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Learning Outcomes | SDLC Assignment Part 1:

Library Management System

Library Management System:

You have been asked to create a simple Library Management System (LMS) software, following the Software Development Life Cycle (SDLC) approach. Your assignment is to write a software development plan for the LMS, based on the description provided below. Your software development plan must include the following information:

Define Requirements:

The Library Management System (LMS) software is intended to be utilized by library staff to manage the library's book collections. The software is intended to add correctly formatted book information from a text file into the library's collection of books. The library staff will use this program to add books to their current collection, remove books from their collection and to display a list of all books currently within the collection.

Library Management System:

System Users:

- Library Saff will use the system to perform tasks to the catalogue of books.

Features and Functionality:

- Add books from a text file to the collection.
- Remove books from collection by book ID.
- Display all books in the current collection.

Constraints:

- Text file records must be properly formatted.

Gather Requirements:

According to library staff, the program should be easy to use. It should have a menu or menu options to choose whether to add, remove, or display books until the user quits out of the program. The library staff would like to be able to input the path for the text file they want to use in case they have text files in multiple locations.

Gathering software requirements:

After speaking with local library staff members, the following requirements were gathered from potential system users. The software requirement desired from for the LMS program are as follows:

- The program must be able to add new books from a text file to the library collection.

  (text file should include a unique ID number, Title, and author)

- The program must be able to remove a book from the collection utilizing the book's ID number.

- The program must be able to list the books in the current collection.

Implementation Plan:

The Library Management System will be developed in stages. The tasks required have been ordered and broken down for implementation as follows:

Breakdown of Tasks:

1. Add books to collection: Develop the addBooksToCollection method for adding books from a text file to the collection.
2. Display books from the collection: Develop the displayBooks method for displaying the books within the collection.
3. Remove books from collection: Develop the removeBooksFromCollection method for removing a book from the text file using the unique book_ID.

Methods required:

- addBooksToCollection(Filepath file) : Reads a file and adds books to the collection
- displayBooks() : Lists all books currently in the collection.
- removeBooksFromCollection(int bookID) : removes the book from the file that corresponds the provided bookID.

Testing Plan:

Testing will be conducted after each method has been successfully written to ensure that the method is fully functioning before moving onto the next method. Once the components have been completed a full system test will be performed by selected users to allow users a chance to give feedback, report bugs or perform unexpected user errors that might break the system.

Tests:

Individual component testing:

- addBooksToCollection method will be tested after completion to ensure that the books in the text file are added to the Array List of books in the collection.
- The displayBooks will be tested after the addBooksToCollection method has been completed. This should display the list of books that we just added to the collection.
- removeBooksFromCollection method will be tested to ensure that books can be removed using the bookID once the two prior methods have been completed.

Full integrated system testing:

- The entire system will be tested together once all completed components are integrated into the Library Management System to test component functionality.
- Users will be selected and allowed to test the system to ensure the system meets all requirements and ease of use requested, and to allow user errors to occur for further program debugging.

Deploy Software:

Write the code to implement your software and run your tests to ensure it works correctly. Once working, copy/paste your code into your development plan.

Software code will be placed here once completed