Assembly Level Programming based Library Management System

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***Abstract*—The recent pandemic has led to various changes in lifestyle. Old school libraries thus seem to go nonextant. With the advent of technology, it is becoming increasingly important to make all systems more user friendly. The Library Management System(LMS) is a tool for converting physical libraries into digital libraries.**

With an analysis of each activity module, description and data attributes of each task are determined. In paper, the structure of the library management system includes the user module, director module and guest module also performs general functions which include book borrowing, book return and book management.

***Index Terms*—Library management system, Tasm, ALP, VS Code**

I. Introduction

The library has become an integral element of daily life as people's knowledge levels have increased. However, because the library and business volumes are so large, traditional account administration is not viable. Library management systems emerge at this time and gradually become an important aspect of information building. Establishing a management information system has become the key trend in order to develop, build, and adapt to the new information society, and we can't ignore the problem.

Books are no longer a tangible entity. People prefer to use kindle or other apps, so no storage of physical copies is required. Searching for the required book is also a hassle. In order to get books we want quickly they need to be classified and contained in proper directories. New books are added to the catalogue everyday. A system that has the flexibility to be updated regularly is a necessity. In our project, we attempt to solve all these issues, so the library would be capable of adding new books, deleting the old ones, searching for required books and updating the outdated ones.

II. Literature Survey

Library management concept is a growing technique which has found an immense magnification in this time of pandemic. As the operations of the physical libraries were disrupted, these libraries turned to an online method for enduring their business and to fulfill a book lovers needs. Since then an enormous amount of research has been carried out to deploy a vast amount of techniques to develop library management systems.The library management system designed by us is capable of deleting, adding and searching books. The majority of the library management research and literature has centered on the academic libraries, with public library administration gaining popularity just recently.

The library management system is a famous subject of a lot of research. We came up with many research papers. The first research paper we referred to was by Chunchao Liu, Sheng Ma. In that paper they designed the Library Management System using C and C++. Their project has some main features, like adding and deleting the books, searching the new books in the library. [1] A number of research papers have been cited where only the use of a computer based programming language with its different aspects and characteristics. Research paper by Kai Zhou and Youhong Yuan states the use of Raspberry Pie for the development of the library management system [2]. Another paper by N. Barbutia, S. Ferillib , D. Redavidc , T. Caldarolad, discusses the expansion of a traditional library management system into a digital library. The paper also emphasizes on the use of open source technological bases and databases for compilation [3].

The library is considered the brain of any institution, yet many institutions understand its importance as a library for the growth of the institution and its users who classify students. An integrated library system, also known as a library management system is a system of organizing a business library service, which is used to track assets, orders executed, debts paid, and users done. [4]

III. Methodology

The flowchart below explains the basic skeleton of the project. The project starts with creating a file for the database to store all the books information. If the file already exists the file pointer is set to that existing file. Then the user is given two options

1) To add a new record to the file
2) To retrieve all the information from the file

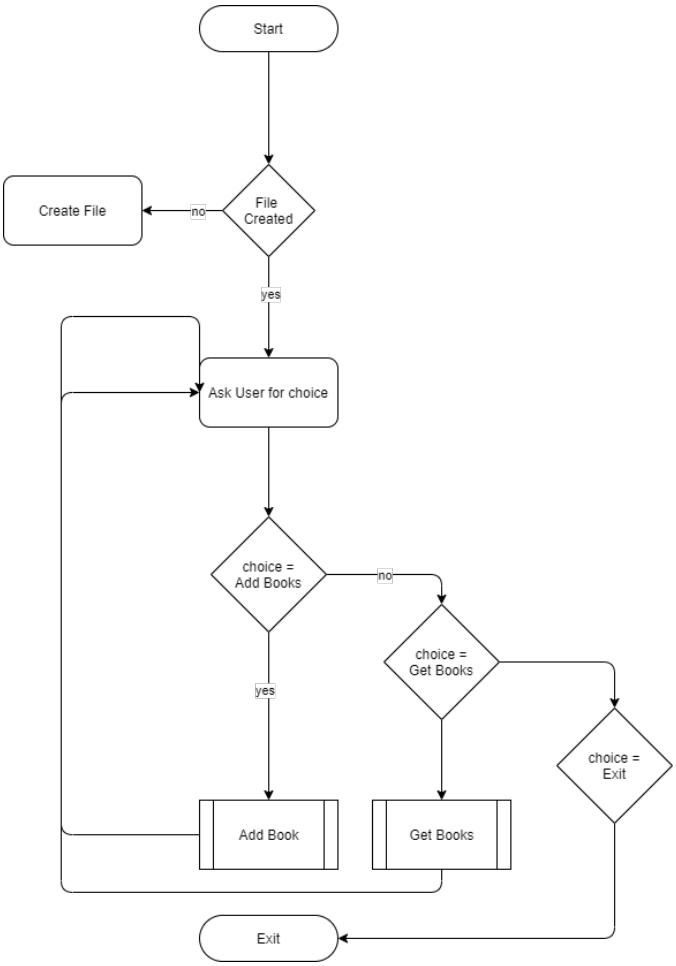

Fig.Basic Workflow

A. Updating the data

1) If the user chooses to update the data the file pointer is set to the end of the file. This is important as ALP does not have a file append option and the file pointer os set at the first line of the file by default resulting is replacement of all the data
2) After setting the file pointer to the end of the file the user is prompted to enter the book name which he wants to add.
3) After the user is done adding the name and pressing the enter key the following book is added on a new line in the file.

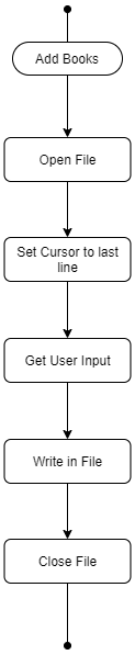

Fig.Updating the Data

1) Retrieving the data:

1) If the user chooses to retrieve the data then the file pointer is set to the first location in the file
2) Then it reads all the data bit by bit until it reaches the EOF i.e. End Of File character.
3) After reading all the data this data is printed on the console for the user to see.

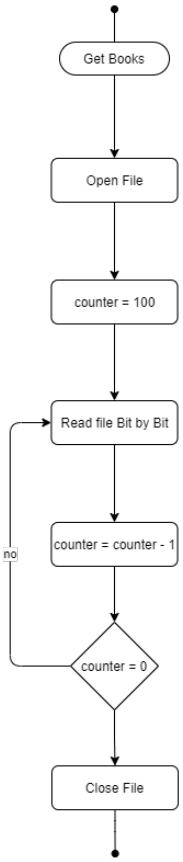

Fig.

IV. Conclusion

The management systems are an integral part of any organization and this project caters the need of a library management system. This is done using various file handling concepts implemented through ALP i.e Assembly Level Programming. Even though the project is still in its initial stages a lot of other features can be added to it making it a powerful resource for libraries.

The program still has scope for book searching of the books and creation of GUI for a better user experience, but the system will help make the tedious task of keeping the track of books easier.

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