Documentation

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- **Decisions and Assumptions:**
  1. **User Authentication:**
     - Users can register with a unique username and password.
     - Upon successful registration, their details are stored on the mysql.users table.
  2. **Book Management:**
     - Users can add books to the system with details like author, genre, price, and quantity.
     - Books are associated with the user who added them, based on the user_id field in the mysql.books table.
  3. **Request Submission:**
     - Borrowers can submit borrowing requests to lenders for specific books.
     - Requests are stored in the requests table with borrower ID, lender ID, book ID, status, and an optional message.
     - The status of a request can be "Pending", "Accepted", or "Rejected".
  4. **Accepting/Rejecting Requests:**
     - Only lenders can accept or reject borrowing requests.
     - The lender must be logged in and have the role of "lender" to perform these actions.
     - When a lender accepts a request, the status of the request changes to "Accepted".
     - When a lender rejects a request, the status changes to "Rejected".
  5. **Admin Library Status:**
     - Just admin can view the library status and view all the current borrowed books, available books, accepted/rejected/pending requests so far.
- **Running the Code:**
  6. **Setting Up the Database:**
     - Make sure you have MySQL installed (Production Version: 8.0.36).(as mentioned in the assignment pdf).
     - Make sure you add the jar file is attached with the project.
     - Create a database named MySQL.
     - Attached SQL Files has the structure of the Tables.
     - Create the following tables provided with a SQL Files:
       i. users with columns: id (INT AUTO_INCREMENT PRIMARY KEY), username (VARCHAR), password (VARCHAR)
       ii. books with columns: id (INT AUTO_INCREMENT PRIMARY KEY), author (VARCHAR), genre (VARCHAR), price (DOUBLE), quantity (INT), title (VARCHAR), user_id (INT)

iii. requests with columns: id (INT AUTO_INCREMENT PRIMARY KEY), borrower_id (INT), lender_id (INT), book_id (INT), status (VARCHAR), message (VARCHAR)

- **Ways To Add Database and Run SQL Files:**
  i. Install PhpMyAdmin and import the database files to you own database.
  ii. OR run the files from shell of MYSQL CLIENT Command line.

7. **Java Environment:**
   - Ensure you have Java installed on your system.
8. **Running the Server:**
   - Run the Server class.
   - The server will start and wait for client connections on port 12345.
   - The server will handle multiple clients concurrently using threads.
   - It will interact with the MySQL database for user authentication, book management, and request handling.
9. **Running the Client:**
   - Run the Client class.
   - You'll be prompted with a list of available commands.
   - Use these commands to interact with the server (e.g., logging in, browsing books, adding books, making requests, etc.).
   - Ensure to follow the format for each command as specified in the client menu.
   - To exit the client, type EXIT.
   - Follow the instructions printed by the client to execute commands.
   - Available commands are:

List of available commands: Type 'EXIT' to close the connection.

| 1. LOGIN <username> <password>

| 2. REGISTER <username> <password>

| 3. BROWSE

| 4. SEARCH

| 5. ADD <username> <title> <author> <genre> <price> <quantity>

| 6. REMOVE <username> <bookName>

| 7. GET_MY_BOOKS <username>

| 8. REQUEST <borrowerUsername> <lenderUsername> <bookId> <message>

| 9. ACCEPT <lenderName> <requestId>

| 10. REJECT <lenderName> <requestId>

| 11. REQUEST_HISTORY <username>

| 12. LIBRARY_STATS <username> SHOULD BE ADMIN

| 13. LOGOUT <username>

| 14. Get_OnlineUsers