Non-Functional Requirements

1. **Performance**
    - The library database should support at least N concurrent users, where N scales with MariaDB's storage and query handling capacity.
    - Response times should be optimized to ensure quick retrieval of information, ideally within X milliseconds for common queries.
2. **Reliability**
    - The system should ensure 99.9% uptime with minimal service interruptions.
    - Data integrity must be maintained to prevent data loss or corruption.
3. **Scalability**
    - The system should support increasing numbers of users and items without a significant drop in performance.
    - It should be designed to accommodate future expansion, including new library branches and additional media types.
4. **Usability**
    - The user interface should be intuitive and accessible for both library staff and clients.
    - The system should comply with WCAG 2.1 accessibility standards.
5. **Security**
    - User authentication should be required to access and modify records.
    - Role-based access control (RBAC) should be implemented to restrict unauthorized actions.
    - Data encryption should be applied to sensitive information such as user contact details.
6. **Maintainability**
    - The system should be modular, allowing easy updates and bug fixes.
    - Code should follow standardized documentation practices for ease of maintenance.
7. **Efficiency**
    - Queries should be optimized to retrieve results in the shortest time possible.
    - Resource usage (CPU, memory, storage) should be minimized to ensure cost-effective operation.
8. **Portability**
    - The system should be deployable on multiple platforms, including Windows, macOS, and Linux servers.
    - It should be accessible via desktop and mobile devices through a web interface.

9. **Reusability**
    - Components such as authentication modules, reporting tools, and database schemas should be reusable across similar applications.
    - API endpoints should be structured to support future integration with other library systems or third-party applications.