z/OS as an example for the query opt portion. We will also cover database application tuning.

The Query Optimization is divided into four parts:

- Fundamental Concepts for Query Optimization
- Understanding Access Path
- Optimizer Statistics and Access Path Selection
- Database Performance Tuning

Course Learning Outcomes (CLO)

Upon successful completion of this course, students will be able to:

1) CLO 1 - Understand the mechanism of query optimization and how the DB2 optimizer functions.
2) CLO 2 - Understand access methods.
3) CLO 3 - Understand optimizer statistics and how statistics affect access path.
4) CLO 4 - Understand the performance issues and know how to manage them.
5) CLO 5 - Tune application performance and SQL performance by various means.
6) CLO 6 - Understand the key differences between Knowledge Base System (KBS) vs AI in DBMS.

Textbook

Optional Database Systems - The Complete Book, 2nd Ed. (ISBN 0-13-187325-3)

Other Readings

TBD

Other equipment / material requirements (include if applicable)

Additional Lecture Slides and class material will be provided

Course Requirements and Assignments

SJSU classes are designed such that in order to be successful, it is expected that students will spend a minimum of forty-five hours for each unit of credit (normally three hours per unit per week), including preparing for class, participating in course activities, completing assignments, and so on. More details about student workload can be found in University Policy S12-3 at http://www.sjsu.edu/senate/docs/S12-3.pdf.

There will be one exam, several programming assignments, several homework and quizzes. All the exams and quizzes will be open notes only. There will be no laptops, or any personal digital devices allowed. I strongly suggest that you attend each class and take good notes during the semester. There will be ***NO*** make-up exams and quizzes.

All the labs, programming assignments, and related documentations must be handed in electronically. Programs that are handed in after the due date will not be accepted. Additional information about each project will be given in separate handouts. For your programming assignments, we will compile and grade your programs using gcc and/or Java compiler for JDBC project. Your program needs to be able to compile and execute before you turned it in.

NOTE that University policy F69-24 at http://www.sjsu.edu/senate/docs/F69-24.pdf states that "Students should attend all meetings of their classes, not only because they are responsible for material discussed therein, but because active participation is frequently essential to insure maximum benefit for all members of the class. Attendance per se shall not be used as a criterion for grading."

Grading Information

Final Exam	400 points	40%
HW & Quizzes	350 points	35%
Project	250 points	25%
Total	1000 points	100%

We do not use the traditional grading scale for grade assignment. The final "letter" grade will be determined from a curve at the end of the semester.

Note that "All students have the right, within a reasonable time, to know their academic scores, to review their grade-dependent work, and to be provided with explanations for the determination of their course grades." See University Policy F13-1 at http://www.sjsu.edu/senate/docs/F13-1.pdf for more details.

Classroom Protocol

There will be some presentation PDFs given outside of the textbook. However there will be no textbook related lecture notes given out. It is your best interests to attend class and take good notes. You must turn off any cell phone ringer at the beginning of each class!

Course material developed by the instructor is the intellectual property of the instructor and cannot be shared publicly without his/her approval. You may not publicly share or upload instructor generated material for this course such as exam questions, lecture notes, or homework solutions without instructor consent.

University Policies

Per University Policy S16-9, relevant university policy concerning all courses, such as student responsibilities, academic integrity, accommodations, dropping and adding, consent for recording of class, etc. and available student services (e.g. learning assistance, counseling, and other resources) are listed on Syllabus Information web page (https://www.sjsu.edu/curriculum/courses/syllabus-info.php). Make sure to visit this page to review and be aware of these university policies and resources.

CS267 – Topics in Database Systems, Sec 2, Spring 2026, Course Schedule (subject to change)

Event	Date	Class Time	Topics, Readings, Assignments, Deadlines
First Week	01/26/2026	4:30PM - 5:45PM	Introduction and Overview, SQL Review Part 1;
Week 2	02/02/2026	"	SQL Review Part 2; Static vs Dynamic SQL;
Week 3	02/09/2026	"	Application Interfaces; Fundamental Concepts for Query Optimization (Start)
Week 4	02/16/2026	"	Fundamental Concepts for Query Optimization (End);
Week 5	02/23/2026	"	Quiz #1; Understanding Access Path (Start)
Week 6	03/02/2026	"	Understanding Access Path (End)
Week 7	03/09/2026	"	Optimizer Statistics and Access Path Selection (Start)
Week 8	03/16/2026	"	Optimizer Statistics and Access Path Selection (End)
Week 9	03/23/2026	"	Database and Application Performance Tuning
Week 10	03/30/2026	"	Spring Break week – no class
Week 11	04/06/2026	"	Quiz #2; Knowledge Based System;

Event	Date	Class Time	Topics, Readings, Assignments, Deadlines
Week 12	04/13/2026	“	Agentic AI in DBMS
Week 13	04/20/2026	“	Agentic AI Implementation for DBMS
Week 14	04/27/2026	“	Agentic AI Implementation for DBMS
Week 15	05/04/2026	“	Advance Topics;
Last Day	05/11/2026	“	Final Exam Review;
Final Exam	05/18/2026	Sec2: 3:15-5:15PM	Covers class content, textbook, handouts; Project related questions