Introduction to Databases

Homework 1

This set of exercises will be helpful in preparing for the midterm. They are intended to encourage you to become familiar with the entity-relationship approach to high-level database design.

Due to a lack of TA resources for this course, this homework will not be handed in or graded.

The textbook exercises are given at the end of the section of interest.   For example, textbook exercises 4.1.3 and 4.1.4 are on page 139.

1. Textbook exercise 4.1.3 (basic E/R from English)
2. Textbook exercise 4.1.4 (extending an E/R diagram with further relations)
3. Textbook exercise 4.2.5 (design principles, constraints)
4. Textbook exercise 4.2.6 (more design principles, introducing new concepts)
5. For your answer to 1, specify keys and indicate appropriate referential integrity constraints.   (referential integrity and keys)
6. Textbook exercise 4.3.2 (keys of relationships)
7. Textbook exercise 4.4.3 (weak entity sets)
8. Convert ~cs339/HANDOUT/election-example/elect.sql to an ER diagram (ignore the sequences and views – only consider the tables) (SQL to ER, including keys, various forms of relationships, and constraints, including referential integrity0

Other Problems to Learn More

The Unified Modeling Language (UML) is a widely used graphical modeling language that can be used to design database schemas. Read about UML and compare and contrast it with the Entity-Relationship model. Your textbook has an introduction to UML and there are many other sources available.

Graphical modeling languages are also used for user interface design.   Download DENIM (http://dub.washington.edu/projects/denim/) and use it to design a voting machine interface.