**Library Management System**

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**User Documentation**

**Application Overview**

The Library Management System is designed to help librarians manage library items, authors, and patrons. It allows librarians to add, edit, and delete library items, authors, and patrons. Patrons can borrow and return library items, and search for items by title, author, or ISBN.

**Class Descriptions**

1. **Library**: Manages the collection of library items, authors, and patrons. Provides methods to add, edit, and delete items, authors, and patrons, as well as methods to borrow and return items.
2. **LibraryItem**: Abstract base class for all library items. Contains common attributes such as ID, title, author, ISBN, publisher, and number of copies.
3. **Book**: Extends LibraryItem. Represents a book with additional attributes such as genre, number of pages, and format.
4. **PrintedBook**: Extends Book. Represents a printed book with additional attributes such as cover type and dimensions.
5. **ElectronicBook**: Extends Book. Represents an electronic book with additional attributes such as file size, ebook format, and DRM protection.
6. **AudioBook**: Extends Book. Represents an audiobook with additional attributes such as duration, narrator, and audio format.
7. **Periodical**: Extends LibraryItem. Represents a periodical with additional attributes such as issue number, publication date, and frequency.
8. **PrintedPeriodical**: Extends Periodical. Represents a printed periodical with additional attributes such as cover type, dimensions, and weight.
9. **ElectronicPeriodical**: Extends Periodical. Represents an electronic periodical with additional attributes such as file size, format, and access link.
10. **Author**: Represents an author with attributes such as name, date of birth, and a list of items they have written.
11. **Patron**: Abstract base class for patrons. Contains common attributes such as name, address, phone number, and a list of borrowed items.
12. **Student**: Extends Patron. Represents a student with additional attributes such as student ID and major.
13. **Employee**: Extends Patron. Represents an employee with additional attributes such as employee ID and department.
14. **Status**: Represents the status of a library item (e.g., available, checked out).

**How to Start/Access the Application**

1. **Clone the Repository**: Clone the GitHub repository to your local machine.
2. **Compile the Project**: Use a Java compiler (e.g., javac) to compile the source code.
3. **Run the Application**: Use the Java runtime (e.g., java) to run the Demo class.

**Development Documentation**

Java Docs: file:///Users/student/Documents/Java/Java%20Sprint%201/docs/library/package-summary.html

**Source Code Directory Structure**

/ **library management system**

/**library**

Library.java

Demo.java

/**library/items**

LibraryItem.java

Book.java

PrintedBook.java

ElectronicBook.java

AudioBook.java

Periodical.java

PrintedPeriodical.java

ElectronicPeriodical.java

**/library/people**

Author.java

Patron.java

Student.java

Employee.java

**/library**

Status.java

**Build Process**

1. **Compile the Project**: Navigate to the src directory and run javac library/Demo.java.
2. **Run the Application**: Run the application using java library.Demo.

**Compiler Time Dependencies**

* Java Development Kit (JDK) 8 or higher.

**Development Standards**

* Follow Java naming conventions.
* Use Javadoc comments for class and method documentation.
* Ensure code readability and maintainability.

**Database Design**

* **Author Table**: Contains columns for author ID, name, date of birth.
* **LibraryItem Table**: Contains columns for item ID, title, author ID, ISBN, publisher, number of copies, and type-specific attributes.
* **Patron Table**: Contains columns for patron ID, name, address, phone number, and type-specific attributes.
* **BorrowedItems Table**: Contains columns for patron ID, item ID, and number of copies borrowed.

**Deployment Documentation**

**Installation Manual**

1. **Clone the Repository**: Clone the GitHub repository to your local machine using git clone <<https://github.com/BrianJackman/Java-Sprint-1.git>>.
2. **Compile the Project**: Navigate to the src directory and run javac library/Demo.java to compile the source code.
3. **Run the Application**: Use the command java library.Demo to run the application.
4. **Dependencies**: Ensure that JDK 8 or higher is installed on your machine.