

Library Management System Documentation

Table of Contents

1. Introduction
2. System Architecture
 - 1. main.py
 - 2. db_manager.py
 - 3. stock_manager.py
 - 4. email_manager.py
 - 5. scraper.py
 - 6. utils.py
3. System Flow Overview
 - 1. Database Setup
 - 2. Book Management
 - 3. Email Functionality
 - 4. Stock Management
 - 5. Exit and Export
4. Usage Instructions

Introduction

The Library Management System is a Python-based application that helps manage a library's book inventory. It allows users to add, update, find, and borrow books, calculate total stock, and send notifications via email. Additionally, the system can scrape book data from a website and export book information to a JSON file.

System Architecture

1. main.py

This is the entry point of the application. It interacts with the user, providing options for managing the library. Its main functionalities include: adding books, finding books, displaying all books, updating book details, borrowing books, sending email notifications, calculating total stock of books, and exporting book data on exit.

2. db_manager.py

This module is responsible for interacting with the SQLite database. It includes functions to create the books table, add, update, delete books, and query specific books from the database.

3. stock_manager.py

This file handles operations related to book stock. It calculates total stock and displays stock for individual books.

4. email_manager.py

This module manages email functionality. It enables sending notifications or updates about book availability to users.

5. scraper.py

This script scrapes book data from an external website and stores it in the SQLite database.

6. utils.py

This file contains utility functions used throughout the system to assist with formatting or validating inputs.

System Flow Overview

1. Database Setup

The system creates a books table in the SQLite database if it doesn't exist. If the database is empty, it scrapes book data from an external website.

2. Book Management

Users can perform various CRUD operations on books: Add, Update, and Borrow books, with stock being automatically updated.

3. Email Functionality

The system can send email notifications to users regarding book availability or updates.

4. Stock Management

The system calculates total stock for all books and individual stock for each book.

5. Exit and Export

Upon exit, all book data is exported to a JSON file, allowing for backup or future use.

Usage Instructions

- Add Books: From the main menu, choose the option to add a book and enter the book details.
- Find Books: Search for books by ID or title.
- Update Book: Modify the book details such as price, stock, or title.
- Borrow Books: Select a book to borrow, which will decrease its stock.
- Send Email: Use the email functionality to notify users.
- Exit and Export: When you exit the system, book data is saved to a JSON file.