COMP 4410 Database Management
Group Project

Overview:

You will need to develop a database application for an online bookstore called **Books-R-Us** that will allow customers to purchase books and movie DVDs. The database should store information about the books and DVDs. The information about a book should include the ISBN, title, year, subject category, and price. The database should store information about author(s) that each book is written by. The author information should include his name and address. The database should also store information about the publisher of each book. The publisher information should include its name, address, phone#, and URL. The information about a DVD should include the title, cast, director, year, genre, and price. The database should store if a movie is a sequel to another. For each book/DVD, the database must also store the number of copies available. You MUST use generalization to represent books and DVDs.

The database should store information about users (customers and administrators) including email, name, address, and phone#. The database should also store login credentials for each user. Any user should first login before he can interact with the system. A customer should be able to browse the book/DVD collection and add items to a shopping basket based on availability. A customer can place the order once he has at least one item in the basket. A customer will be charged a flat shipping rate of $2 for each book and $1 for each DVD except that he will get free shipping if the total purchase amount is at least $50. An administrator should be able to generate shipping list, update inventory, and add/remove customers.

Queries:

- A customer should be able to search books/DVDs by author/actor, publisher/director, subject/genre, and/or keywords. Each item in the search result should include the item details and whether the item is a top seller or not.
- A customer should be able to view a list of all sequels.
- A customer should be able to view his/her detailed history of purchases that will include book/DVD details and purchase dates.
- An administrator should be able to view the list of books/DVDs ordered in the last 24 hours. Each order should include the purchase details and the shipping information.
- An administrator should be able to view a list of top ten items based on the number of copies sold in the last seven days.
- An administrator should be able to generate the contact information of the authors and publisher of a particular book.

Transactions:

- A customer should be able to purchase a book/DVD (based on availability).
- A customer should be able to modify his personal information.
- An administrator should be able to add/remove customers.
- An administrator should be able to add/remove books/DVDs.

Timeline:

Phase I (Conceptual Design): Based on the application description given above, develop an ER diagram for the conceptual schema of a database. The report for this phase is due on **09/30** at the beginning of class. The report should include a short description of the purpose of the project, any assumptions you have made about the enterprise, and the detailed ER diagram.

Phase II (Logical Design): Convert the ER diagram into an equivalent relational database schema. Identify all primary/foreign keys and referential integrity constraints. The report for this phase is due on **10/21** at the beginning of class. The report should include the updated ER diagram and the SQL schemas.

Phase III (Implementation): Construct the database using MySQL. You will need to implement a front end GUI (using Java) for executing all the specified queries and transactions. The transactions should preserve all integrity constraints. You will need to populate the database with suitable data in order to demonstrate all the queries and transactions. The implementation phase is to be completed in two parts:

> Part A: You will need to demonstrate all the queries (not transactions) using a GUI during the week of **11/07-11/11**.

> Part B: The finished system needs to be demonstrated during the last day of class (**12/02**).The final project report should include the purpose of the project, the ER diagram along with all assumptions, the relational schema along with a description of all integrity constraints, a discussion of your system's limitations and possibilities for improvements, and all source code.

Grading:

This will be a group project. Each group will be assigned a grade based on the following criteria. Individual grade will be adjusted based on contribution towards the project and peer evaluation.

Conceptual Design	15%
Logical Design	15%
Implementation (A)	20%
Implementation (B)	50%

Groups:

> **Group#1:** Brandon Ballard, Alexander Elliott, Dylan Shannon
> **Group#2:** Hayden Curtis, Danielle Lewis, Philip Murphy
> **Group#3:** Carl Wahler, David Walker

Instructions:

It is very important that each group meets as early as possible to assign responsibilities. If you are having issues in the group, inform the instructor immediately.