Library Database System

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Problem Statement:

- Libraries are used to store books, but require a system to navigate to a specific book or specific content within a book. A library database system is an infrastructure that allows users to search books and book content, add/remove, and download selected books.

- The problem faced is that library users require an efficient method to find a specific book or keyword(s) within a book given a continuously expanding library. Efficiency requires that the processing time should stay relatively the same even as the library contents increases.
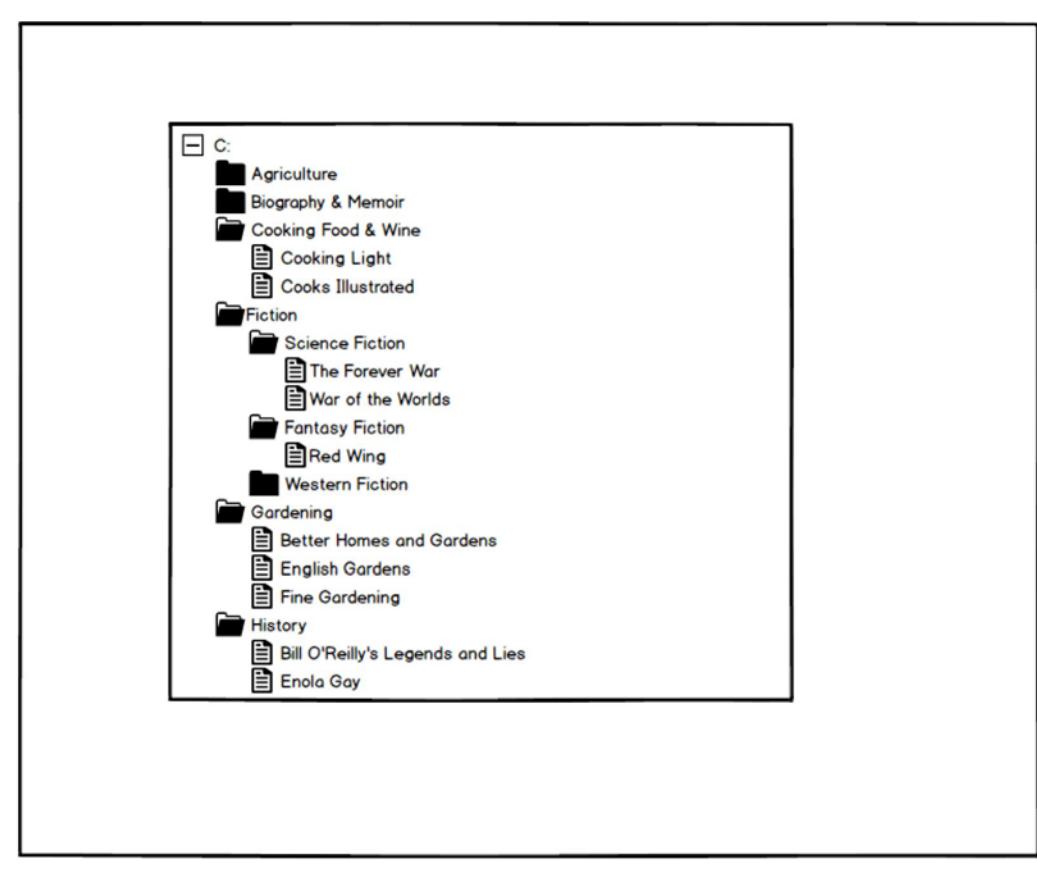
Objective and Approach:

- The objective of this project was to develop a library database system in which a user can supply books to the server, organize books by location, retrieve books from the server and query the server for books which contain specific keywords.

Results:

- A database was created providing users with the capability to submit books to the library. The books are then categorized into shelves. A user can then browse the titles of books stored in the library.

- Most importantly, a query function is available to search the book titles and book content data within the library database. The query function enables a user to search for specific keywords contained in books. A user can then select and request a desired book from the library database, allowing them to consume books on demand!

Search screen

Submit screen

- The envisioned library database system provides a user the ability to submit a new book to the database and upload its textual contents. An added feature will be implemented to allow a user to edit books. The "edit book" feature will allow the user to edit the book details and contents of a specific book.

- The library system database will execute a textual analysis on uploaded books to identify keywords within the books and thereby create an index. A library query will return a list of books and will show a list of locations where a keyword is found within each book. Returned results will be filtered to books that contain the specified context. By indexing the books, user queries can return results, in context, without having to search every row in the database.

Impact and Benefits:

- This tool provides increased efficiency to librarians and library customers alike.

- This product allows a user to fluidly build a customized library. They can continue to add or remove content as desired over time without limitations.

- The query function, or search engine, will allow users to access desired books and content in the most efficient manner possible.

```
print new_shelf(ses, "Agriculture", "Test", "Test Comments", "06/28/2016", ["Library"])
print new_shelf(ses, "Biography & Memoir", "Test", "Test Comments", "06/28/2016", ["Library"])
print new_shelf(ses, "Cooking Food & Wine", "Test", "Test Comments", "06/28/2016", ["Library"])
print new_shelf(ses, "Fiction", "Test", "Test Comments", "06/28/2016", ["Library"])
print new_shelf(ses, "Science Fiction", "Test", "Test Comments", "06/28/2016", ["Fiction"])
print new_shelf(ses, "Fantasy Fiction", "Test", "Test Comments", "06/28/2016", ["Fiction"])
print new_shelf(ses, "Western Fiction", "Test", "Test Comments", "06/28/2016", ["Fiction"])
print new_shelf(ses, "Gardening", "Test", "Test Comments", "06/28/2016", ["Library"])
print new_shelf(ses, "History", "Test", "Test Comments", "06/28/2016", ["Library"])
```