

SQL DB Modifications, transactions lab - review

Write SQL to answer the perform the following modifications to the course data. Use the courses-ddl.sql and courses-small.sql data.

1. As a first step, foreign key constraint checking in SQLite on with the following command:

```
sqlite> pragma foreign_keys = ON;
```

2. Add a new department 'Chemistry', with building 'Watson' and budget \$125,000.

```
insert into department values("Chemistry", "Watson", 125000);
```

3. Add a new course, with course_id 'CS-130', title "Discrete Math", dept_name "Comp. Sci.", and credits = 3.

```
insert into course values("CS-130", "Discrete Math", "Comp. Sci.", 3);
```

4. Make the new discrete math class a prereq for all other CS classes.

```
insert into prereq
select course_id, "CS-130"
from course
where dept_name = "Comp. Sci." and course_id != "CS-130";
```

5. Update instructor salaries by increasing them by 3%.

```
update instructor
set salary = round(salary * 1.03);
```

6. Update physics students by adding 3 to their total credits.

```
update student
set tot_cred = tot_cred + 3
where dept_name = "Physics";
```

7. Try to delete course BIO-101 from the course table. What happens when you do this and why?

```
delete from course
where course_id = "BIO-101";
```

When you try to delete the course you get a foreign key constraint violation, because other tables (such as the 'section' table) contain a course_id attribute value of "BIO-101" and have a foreign key constraint referring to the 'course' table.

8. Figure out what other DB modifications you need to do before you can delete BIO-101, and then delete BIO-101.

The tables 'section' and 'prereq' both have foreign key constraints to the course table. So rows in those tables that name "BIO-101" must be deleted before the course is deleted from the 'course' table.

```
delete from section
  where course_id = "BIO-101";
delete from prereq
  where course_id = "BIO-101" or prereq_id = "BIO-101";
-- now it is possible to delete course
delete from course
  where course_id = "BIO-101";
```