

# **CS 327 – INTRODUCTION TO DATABASE SYSTEMS**

## **Fall 2025**

### **PROJECT DELIVERABLE 3**

#### **Requirements**

Phase 3 Deliverable must contain the goal of this phase of the project, and a description of the creation of the database schema and instance and of the application programs. It must also provide any revisions made to the specifications described in Phase 2 Deliverable. It must further describe the problems encountered in Phase 3 and justify the solutions.

- The program must run
  - Make sure you have ample sample data in your tables so that you can sufficiently perform and illustrate all required tasks.
  - You do not have to design a fancy GUI (your interface can be menu-driven.)
1. Run SQL commands for creating tables including primary keys, secondary keys and foreign keys. Run SQL command files that populate each table. Each table is required to have a sufficient number of tuples. Keep in mind the relationships between tables, and plan your data accordingly. You should be able to run these command files successfully with no errors and no integrity violations.

You are to develop a menu driven application system for the public library system database. The following are the menus to be developed. Try to implement all applications described below. If you want you may add more functions and menus. *If you miss a task mention which one. In this case if you have implemented a task with a similar functionality mention it.*

#### 1. Main menu:

- Reader functions (ask for card number/userID, and then show sub-menu).
- Administrative Functions (ask for ID and password, and then show submenu).
- Quit.

#### 2. Reader Functions Menu:

- Search a document by ID, title, or publisher name.
- Document checkout.
- Document return.
- Compute fine for a document copy borrowed by a reader (on the current date).
- Print the document id and document titles of documents published by a publisher.
- Quit (Log out).

3. Administrative Functions Menu:

- Add a document copy.
- Search document copy and check its status.
- Add new reader\*.
- Print branch information (name and location).
- Print top 10 most frequent borrowers in a branch and the number of books each has borrowed.
- Print top 10 most borrowed books in a branch.
- Print the 10 most popular books of the year.
- Find the average fine paid per reader.
- Quit (Log out)

\* This could be done as a sign up functionality in the Reader Menu as well

*What is expected in your submission:*

1. Description of implementation, problems faced.
2. Users' guide (Less than 3 pages)
3. The SQL commands that create your tables
4. The SQL commands that populate your tables
5. The source code.
6. A few screenshots of the major screens (these could be part of the users' guide).

*And apart from the submission, there should be*

7. **A demonstration of your project in action in the class.**

*If you miss a task mention which one. In this case if you have implemented a task with a similar functionality it helps (mention it).*

**This deliverable is due on the project presentation day (Thursday, 12/11/2025, 1:30-4:30 pm).**