Final Exam Review Sheet

Information

The final exam will be held on Monday December 9 from 8:30-10:30 AM. Note that the exam will be two hours long, not three hours. The exam will be held in the Gates Building, Rooms B01 (the Hewlett-Packard Auditorium) and B12, on the Stanford campus. Please arrive early. All students, including SITN students, are expected to attend the exam on-campus. There will be no makeup exams, no early exams, and no exceptions!

The final exam will be closed book. However, each student may bring up to 6 pages of prepared notes. That's 12 total sides of writing on 8-1/2"x11" paper.

SITN students: Please bring a routing slip and a stapler to the final exam.

Office Hours

All TA and instructor office hours will remain in effect through Friday December 6. In addition, Oliver Duschka will hold office hours the evening before the final exam. If attendance is high, these office hours will be conducted as an open question-and-answer session. The time and place are:

Sunday December 8, 7:00-8:30 PM
Building 160 (Political Science), Room 163E

Assignment #8 Sample Solution

A sample solution for Assignment #8 will be available in the course filing cabinet on the fourth floor of the Gates Building by 10:00 AM on Friday December 6. For SITN students, the sample solution will be delivered to SITN on Thursday morning; as always, SITN assures us that this means Friday delivery to your site, but based on our experiences you may want to double-check with SITN if you're concerned about getting the sample solution in time. Due to the delayed coursework by our remote SITN students, the sample solution will *not* be posted on the web.

Grade Reporting

- Graded Assignment #8, graded final exams, and a sample solution for the final exam will be available in the course filing cabinet by 4:00 PM on Friday December 13. Graded material for SITN students will be sent by courier on Friday December 13. If you are an SITN student and would prefer to have your graded materials left in the filing cabinet, please notify the TAs (by sending e-mail to `cs145ta@cs.stanford.edu`) no later than Wednesday December 11.
- At the final exam, all students will be given a copy of their recorded scores for the first seven assignments and for the midterm exam. If you find any errors in the recording of your scores, please return the relevant assignment or exam to one of the TAs to have the score corrected. All corrections must be submitted by Tuesday December 10.
- Final grades for the course will be posted by student ID number outside Prof. Widom's office (Gates 422) by 4:00 PM on Friday December 13.

Course Evaluations

We would appreciate having School of Engineering course evaluations returned by all on-campus and SITN students in the course. If you do not fill out an evaluation form in class, please spend a few minutes after the final exam filling out a form. Forms and pencils will be available from the TAs.

Material Covered

The final exam will cover all material covered by the midterm exam (see Handout #14, "Midterm Review Sheet"). In addition, the following material will be covered:

- All lectures through Wednesday December 4
- Textbook readings: Sections 3.5–3.8, 5.8, 5.10, 7.2, 7.4, 8.1–8.7 (except 8.3.2, 8.4.2, 8.4.3, 8.5.6, 8.5.7)
- All postings on the course newsgroup covering technical material
- Assignments 5–8

A few things to note:

- Although all material from the entire course is eligible to appear on the final exam, the exam will be weighted heavily towards the material from the latter half of the course.
- The material on constraints and triggers, although not included on this review sheet since it was covered just before the midterm, is considered part of the latter half of the course for exam purposes.
- Material that was not covered by an assignment (i.e., most of the material covered in the last two lectures of the course) is eligible to appear on the final exam, but any questions on this material will be straightforward.
- As on the midterm exam, solutions on the final exam will be graded for simplicity and clarity as well as for correctness.

Here is an outline of the material we have covered since the midterm exam. All of this material is eligible to appear on the final exam.

1. Views
   - Creating and using views
   - Modifying views
2. Transactions
   - Multiple clients, concurrency
   - Transaction commands: **begin transaction**, **commit**, **rollback**
   - Isolation, atomicity, durability
   - Serializability

- Other isolation levels: **read uncommitted**, **read committed**, **repeatable read**

3. Security (authorization)
   - Privileges
   - Use of views for authorization
   - **grant** and **revoke** statements
   - Grant diagrams
4. Relational Database Design
   - Functional dependencies (FDs): motivation, definitions, rules
   - Closure of attribute set with respect to FDs
   - Design flaws: redundancy, update & deletion anomalies
   - Boyce-Codd Normal Form (BCNF): motivation, definition, decomposition algorithm
   - Third Normal Form (3NF): motivation, definition, decomposition algorithm
   - Multivalued dependencies (MVDs): motivation, definitions, rules
   - Fourth Normal Form (4NF): motivation, definition, decomposition algorithm
5. OQL
   - Methods in ODL
   - Class extents in ODL
   - Queries in OQL
6. Object-relational SQL3
   - Declaring row types, using row types in table definitions
   - Queries over tables with row types
   - Declaring value types (encapsulated objects)
   - Queries over tables with value types
7. Recursion in SQL3
   - **with** statement
   - Recursive union
   - Mutual recursion
8. Database buzzwords as covered in the last lecture