Homework 6

Due: 31 March 2015

Problem 6.1

Prove (show) that any 3NF relation schema whose candidate keys are all atomic must also be in BCNF.

For the next two problems, consider the multi-table schema below:

```
Student (givenname varchar(20), familyname varchar(20),
             studentID char(5), currentGPA float)
Club (name varchar(20), deptAffiliation varchar(20), president char(5))
ClubMember (club varchar(20), id char(5))
```

It represents the membership of several student clubs, where the president of the club is noted directly in the club table and the general membership is laid out in ClubMember.

Problem 6.2

Give CREATE TABLE statements for all three tables; they should include all appropriate primary and foreign key information. Primary key constraints need not be named, but the foreign key constraints should be named so that they could be modified later. Foreign key constraints should have appropriate dangling reference policies.

Problem 6.3

Write statements that implement the following constraints on the database:

a. Write statements that alter the tables to add any appropriate not-null constraints.

b. Write the statement(s) that would implement the constraint that prevents designating someone the president of a club unless they are

already registered as a member of that club.

c. Write the statement(s) that would implement the constraint that the president of each club must have and maintain a GPA of at least 2.5, or else they will be removed from office.

d. Write the statement(s) that would implement the constraint that clubs that have no departmental affiliation have a minimum membership of 10 students.

Project note: Also for Tuesday, email me (each of you individually) with a brief note saying A) what you personally have done so far in your project group, and B) what each of your group-mates have done for your project.