COMP2411 Database Systems

Library Management System (LMS) Group Project

First Stage

Group 4

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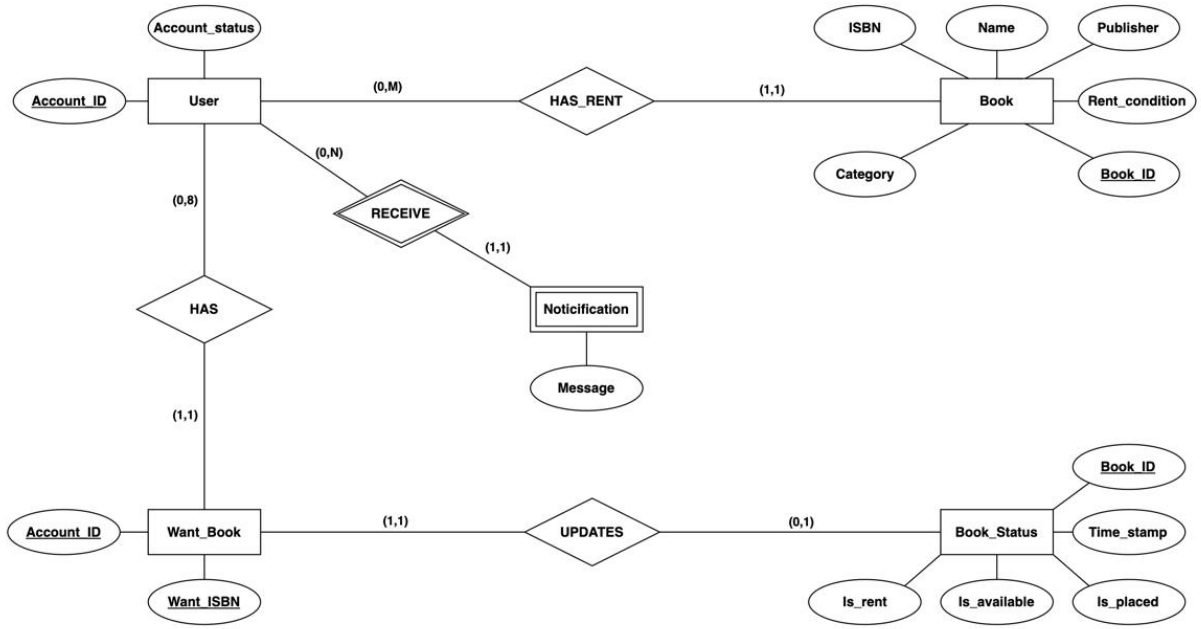
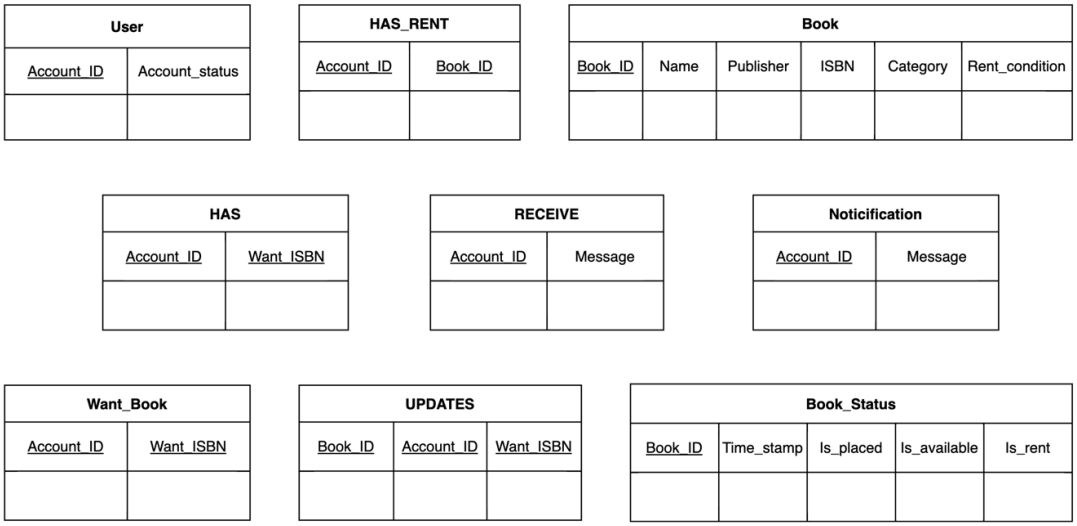
ER Diagram



Assumptions:

a. The user who has not rented any book will not be listed in the HAS_RENT relation table;
b. Each user is allowed to reserve at most eight books in the system, and each reserved book must have a unique Want_ISBN;
c. Each book has its unique Book_ID to distinct books. And the ISBN is not unique because the same ISBN is used to distinguish the book with the same name and publisher but a different Book_ID;
d. Each book has a Book_Status, including, Is_rent, Is_available, and Is_placed, with a value in either true or false. At a particular point in time, each book is allowed to have one and only one status in true, with the other two statuses in false.

Relational Schema



Project Plan

User Requirement Specification

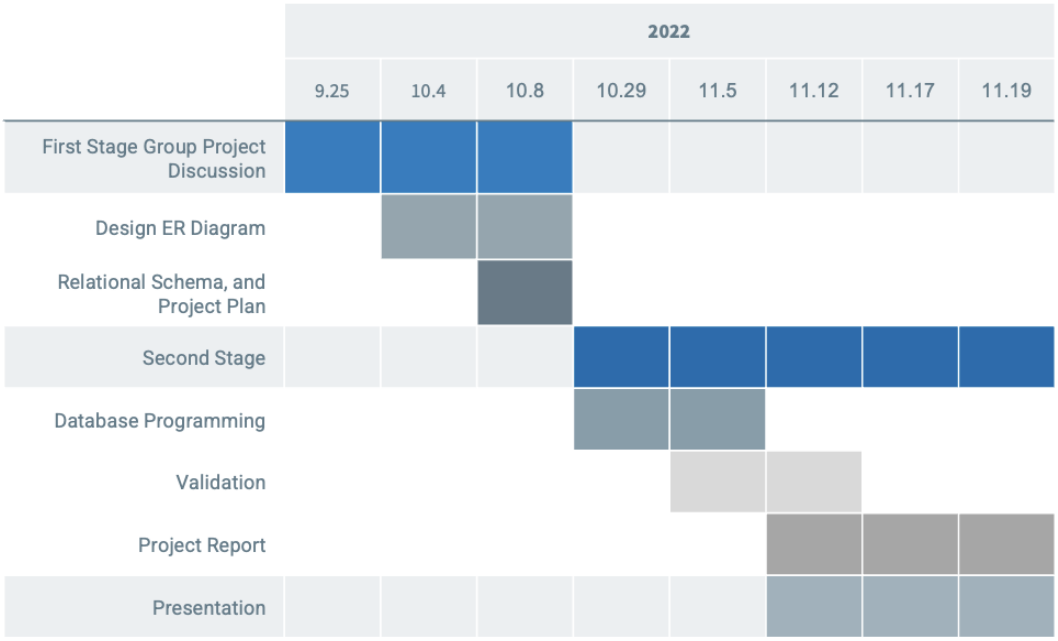
1. LMS Features Extraction (2022-09-25)
    a. **Rent Function**: LMS will provide an independent Account_ID for each user to rent books from the library. Users could rent proper books with Name, Publisher, Book_ID, ISBN, and Category search through the system. The system with time-counting starts will record each book-rent history.
    b. **Return Function**: Users could use Account_ID to return the book to the library, and the system with time-counting ends will record each book-return history.
    c. **Account Deactivation Function**: System will detect according to each book's status to judge whether the user has already reached the return deadline without a return. Furthermore, it will give the corresponding Account_ID a banned status that users cannot rent any books after returning this book for several days as punishment.
    d. **Reservation Function**: The system provides a list to store the book that exists someone would prefer to reserve (Books still not returned will be put into the Want_Book list, books still in the library will be rented freely; if the book which already been reserved by other users is returned, it will be placed into Is_placed list for the corresponding user to rent). Users should confirm the Account_ID and Want_ISBN about the book to store the record in the system for the reservation part.
    e. **Notification Function**: The system provide functions to remained users about the books reservation and book return alert by sending messages to users' account.

System Modelling

2. ER Model Design (2022-10-04 ~ 2022-10-08)
3. ER Model Construction (2022-10-04 ~ 2022-10-08)
4. Relational Schema Building (2022-10-08)

Implementation

5. Detailed Implementation Time Slot



6. Task Distribution (2022-10-29 ~ 2022-11-05)
   ZHANG and YE are responsible for constructing the books database for the library.
   LIU and JIANG are responsible for constructing the user database of books function.
   KWOK and CHEN are responsible for coding tests for the entire system operation.
7. Source Code Implementation (2022-10-29 ~ 2022-11-05)

Test Plan (Validation)

8. User Test (2022-11-05 ~ 2022-11-12)
9. System Test (2022-11-05 ~ 2022-11-12)

Project Report

10. Writing Project Report (2022-11-12 ~ 2022-11-19)

Presentation

11. Produce Demonstration Video (2022-11-12 ~ 2022-11-19)

End of the COMP2411 Group Project First Stage