Presentation

Step 1: Explain why your relation schemas are in 3NF [ explain using the schema diagram modified in 3NF ] (~1 min) -- 10 points

This relational schema was created using the 7 step method. The tables on the left are all entities except TitlesBorrowed, which was originally a multivariable attribute of user but was taken out and made its own table. The tables on the right are all M:N relations between the entities.

The schema is in 1NF because each entity contains a primary key.

The schema is in 2NF because there are no composite primary keys, making the schema automatically in 2NF.

The schema is in 3NF because there are no transitive dependencies, meaning there are no attributes that depend on a non-prime attribute which depends on a primary key.

A diagram of a computer program

Description automatically generated with medium confidence

Step 2: Demonstrate how you create the database/tables and populate the tables for your application (~1 minute) (10 points)

Using the relational model, I created the different tables for the database and populated them with data. I created the tables first, then used the INSERT function to create tuples for each table. Foreign keys were created within the initial table creation

Step 3: Demonstrate your application’s first functionality (~2 minutes) (10 points)

1. Accesses the title of the book using the query searching for the ISBN
2. The return date is calculated by adding 30 days to the current date passed in
3. the report is inserted into both Report and Creates\_Report
4. the function prints the title and that a report was successfully created

Step 4: Demonstrate your application’s second functionality (~2 minutes)—10 points

1. the function checks to see if the num\_available in book is greater than 1. If it isn’t, the function prints that the book isn’t available
2. if it is, the user is accessed through the card number and their name is set to a variable.
3. The book is checked out and one is subtracted from num\_available
4. The title of the book and the name of the use is displayed
5. The Create\_Report functionality is called

Step 5: Demonstrate your application’s third functionality (~2 minutes)—10 points

1. First the ISBN is tested to see if the book is already in the library. If it is, one is added to its total
2. If it is not, the information is compiled and the book is added to the Book entity
3. The function then displays the title of the book, the author, and the publisher name