CSC 370 — Database Systems
Summer 2004
Assignment No. 1 (Revision 1.0)

Note 1 **This assignment is to be done in teams of two people.**

Note 2 Except as indicated, working with other teams is strictly prohibited.

- Due date: May 20, 2004, at the beginning of the class.

- This assignment is worth 5% of your total course mark.

- Clearly mark your student number on all submissions.

Objectives

After completing this assignment, you will have experience:

- Designing and interpreting ER diagrams.

- Translating these diagrams to a relational database.

Your task, should you choose to accept it

1. Write a 500 words essay describing the contributions of Codd or Bachman to the field of databases. Your grade will depend upon:

   - Quality of content
   - Quality of presentation
   - Quality of references

   And of course, you should not plagiarize.

2. Your assignment is to design a relational database schema to represent the database of the borrowing system of a university's library. You should represent patrons, authors, published works (title, ISBN, edition, etc.), holdings (a given copy of a work, there might be several available), and their relationships. Browse our library catalog for an idea of the type of data available. You must produce an entity-relationship model of these objects and then translate your ER model into a relational schema. You should submit the following:

   - An ER diagram. Choose meaningful names for entity sets, attributes, and relationship sets so that we can understand your model. Use as many of the ER modeling constructs discussed in class as you need. Be sure to include appropriate constraints (e.g., cardinality constraints on relationship sets) where appropriate. If an entity set or relationship set has too many attributes to represent neatly in your diagram, simply include some of the major attributes in your diagram (the key attributes and perhaps a few others), and include any others in a note following your diagram.

- A relational schema diagram (showing relations, attributes, primary and foreign keys). This diagram should describe the relational schema that you obtain by translating your ER model using the ER-to-relational translation procedure discussed in class.

- A set of SQL DDL commands that can be used to create this relational schema. These commands must be runnable in postgresql. These commands should define the tables and primary and foreign key constraints that appear in your relational schema diagram. In addition, you should define any constraints if there are any that are appropriate for your model. In particular, if there were any constraints that you noted but were unable to capture in your ER model, capture them using relational constraints if possible.

3. From the textbook, do exercise 1.6

4. From the textbook, do exercise 2.4

5. From the textbook, do exercise 3.14

Implementation Notes

- You are expected to work in teams of two people. Any collaboration outside your team is strictly prohibited.

- Each person has a cvs module. The address of the repository will be announced in class next week. The name of your module is your username in the faculty.

- To verify your assignment submission: After you have committed it, go to a temporary directory and checkout your module (`cvs checkout modulename`). Those are the files we will mark.

- The electronic solution is the one that is marked. Your paper submission will be used to record your marks and provide feedback.

- You have an account on the postgresql server. To connect to the server use the following command on shell.csc.uvic.ca:

  `psql -h postgresql.csc.uvic.ca -l userid`

  Your userid is your uvic userid, and your password is the same as your userid too. Login and change your password by issuing the following command:

  `ALTER USER dmg WITH PASSWORD "mk1234";`

  where `dmg` is replaced with your username, and `mk1234` with your password.

What to submit

- Choose one of the CVS modules (each member of the team has one) to submit the assignment.

- Create a file called `info` that includes the following information:

```
Team Name: <your team name>
Team Member: <Student Id of team member> <Name of team member>
Team Member: <Student Id of team member> <Name of team member>
```

Be creative with your team name. Sorry, you can't be creative about your partner's name.

- Also, in the module, create a subdirectory called `assign1`.

- Add to this directory an HTML file, called `solution.html` and any other files needed by it (such as images). This HTML file should contain your answer to all the questions (except for the programs).

- Print the results of the `cvs status` command when run in the `assign1` directory.

- At the start of the class on the deadline, **hand in your solution to this assignment (including a hardcopy of each of your programs, clearly labeling them).**. Only one copy per team is required.

- Clearly mark the name of **your team**, the name of the CVS repository you used, and the name of each member of the team in your submission.