Library Content Management System

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Abstract

A Content Management System (CMS) is a combination of large database and file system which are used to store and later retrieve huge amounts of data. At the college level, the Library Content Management System stores and manages the college’s electronic documents, journals, magazines and other resources so that the students and faculty members of the college can reuse the information across different applications. It is used to organize and facilitate collaborative content creation. The basic idea behind a Library CMS is to separate the content management from design. Page designs are stored in templates while the content may be
stored in a database or separate files. The benefits a Library CMS offers are both for website administrators and authors. A Library CMS allows students and professors to easily and quickly access the resources. A Library CMS establishes defined publishing processes and specific publishing rights to various individuals. These entire facilities make the users save the time for training, facilitate more people to access the resources whenever and wherever they want.

INTRODUCTION
A Content Management System (CMS) is a system used to manage the content of a Web site. Typically, a CMS consists of two elements: the content management application (CMA) and the content delivery application (CDA). The CMA element allows the content manager or author, who may not know Hypertext Markup Language (HTML), to manage the creation, modification, and removal of content from a Web site without needing the expertise of a Webmaster. The CDA element uses and compiles that information to update the Web site. The features of a CMS system vary, but most include Web-based publishing, format management, revision control, and indexing, search, and retrieval.

The Web-based publishing feature allows individuals to use a template or a set of templates approved by the organization, as well as wizards and other tools to create or modify Web content. The format management feature allows documents including legacy electronic documents and scanned paper documents to be formatted into HTML or Portable Document Format (PDF) for the Web site. The revision control feature allows content to be updated to a newer version or restored to a previous version. Revision control also tracks any changes made to files by individuals. An additional feature is indexing, search, and retrieval.

A CMS system indexes all data within an organization. Individuals can then search for data using keywords, which the CMS system retrieves.

Library Content Management Systems (LCMS) is a Web Content Management System. A web content management system (web CMS) is a bundled or stand-alone application to create, manage, store and deploy content on Web pages. Web content includes text and embedded graphics, photos, video, audio, and code (e.g., for applications) that displays content or interacts with the user. A web CMS may catalog and
index content, select or assemble content at runtime, or deliver content to specific visitors in a requested way, such as other languages.

The Library Content Management software will allow for the digitalization and archiving of magazines, digital video and audio materials so that the users may annotate, analyze, evaluate and share materials. And as it a Web CMS thus it have an online interface and thus can be accessed anytime and anywhere in a system that have internet connection.

This Library Content Management System project is exclusively designed for a university or college library wherein the main objective is storing of the scanned copies of all the magazines, journals, video tutorials, etc. which are subscribed by the library and then these scanned copies of the magazines will be made available to the students for accessing and reading, online on a dedicated Library Website for this known as LCMS website.

**BASE IDEA.**

This Library Content Management System project is based on the management of the contents and resources of a library. This Library Content Management System Software has been designed and developed to fulfil all the requirements and needs for archiving the resources of a library. Content Management System (CMS) is a computer program that allows publishing, editing and modifying content as well as maintenance from central interface. This Library CMS is used to run the official Library Content Management System website which will contain the articles, news, blogs and notifications about the library and its resources. This website enables the Library to avoid the need of hand coding and support it for specific elements or entire pages. It will enable the preservation of books and resources, provides security in case of disaster, as well as includes functions such as Web Based Publishing, Format Management, Revision and Version Control, indexing, searching and retrieval. The Library Content Management software, as a final product, will allow for the digitalization and archiving of magazines, digital video and audio materials so that the users may annotate, analyse, evaluate and share materials. It can be accessed anytime and anywhere.
SYSTEM ARCHITECTURE

Use Case Diagram:

![Use Case Diagram: User](image-url)

**Figure**: Use Case Diagram: User
Library Content Management System

Figure: Use Case Diagram: Admin

Data Flow Diagram:

Figure 1: Data Flow Diagram: Level 0
Figure 1. Data Flow Diagram: Level 1

Figure 2. Data Flow Diagram: Level 2
Sequence Diagram:

- **Library Content Management System**

  ![Sequence Diagram](image)

  - **User**
    - Request For Login
    - If Denied, Exit
    - Request for Content
    - Request to Perform Operations (Select/Copy/New Content)
    - Request for Logout
    - Acknowledge Send to User
    - Acknowledgement Send Back
    - User Logged Out

  - **LCMS Interface**
    - Authentication of User
    - User Authentication (Accepted/Denied)
    - Request Send to System
    - Requested Content Displayed to User
    - Requested Content Send to Interface

  - **System**
    - Check in Database
    - Verification in Database
    - Requested Content Searched in Database
    - Database Sends Requested Content
    - Request Send to System
    - Acknowledgement Send Back
    - Request Performed in Database
    - Acknowledgement Send Back

  - **Database**
    - Connection Terminated & Acknowledge Send Back
GUI MODEL

Figure: GUI model
IMPLEMENTATION.
The User Interface near at the client or user side is kept as simple as possible of the sake of understanding in the initial stages of use. The major part of the GUI is developed using Visual Studios and SQL Server. The implementation is easily understood by dividing this task into several steps. First we will see the implementation of mobile clients, then the web server and database further we will see how we are integrating external map service with our application.

Client Side
A web client is an internet browser. The client programming language and IDE is C#, ASP.NET, Visual Studios. The GUI has been done using ASP.NET, HTML and CSS. C# has been used for the main programming language.

Server side
The application needs centralized database for the purpose of location sharing. SQL Server was used for the database and C# was used for implementing server functions to modify these data as user demands. First we fulfil this need by using local server on Personal computer (PC) .For this purpose we used software named Microsoft SQL Server In this application, once a client sends its request over the network to the server, it is then up to the server to interpret the request and generate an appropriate response. The application’s receiving end on the server is a ASP.NET page which is a regular HTML page with two elements added: First, the file’s name ends with the “.aspx” extension, so that the web server knows that it should be interpreted specifically. Second, the file includes some server-side code instructions, such as getting the current date that the server should perform before sending the page to the client side. In the application’s main menu shown to the user, lists of available layer names are displayed for the user to select. Once the user makes his selection, the client connects to the server and transmits the user’s request parameters using GET/ PUT method, which fires the C# code execution on the server. The C# code is used to reach the database and form a dynamic HTML page with the data pulled out from the database. In the application, C# code mostly contains SQL statements to make the queries in the database. The resulting data is then sent back to the client. The communication with web server takes place over the TCP/IP protocol.
**User Interfaces**

*Logic interface:*
In case the user is not registered yet, he/she can enter the details and register. If he/she is already registered then it will ask for username and password. If the user either entered the username or password incorrectly, then an error message occurs.

*Search:*
The user can search the article or a particular magazine or journal according to the date of issue, particular article title, or the journal title, etc.

*Admin Control Panel:*
This particular panel will allow the admin to add the journal and magazine, confirm, add or delete members

**CONCLUSION**
Library Content Management Software will be a Web Content Management System and thus will provide an online and easy access to all the library for the users wanting to access the resources that are stored online.

Thus Library Content Management System Software has been designed and developed to fulfill all the requirements and needs for archiving the resources of a library.

Thus it will allow the digitalization and archiving of magazines, digital video and audio materials so that the users may annotate, analyze, evaluate and share materials.

It will enable the preservation of books and resources, provides security in case of disaster, as well as includes functions such as Web Based Publishing, Format Management, Revision and Version Control, indexing, searching and retrieval.

The students and professors will no longer have to face unavailability of resources and thus they can get an easy access whenever they want.
Library Content Management System

It will also come handy when the resources are used elsewhere for supervised learning as the user can copy/print the desired articles/resources. Thus the users can save the articles of their area of interest for learning and research purposes. Library Content Management System will thus help the students and professors to a great extent.

By successful implementation of Library Content Management System, it will be very beneficial for those students who want to read magazines or journals but are unable to do so because of the unavailability of the same.

It will remove the main problem of unavailability of resources as all the resources will be made available online and the user can access the magazines anywhere and anytime provided he/she has a valid account.

FUTURE WORK
The scope for future work is wide open for the Library Content Management System. As the content management systems have a wide range of applications, we can implement these features of CMS to this Library Content Management System.

- In future we can expand this LCMS software and include wide range of features like:
- More features like advanced menu management, polls management, graphics modification tool, users’ management
- Variety of content types like videos, polls, user management, text, blogs, podcasts, statistics, and others.
- Advanced users management
- Advanced Administration
- Features like blogging, sharing, recommendations.
- Features like uploading from user side.
- Development of Mobile and Android application for this LCMS

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