Homework #4: Normalization

1. Consider the following relation that involves student data:

   GRADE(ClassName, Section, Term, Grade, StudentID, StudentName, ProfessorName, Department, ProfessorEmail)

   Assume that only one professor teaches a class section, and professors teach in only one department. Suppose the following dependencies exist:

   ```
   StudentID -> StudentName
   (ClassName, Section, Term) -> ProfessorName
   ProfessorName -> Department, ProfessorEmail
   ```

   What normal form is the relation in? Normalize it up to 3NF.

2. Given the EMPLOYEES relation below:

Emp_no	Ename	Lcode	Lstatus
25	Clay	NJ5101	1
23	Thaisz	NJ5101	1
38	Good	FL6321	4
17	Baid	NY2091	3
57	Brown	NY2092	3

   The relation schema for the above relation is EMPLOYEES(Emp_no, Ename, Lcode, Lstatus), where

   ```
   Emp_no:  employee number
   Ename:  employee name
   Lcode:  location code
   Lstatus:  location status, each location has a status code
   ```

   What normal form is the relation in? What are the dependencies? Normalize it up to 3NF.

Submission Instructions

1) Type up your solutions for both problems making sure that you answer all questions for each problem. Also, make sure that you show all the steps as you perform normalization for each problem up to 3NF. Clearly state your final relation schemas in 3NF. Submit the homework through the assignment link on Blackboard.

Good Luck!