PUBLIC LIBRARY SYSTEM

Documentation

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Requirements Specification

1. INTRODUCTION

1.1 PURPOSE

The purpose of this document is to build a Public Library System (PLS) with which the information can be managed that is needed to run a public library, lending out paper books to customers.

1.2 PROJECT SCOPE

The purpose of the Public Library System (PLS) is to manage the information that is needed to run a public library. The system will consist of a backend (data processing and storage) and a frontend. The frontend can consist of a console based (textual) interface that gives access to all the functions of the system. The whole issue of security and access rights is left out of scope of this assignment.

The library has paper books, a catalog of books, a loan administration, customers, and a librarian (bibliothecaris). New customers can be added to the administration. New books (that means: the identification details of paper book items) can be added to the catalog. Customers can search for books and loan books. The library can be filled with books and customers from data files. All the data in the PLS can be backed up on file, and restored from file.

2. OVERALL DESCRIPTION

2.1 PRODUCT PERSPECTIVE

The Public Library System (PLS) was developed to store the following information:

- **Librarian details:**
  It includes adding a customer to the system, adding book(s), deleting book(s), filling the system with customers from a file of people (.csv files and .json files), add loan(s), remove loan(s)
- **Subscriber details:**
  It includes loaning a book and editing his account information
- **Publishing company details:**
  It includes adding books to the catalog

2.2 OPERATING ENVIRONMENT

The major features of the Public Library System (PLS) is shown below in a Class Diagram:
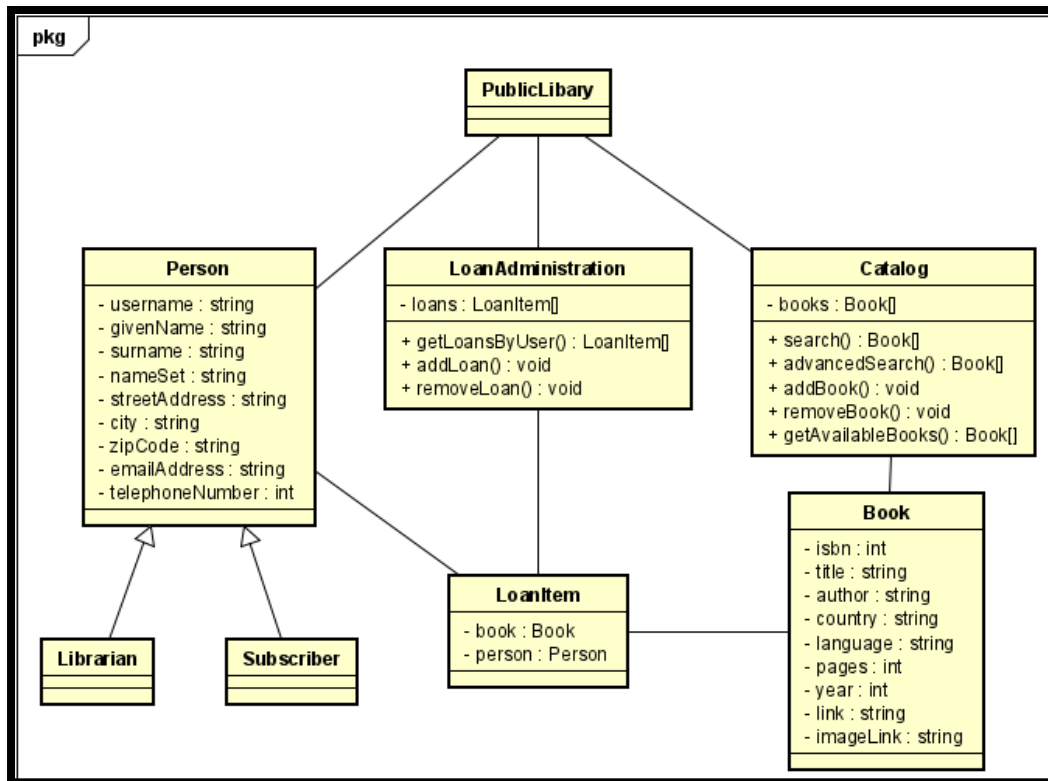
2.3 PRODUCT FEATURES

Operating environment for the Public Library System (PLS) is as listed below.

- Client/server system
- Operating system: Windows/Linux
- Database: SQLite 3
- Platform: Python

3. REQUIREMENTS SPECIFICATION

3.1 DESCRIPTION AND PRIORITY

The Public Library System (PLS) maintains information on the catalog, users information and loans. This project has high priority, because with the PLS we cannot lend books, add books to the catalog, et cetera.

4. EXTERNAL INTERFACE REQUIREMENTS

4.1 USER INTERFACES

- Front-end software: Python(Console based)
- Back-end software: SQLite 3

4.2 HARDWARE INTERFACES

- Windows or Linux with Python installed

4.3 COMMUNICATION INTERFACES

This project support computers with Python installed. For this project we are using a simple command interface and the user needs to enter the corresponding key for the action that he or she wants.

5. NON-FUNCTIONAL REQUIREMENT

5.1 PERFORMANCE REQUIREMENT

The Public Library System (PLS) can be used with any modern computers and even old computers, because it is basically a console interface program.

5.2 SAFETY REQUIREMENT

To ensure that no one of the Public Library System (PLS) users will lose any data while using the system the librarian can manually make a backup of the system. There is also a debug menu that is only visible to the librarian.

5.3 SECURITY REQUIREMENT

At the moment the Public Library System (PLS) does not have any security requirements.

5.4 SOFTWARE QUILITY ATTRIBUTES

The Public Library System (PLS) provides the users with both a simple and advanced features. It's well designed and easy to use interface that it can be used by both experts and typical users.

Class Diagram

Use Case Diagram

uc

- Adding new books
- Generate backup
- Restoring library backup
- See list of borrowed books
- Borrow a book
- See book information
- See available books
- See account information
- Adding new customers
- Deleting books
- Deleting customers

<<extend>>
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Subscriber

Publishing Company

Librarian
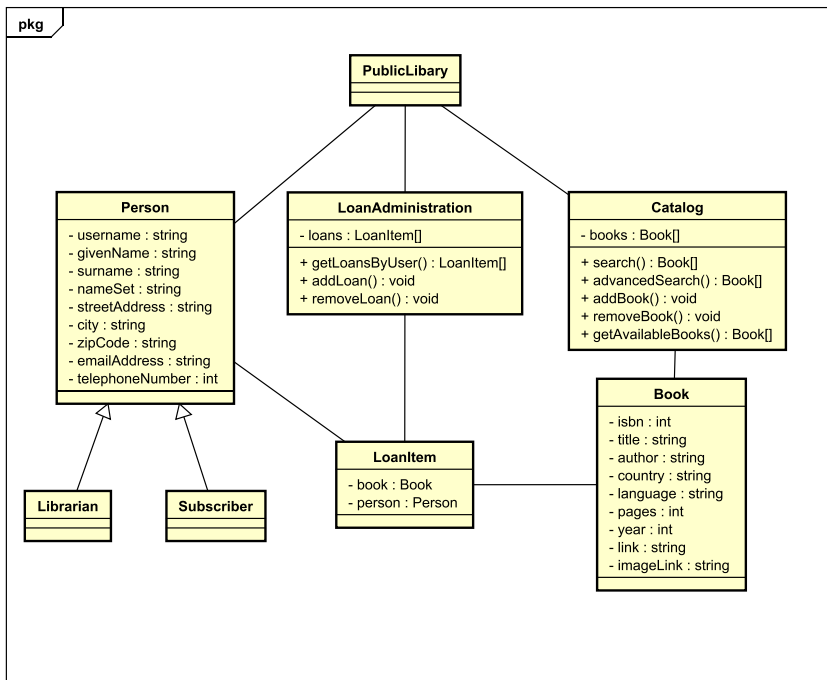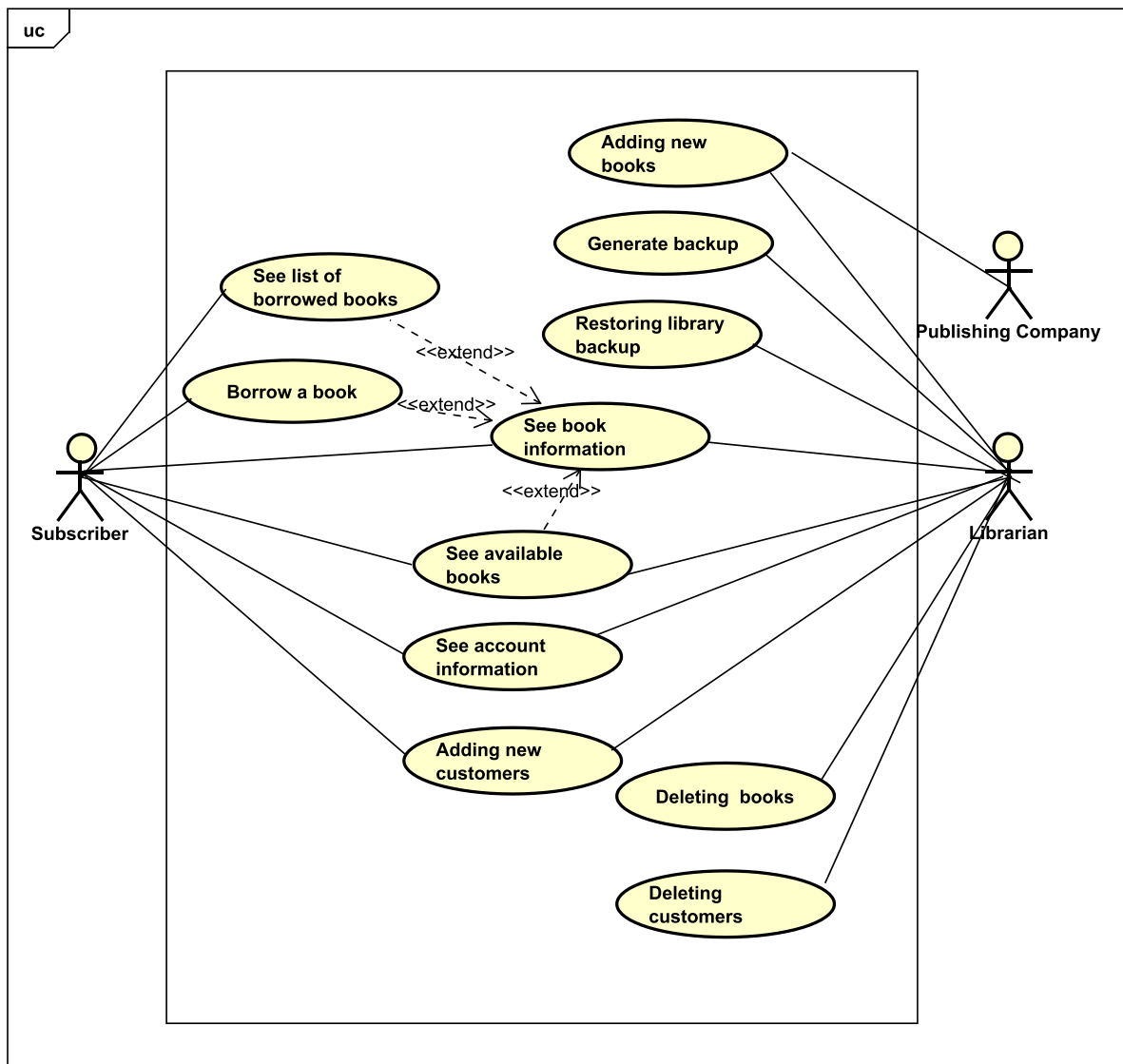
User Manual

Required programs

Database Maintenance

For maintaining the database, the use of the free program https://sqlitebrowser.org/ is recommended. This program is available on Windows, Mac OS, and most Linux distributions.

Running the program

At least python 3.8 has to be installed on the system with the standard library.

First Setup

The included database contains 1 librarian account, 20 user accounts and 100 books.

It is recommended to change the information of the librarian account in the database with the tool recommended for database maintenance.

It is also recommended to change the password of the librarian account before running the system. To do so, follow the following steps:

1. Open the "database.db" file
2. Navigate to the Data Browser (number 1) near the top left corner of the application.
3. In the table dropdown, select the Users table (number 2).
4. Select the password field of the first record, this should be the librarian account (number 3).
5. Change the password from "1234" to anything you like, using the text field near the top right (number 4).
6. When you have entered a new password, click on the apply button (number 5)
7. Make sure to save the database. The program will **NOT** run if you don't do this. To save the database, press CTRL+S on Windows or Linux and CMD+S on Mac OS.

Changing account types

To change the account type. Open the "database.db" file with the tool recommended for database maintenance and go to the users table. (For basic instructions on how to use the recommend tool, see First Setup).

To change a **Subscriber** account to a **Librarian** account or the other way round, change the permType field in the users record accordingly.

Using the Public Library System

1. Navigate your terminal to the location of the PLS.py file
2. Type "python PLS.py" in your terminal. You will be met with this screen.
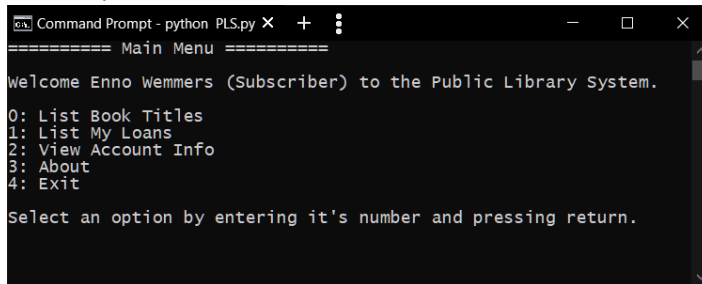
3. In this screen you can create a new account, logon with an existing account, view the about page or exit the app. Make your choice by typing the number of the option and press return.
4. Once logged in, follow the instructions on the screen.

Loaning a book

This part of the manual assumes you are logged in as a Subscriber.

1. Select option 0 in the main menu
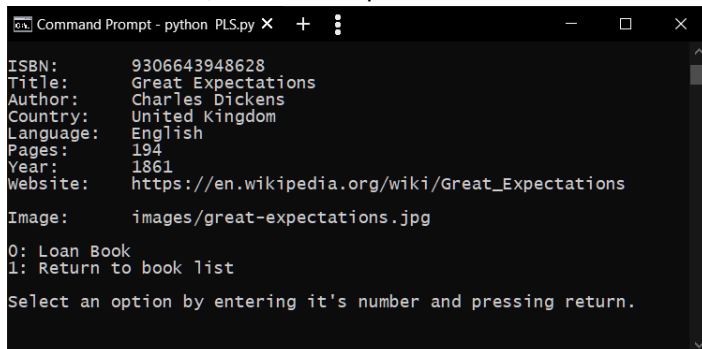
2. Select a book from the list
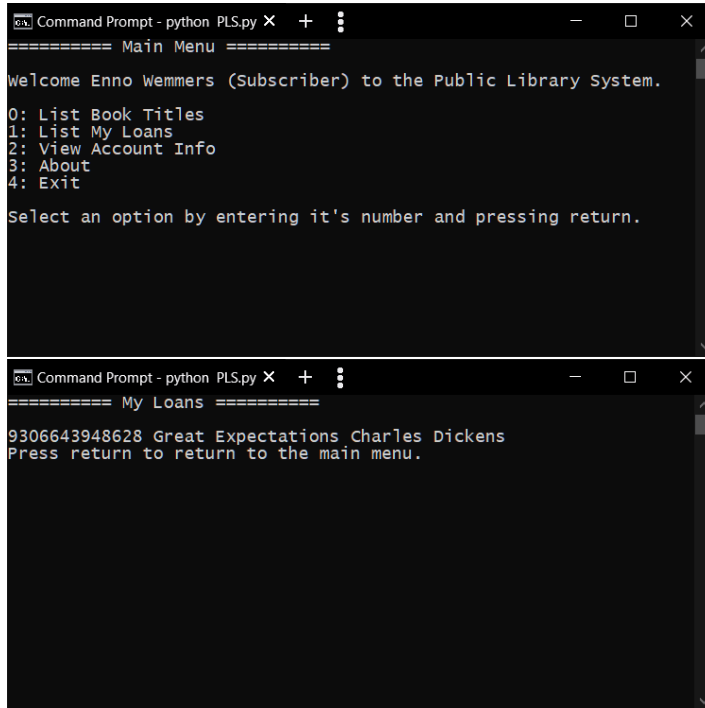
3. To loan the book, enter 0 and press return

4. To view your loans, select 1 in the main menu
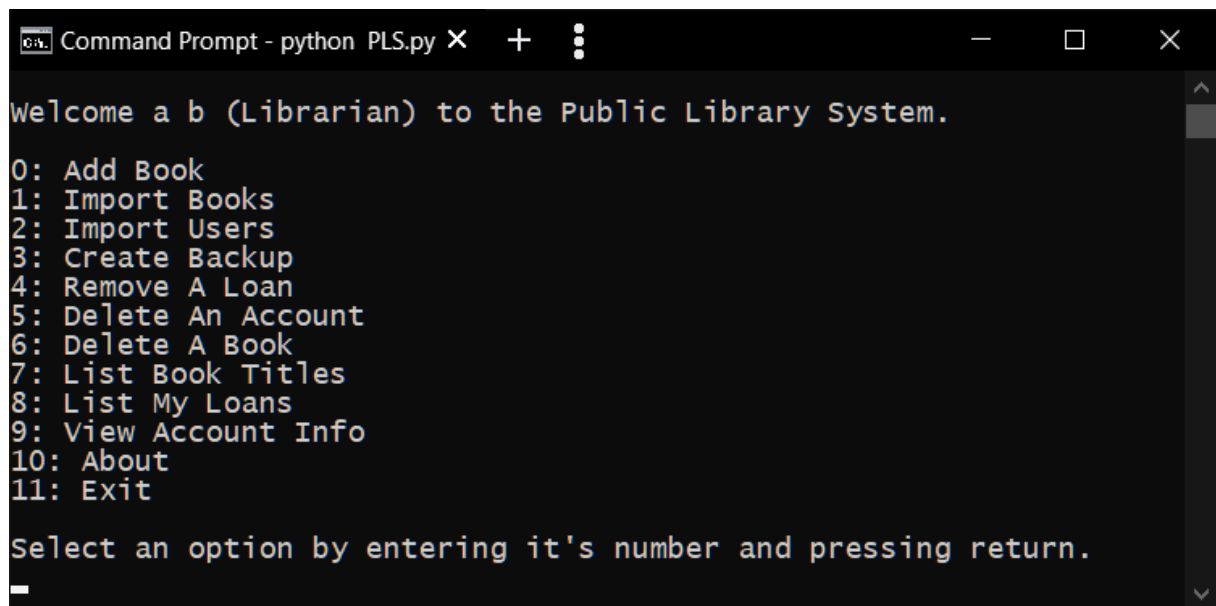
Librarian Options

This part of the manual assumes you are logged in as a Librarian.

The librarian has too many options to cover, all options contain in program instructions. In there figure below you can see an overview of all the options librarians have.