Database Requirements

Introduction

Project Overview

This database is intended to track the memberships and various media that a given library may store. This should include which items are checked out, for how long, what is overdue, any fees charged to members, and other important details about items available.

Scope

The database will not track the content or condition of every item. It will track the availability of certain items, and the membership fees associated with a client account.

Stakeholders

The stakeholders for this database system will be the staff who manage and operate the library, and any members who check out items from the library.

Requirements

Functional Requirements

For the staff, the database must:

- Retrieve a list of overdue items, associated client, and associated fees
- Generate a report of total fees collected last month, grouped by membership type
- Produce a list of clients who have exceeded their borrowing limit
- Find which clients never returned an item late
- Determine the most frequently borrowed items by client type
- Remove a given item from the record
- Help a client check out a book
- List any items that have not been checked out in the past six months
- Create a report on a given client, including borrowing history, outstanding fees, and any reserved items
- Create a report listing all items, their status, and the last date they were borrowed.
- Create a report to summarize revenue from fees, including the breakdown by membership type and item category

For clients, the database must:

- List all currently available items

- Recommend popular items by the number of loans
- Display the expected time an item is loaned for before being returned
- Reserve an item to be checked out later

Data Requirements

<u>Data Entities</u>

- Librarians (L)
    - <u>Librarian_ID (int)</u>
    - Librarian_name_first (string (15))
    - Librarian_name_middle_initial (char)
    - Librarian_name_last (string (15))
- Member (M)
    - <u>Member_ID (int)</u>
    - Member_name_first (string (15))
    - Member_name_middle_initial (char)
    - Member_name_last (string (15))
    - Membership_type (string (10))
    - Membership_end_date (string (10))
    - Membership_status (Boolean)
    - Number_of_items_checked_out (int)
    - Late_fees (int)
- Book (B)
    - <u>Book_ID (int)</u>
    - Book_name (string (30))
    - Author_name_first (string (15))
    - Author_name_last (string (15))
    - Genre (string (15))
    - Publication_date (string (10))
    - Checked_out_currently (Boolean)
- Movie (Mo)
    - <u>Movie_ID (int)</u>
    - Movie_name (string (30))
    - Director_name_first (string (15))
    - Director_name_last (string (15))
    - Genre (string (15))
    - Publication_date (string (10))
    - Checked_out_currently (Boolean)

- Magazine (Ma)
    - <u>Magazine_ID (int)</u>
    - Magazine_name (string (30))
    - Issue_Number (int)
    - Author_name_first (string (15))
    - Author_name_last (string (15))
    - Genre (string (15))
    - Publication_date (string (10))
    - Checked_out_currently (Boolean)

- Comic Book / Graphic Novel (C)
    - <u>Comic_Book_ID (int)</u>
    - Comic_Book_name (string (30))
    - Issue_Number (int)
    - Author_name_first (string (15))
    - Author_name_last (string (15))
    - Genre (string (15))
    - Publication_date (string (10))
    - Checked_out_currently (Boolean)

User Requirements

<u>User Types</u>

- Library Staff
    - Access Level:
        - High-level access for the management of library items
    - Interface Requirements:
        - Check out/returns, add/manage items, client management, and search tools

- Clients
    - Access Level:
        - Basic access to manage account and search database
    - Interface Requirements:

- Catalog search, item reservation, loan status/history, fees and payments, and account information

Hardware and Software Requirements

- Hardware Requirements:
  - Standalone on EECS Cycle Servers
- Software Requirements:
  - MariaDB and SQL