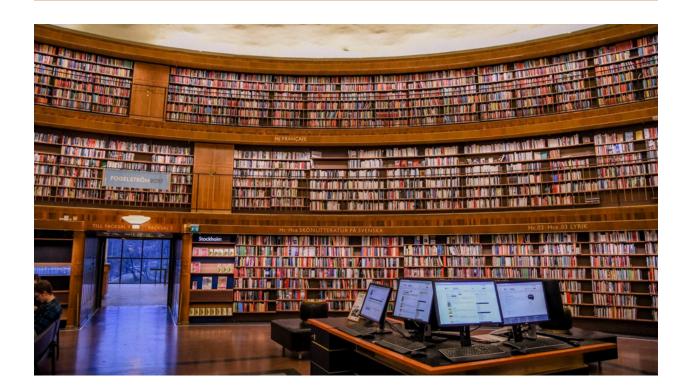
Library Management System

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Introduction

The Library Management System is a Java-based desktop application that provides a comprehensive solution for managing books and CDs in a library setting.

This system features a graphical user interface, making it easy for librarians to manage their collection efficiently.

Key Features

- Manage both Books and CDs in a single system
- Track item availability and capacity
- Borrow and return functionality
- Persistent storage using text files
- User-friendly graphical interface
- Real-time updates of library inventory

Class Diagram

LibraryGUI

- -Library library
- -JTable itemsTable
- -DefaultTableModel tableModel
- -JTextField titleField
- -JTextField quantityField
- +setupGUI(): void
- +refreshTable() : void

Library

- -List<Item> items
- +addltem(ltem): void
- +findItem(String): Item +findAllItems(String): List<Item>
- +removeItem(String, String) : void
- +borrowltem(String, String) : void
- +returnItem(String, String) : void
- +listAllItems(): void
- +listAvailableItems(): void
- +saveToFile(): void
- +getAllItems(): List<Item>

Item

#String title #int capacity

- +getCapacity() : int
- +setCapacity(int): void
- +getTitle() : String
- +setTitle(String) : void
- +toTxtString(): String
- +toString(): String

FileHandler

- -String FILE_PATH
- +loadItems(): List<Item>
- +saveltems(List<Item>): void

Book

- -String category
- -String author
- -int quantity
- +getCategory() : String
- +setCategory(String) : void
- +getAuthor(): String
- +setAuthor(String): void
- +getQuantity(): int
- +setQuantity(int): void
- +isSameBook(Book): boolean

CD

- -String company
- -int duration
- -int quantity
- +getCompany() : String
- +setCompany(String) : void
- +getDuration(): int
- +setDuration(int): void
- +getQuantity(): int
- +setQuantity(int): void
- +isSameCD(CD): boolean

Usage Guide

Starting the Application:

- 1. Ensure you have Java installed on your system
- 2. Run the LibraryGUI class to start the application
- 3. The main window will display with three main sections:
 - Library Items View (left panel)
 - Add Items Panel (top right)
 - Borrow/Return Panel (bottom right)

Adding New Items:

- 1. Select item type (Book or CD) using radio buttons
- 2. Fill in the required fields:
 - For Books: Title, Category, Author, Quantity
 - For CDs: Title, Company, Duration (mins), Quantity
- 3. Click "Add Item" to save

Deleting Items:

- 1. Enter the title and author/company of the item
- 2. Click "Delete Item" to remove it from the library
- 3. Use "Delete All Items" to clear the entire library (use with caution)

Borrowing and Returning Items:

- 1. In the bottom right panel, select either "Borrow" or "Return"
- 2. Enter the required information:
 - Title of the item
 - Author (for books) or Company (for CDs)
- 3. Click "Submit" to process the transaction