FEASIBILITY STUDY Date:25/09/2017

LIBRARY MANAGEMENT

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REVISION HISTORY

Revision #	Date	Author	Where	Change	Approved by

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1. PROBLEM STATEMENT

This project is concerned with developing a Library Management system in order to make library management more efficient and easy to handle. The Library management system enables a fully automated library service. It has the ability to display the details of the books available in various departments, the transactions of books and about the book holders. The goals of this project are to provide simplicity as well as security and efficiency to the management of Library.

2. EXECUTIVE SUMMARY

Library Management System product is basically updating the manual library system into a internet-based application so that the users can know the details of their accounts, availability of books and remaining time for borrowing. The project is specifically designed for the use of librarians and library users. The product will work as a complete user interface for library management process and library usage from ordinary users. This can be used by any existing or new library to manage its books and book borrowing, insertion and monitoring. This can work as a powerful library management system for big libraries, and can provide a free easy-to- use system for rising libraries. This product can be expanded by adding recomendation system to improvise the search for book.

3. CURRENT SYSTEMS AND PROCESSES

3.1 Current Operations

Library management is currently partially automated and in most of libraries its completely manual.. Students/users first enter there details in a book. They are then allowed to enter library to borrow books. Entries made by most of users in a book are not used efficiently and in most of the cases its just an entry procedure, no data or trends are noted down in any centralized system. This kind of a system lacks a centralized logging of users distribution statistics, which could be used to predict number users who would visit library on particular day or to know peak hours and take appropriate measures.
At the time of exit, details of user who borrowed the book are noted down in a book ,there are few library which are using computerized mechanism for noting down information about the user.
Online library Management the software we are developing, aims at book on demand i.e if books are unavailable a user can register a book online to borrow the book from other user, recommendation system to predict the books which a user may like , new arrival of the books in the library.

3.2 Physical Environment

A typical environment for a library, in the current scenario, entry of user with Id Scanner , record the user name and other details .On exit ,automatic BarCode reader of books along with user ID and mapping user ID to Book Id at the back end.
Using current software systems, user can only register/preregister a book .A well programmed software can give recommendations of different kinds books to the user – based on collection of user data and books which were mapped using snippets of code , Apache

Server should be online 24*7 for renewal of books online, information about most popular books in library, and prediction of number of users on a particular day for administrators to take precautionary measures which uses information from databases which were in turn recorded by the barcode readers , ID card readers.
Completely manual libraries have a person-in- charge to take care of mappings among books and users At exit , it can be either completely automatic as mentioned above or a person has to check explicitly for next issue date and mappings of user and book IDs.

3.3 User Organization

There are many public libraries which still use age old technique of maintaining data in books, using online library management, users can handle renewal of books , checking for availability of books with ease and convenience and Librarians can manage data very easily using database of users and books. The target users of the software are organizations that wish to simplify the management, monitoring and analysis of their library.

4. SYSTEM OBJECTIVES

- Improvement in control and performance

  The system was developed to overcome the current problem occurred in library. The system must be able to validate the user, store the record and bug free.

- Save cost

  After implementing the computerized library system, library can only hire 1 or 2 staff to handle the book transaction process. With the aids of computerized system, library can save the cost of hire employee and also save the paper-cost.

- Save time

  Librarian is able to search the record in short time by pressing only few keys. Compare to previous time before implementing the system, librarian can save a lot time.

- Renewal of Book

  Renewal of book is online based, user need not visit library after every 15 days(assumption).

- Availability of books

  Can retrieve number of books available sorted according category of that particular book

- Recommendation system

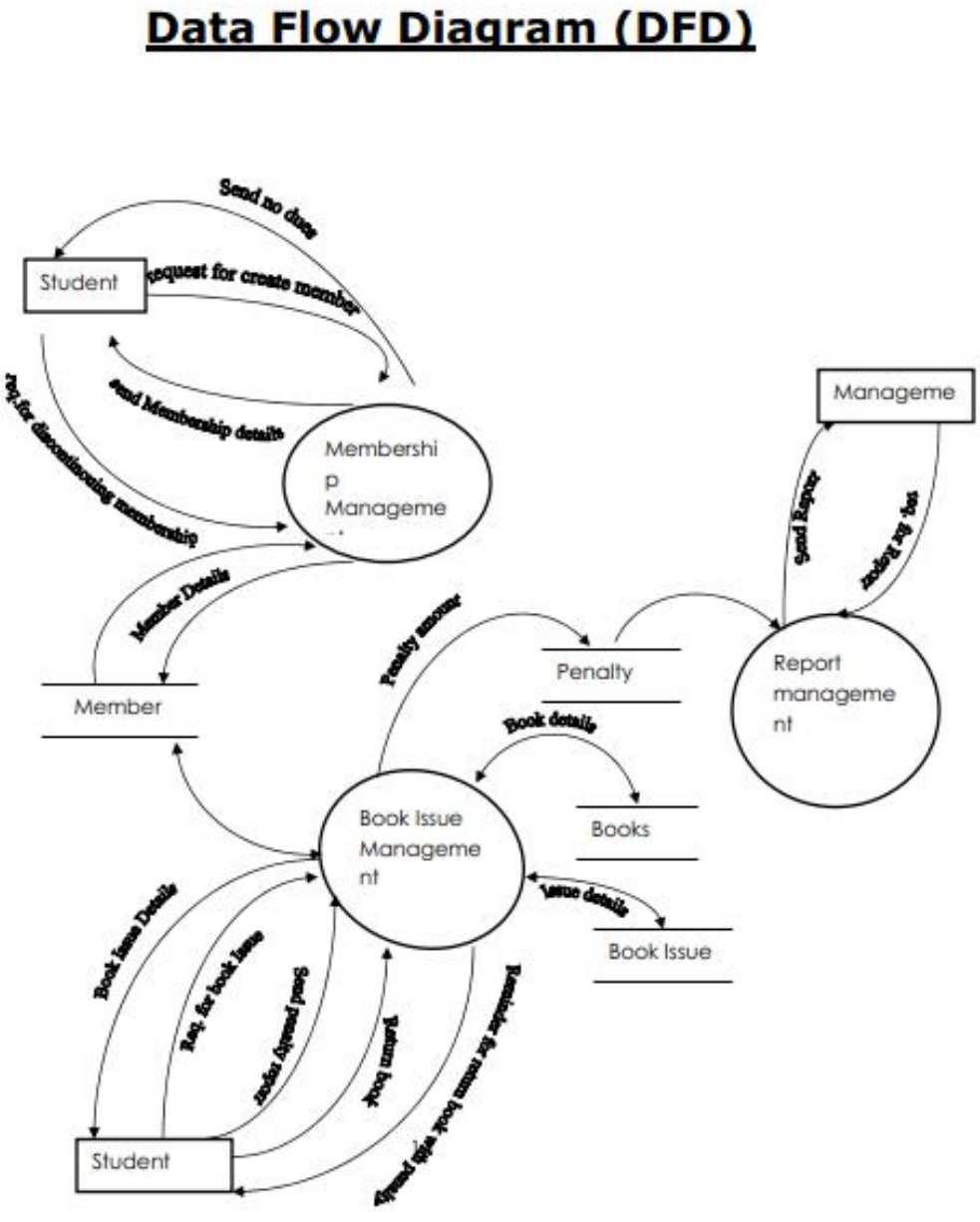
  Suggest books to different users of library based books borrowed by the user using collaborative system ,using item based collaborative system to minimize number

of calculations .

- New Arrivals

  Get updates on new arrivals of the book.

4.1 High level Block diagram showing the solution



4.2 Description of Products and Services

Most of the conventional Library systems work manually currently and do not have good use of database system.Online Library Management intends to provide better management of database ,linking between users and books . Presently, the users have to visit library for renewal of book, to check the availability of the book in the library ,stand in long queue. With the online platform of out project, user logs into the website ,following which user can check for availability of books , can renew the books ,can pay online (if any dues) . Barcode verification of users and books is not taken care in our project.
Further,software also recommends users for different books which user may like,notifications about new arrivals of the books are also sent to the users of the library.

4.3 Targeted Customers and Benefits

Our main targeted customers are users who wish to reserve their books in advance(or when books are unavailable) and save themselves the trouble of standing in long queues for renewal of books. Library management can make better revenue using our software because it assures effective management of the provided manpower ,hence reducing number of people for management of library. The software takes into account users who register in advance to borrow books from the library , users who borrow on spot services.

Special Benefits:

- Recommendation of similar boos to the user
- Renewal of books online
- Notification about new arrival of books
- Saves time of the user
- Reduces congestion due to queing in library
- Advance booking or registering to borrow books from fellow user incase of unavailabity

4.4 Technology Considerations

The library is required to have a Barcode scanner to scan the Barcode of the books. Consumers are required to have access to the internet which will allow them to use our website to book in advance. Since technologies like User Id scanner, Barcode scanners, etc are essential for the system and cannot be developed internally, a contract with a service provider is necessary and we assume that these technologies are in place for

our setup to get started.Machine learning is used to predict and analyze data. The specific technology can be finalized during implementation .
Website technology aspects:

- Design
  - Interactivity
  - Dynamic nature
  - User friendly interface
  - Backend connectivity

- Development
  - Database interface clarity
  - Use of machine learning
  - Use of APIs for better user interface

- Deployment
  - Maintainability
  - Optimal cost of deployment

5. PRODUCT/SERVICE MARKETPLACE

The marketplace for our project includes all schools, colleges, any educational institutions, book shop that requires effective library services that are configurable and need innovative applications to digitalize library.The current marketplace includes all educational institutions,corporations,central libraries,reaserach centers.While library management system is available in all these places,our primary goal is to provide customizable ,flexible system to meet needs of specific needs of library and users.The top competition we face today is from library management software like Surpass,Libsoft,Librarian which has been employed in most libraries today.However our project aims at optimizing the way orthodox library works ensuring plethora of technologies (cloud)that have evolved helps in developing good management software that is beneficial for users to save time.It is expected that the demand for efficient library system will help improve our customer base.Online adverstisements,discount offer,awareness programmes in rural areas will help in driving customers to our software.

We plan to provide online purchase with manual and offline site implementation of software and half yearly performance checks .Such facility would require significant capital investments in terms of operating and maintainance costs.We plan to approach customers in person so that they get better insight into our software.We could then customize our systems based on their floor plan with our software manging it.This will require a decent investment as a good amount of processing power will be required to keep up with dynamic changes.

6. SCHEDULE

The development of the Online Library Management System is expected to take four months starting right from approval of the project leading to the launch of the website. Many of the foudations for this platform, such as high-speed internet and web server capability are already available. The following is a high level schedule of some significant for this initiative:

August 9, 2017: Initiate Project

August 22, 2017: Project kickoff meeting

September 27,2017: Requirements specification and Presentation

October 18, 2017: Complete website design

November 1, 2017: Compete beta testing trials of the website

November 15, 2017: Go live with the site launch

7. FINANCIAL PROJECTIONS

The assumptions for these projections are as follows:

a. In store sales projections remain unchanged

b. All milestones are performed in accordance with the schedule

c. All transactions are closed yearly with no carry-over to subsequent years

Assuming that the developer is paid $35 per hour and he works 40 hours a week.

The project extends for a duration of 4 months.

Therefore the total cost incured is 35*40*4*4, i.e, $22,400.

8. ISSUES

We have compiled this list, although not exhaustive, we feel that these security issues and points do need to be considered in most cases.

- To validate or trust content on import, particularly digital content, coming into the system from external sources.
- Information about issue and return of the books is should be properly maintained.
- The system as to cope with new technologies like recomendation systems.

9. ASSUMPTIONS AND CONSTRAINTS

- The information of all users, books and libraries must be stored in a database that is accessible by the website.
- MS SQL Server will be used as SQL engine and database.
- The Online Library System is running 24 hours a day.
- Users may access WLMS from any computer that has Internet browsing capabilities and an Internet connection.
- Users must have their correct usernames and passwords to enter into their online accounts and do actions.

10. ALTERNATIVES

Let's dicuss two alternatives for our system.

10.1 Virtual Library Management System

Giving a 360 degree view to the users(Students, Librarian and Staff) of the library and including selection at every part of different collections of books on the GUI itself. Onclicking or selecting a book a Steering wheel appears with set of options, any of the operations mentioned on the steering wheel can be performed, like opening the book, keeping back the book, reserving, display of table of contents, etc.

Cost-benefit analysis:
Accuracy: It might be a challenging issue, since retrieving data in the form of Text or image is easier than retrieving a high end video from a 360 degree camera.
Evaluation: Users will be able to get a clear cut experience from the Interface. It gives nearly a real experience of an actual library. But at the developers side, it will be challening to implement such a complex system.

Even though the system implementation almost remains to be the same, it would cost more than the proposed model as it includes the cost of using high end cameras.

10.2 Advanced Library Management System(ALMS)

The Advanced Library Management System (ALMS) virtualizes the locations of cartridges in the TS3500 tape library.
ALMS is an extension of IBM's patented Multi-Path Architecture. With ALMS, the TS3500 tape library is the industry's first standards-based tape library to virtualize the locations of cartridges (called SCSI element addresses) while maintaining native SAN attachment for the tape drives. ALMS enables logical libraries to consist of unique drives and ranges of volume serial (VOLSER) numbers, instead of fixed locations.
ALMS provides the following capabilities:

1)Dynamic partitioning (storage slot pooling and flexible drive assignment)
2)The transparent ability to add or remove storage capacity to any host application

3)The ability to configure drives or to configure Model L22, L23, L32, L52, or L53 storage capacity without taking the library offline

4)Virtual I/O slots to automatically manage the movement of cartridges between I/O slots and storage slots

If you purchase an entry-capacity or intermediate-capacity library, you can purchase the new Entry ALMS or Intermediate ALMS at a price lower than the Full ALMS.

11.FINDINGS AND RECOMMENDATIONS

The findings of this feasibility study show that this initiative will be highly beneficial to the organization and has a high probability of success. Key findings are as follows:

11.1 Project objectives

- Summary of issues concerning: - development and implementation
  - Assumptions, constraints, and limitations
  - Project scope

- Results of research on hardware and software alternatives, technology, marketing, financial etc. Example could be like

  Technology:
  - Will utilize existing technology which lowers project risk
  - Ecommerce infrastructure will be contracted out to vendor which allows ABC to share risk
  - Once in place this technology is simple to operate and maintain for a relatively low cost

  Marketing:
  - This initiative will allow ABC to reach large number of target groups electronically at a low cost
  - ABC can expand customer base beyond geographic areas where stores are currently located
  - The marketplace for online chocolate and confection sales is in a steady state of growth
  - ABC is able to differentiate itself from its competitors and will utilize incentive programs to target new consumers

  Organizational:
  - Minimal increases to staffing are required with no changes to organizational structure
  - No new facilities or capital investments are required

Financial:

- Break-even point occurs early in the second year of operation
- Five-year projections show online sales accounting for 25% of total sales
- ABC will be in position to capture greater market share by maintaining both an in-store and online presence

- Significant risk factors

- Feasibility recommendation(s)

PROJECT PLAN

(Typically, not part of feasibility Study but being done as a supplement for the cla``````````````````ss project)

1. **Deliverables of the Project**
2. **Process Model which you intend to follow**
3. **Identification of the upstream-downstream partners needed for the product**
4. **Resources needed for the project/product**
5. **How are you organizing your team in the project?**
6. **Standards-Guidelines-Procedures**
7. **Communication Mechanism**
8. **Risks**
9. **Quality Criteria**
10. **Work Packages**
11. **Budget and Schedule**

    High level schedule is already present in Feasibility Study.

    Detailed work breakdown with individual ownership

12. **Delivery means**