CS338: Computer Applications in Business: Databases

(Fall, 2009)

Assignment 2 (due in class on November 12th)

Overview: This assignment consists of two questions. For the second question, you will need to again use db2 from your UNIX computer accounts.

Assignment submission: For Question 1: the E-R diagram plus any necessary explanatory text. For Question 2: a listing of each CREATE TABLE command, each INSERT command and each SQL query together with the result produced by the query.

Question 1.

Assume your company is developing a digital camera online purchasing system for sale to camera stores. An initial analysis phase of the project has resulted in the following (informal) description of relevant data for the system.

- A store will be selling two basic varieties of digital cameras depending on an ability to replace lenses. Cameras with replaceable lens systems will in turn be categorized as either range finder or single lens reflex systems.

- Properties of all cameras that are relevant include the manufacturer, model number, date of product release, sensor size, pixel number, retail cost and the number currently in stock.

- Properties of cameras without an ability to replace lenses that are relevant include a focal length range and an aperture range.

- Cameras with an ability to replace lenses are related to at least two or more lenses.

- Properties of a lens that are relevant include the manufacturer, focal length range, aperture range, retail cost and the number currently in stock.

- A prime lens is any lens with only one possible value for a focal length range.

- Online customers are either domestic customers or foreign customers.

- Properties of customers that are relevant include a unique customer number, a customer name, an email address and a shipping address.

- Each customer has up to ten outstanding purchase orders, including possibly none at all.

- Each purchase order is for either a camera or a lens, and will also have a selling price.

- Each camera or lens with have at least one customer evaluation.

- A customer evaluation is given by an individual customer and consists of a score between 1 and 5 and a customer comment.

Based on this requirements definition, construct an E-R diagram for the digital camera purchasing system.

Question 2.

Part 1: Translate the E-R diagram you constructed in Question 1 to a collection of CREATE TABLE commands for the CAMERASYS relational database. Use db2 to then create CAMERASYS.

Part 2: Write a set of INSERT commands that will populate the CAMERASYS database created in Part 1 with data that would populate each of your original entity sets and relationship sets with at least three entities and relationships, respectively.

Part 3: Compose and evaluate SQL queries for each of the following requests for information on your CAMERASYS database.

(i) The manufacturer and model number of each camera with a replaceable lens system that does not have any prime lenses.

(ii) The customer number, name and email address of all domestic customers with at least one outstanding purchase order, and for whom the total selling price of all outstanding purchase orders is less than 90% of the total retail price of the items purchased.

(iii) The manufacturer(s) that are among the two lowest values for their average customer product evaluation.