SQL PROGRAMMING PROJECT
CS-6360 Database Design

1) INTRODUCTION

This SQL programming project involves the creation of a database host application that interfaces with a backend SQL database implementing a Library Management System. Users of the system are understood to be librarians (not book borrowers).

Following is a brief description about the working of the system:

1. Search Book - Allows the user to search any book given any combination of Book id and/or Book Title and /or Book Author.
2. CheckOUT Book – Allows a user to check-out the book from a branch based on its availability and book borrowers credibility.
3. CheckIN Book - Allows a user to check-in the book. This feature first searches for all the book loans the borrower has taken which are not checked-in yet and then allows the user to check in the selected the book.
4. Adding the Borrower - Allows the user to add a new borrower to the library loan system.
5. Fine - This feature allows two types of fine computation.

2) DBMS ARCHITECTURE :

It is a 3 Tier structure

Database (Data) Tier − At this tier, the database resides along with its query processing languages. We also have the relations that define the data and their constraints at this level. This is handled by the MySQLWorkBench software.

Application (Middle) Tier − At this tier reside the application server and the programs that access the database. For a user, this application tier presents an abstracted view of the database. End-users are unaware of any existence of the database beyond the application. At the other end, the database tier is not aware of any other user beyond the application tier. Hence, the application layer sits in the middle and acts as a mediator between the end-user and the database. This is done using the NetBeans IDE.

User (Presentation) Tier − End-users operate on this tier and they know nothing about any existence of the database beyond this layer. At this layer, multiple views of the database can be provided by the application. All views are generated by applications that reside in the application tier. It is done with the help of the JFrame present in NetBeans which uses JavaSwing.

The project contains the Relation models which includes the following relations:

1.Book
2.Book_Authors
3.Authors
4.Borrower
5.Book_Loans
6.Fines

They follow all the integrity constraints and support the data integrity and avoid redundency.