




# SOFTWARE REQUIREMENTS SPECIFICATION

## LIBRARY INFORMATION SYSTEM

[FOR RESEARCH PURPOSE ONLY]

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## 1. Introduction

### 1.1. Purpose

The purpose of this document is to describe the external behavior of the Library Information System. Requirements Specification defines and describes the operations, interfaces, performance, and quality assurance requirements of the Library Information System.

### 1.2. Scope

The Software Requirements Specification captures all the requirements in a single document. The Library Information System that is to be developed provides the members of the Library and employees of the library with books information, online blocking of books and many other facilities. The Library Information System is supposed to have the following features:

- The product provides the members with online blocking of books capabilities and the Library Information System is up and running all day.
- The system provides logon facility to the users.
- The system provides the members with the option to check their account and/or change their options like password of the account whenever needed all through the day during the library hours.
- The system allows the members to block the books 24 hours a day and all the through the semester.
- The system lets the library staff to check which all members have blocked the books and whether they can borrow any more books or not.
- The system allows the Librarian to create the books catalog, add/delete books and maintain the books catalog.
- The system updates the billing system as and when the member borrows or returns a book.
- The book catalog is automated and the decision of offering the book based on the category of the book is automatically decided.
- We also have an order department, which manages to add or remove a book from the Library.

The features that are described in this document are used in the future phases of the software development cycle. The features described here meet the needs of all the users. The success criteria for the system is based in the level up to which the features described in this document are implemented in the system.

### 1.3. Definitions, acronyms, and abbreviations

[The definitions, acronyms, and abbreviations of this SRS]

### 1.4. References

[The references of this SRS]

### 1.5. Overview

The SRS will provide a detailed description of the Library Information System. This document will provide the outline of the requirements, overview of the characteristics and constraints of the system.

Section 2 of the SRS will provide the general factors that affect the product and its requirements. It provides the background for those requirements. The items such as product perspective, product function, user characteristics, constraints, assumptions and dependencies and requirements subsets are described in this section.

Section 3 of SRS contains all the software requirements mentioned in section 2 in detail sufficient enough to enable designers to design the system to satisfy the requirements and testers to test if the system satisfies those requirements.

## 2. Overall description

### 2.1. Product perspective

The Library Information System is a package to be used by Libraries to improve the efficiency of Librarians, Library employees and Users. The Library Information System to be developed benefits greatly the members and the Librarian of University of Houston-Clearlake. The system provides books catalog and information to members and helps them decide on the books to borrow from the library. The Librarian can keep the books catalog updated all the time so that the members (students and the professors) get the updated information all the time.

### 2.2. Product functions

The Library Information System provides online real time information about the books available in the Library and the user information. The Product functions are more or less the same as described in the product perspective. The functions of the system include the system providing different type of services based on the type of users [Member/Librarian].

- The member should be provided with the updated information about the books catalog.
- Provisions for the members to borrow the books they want, if all the other required rules hold good.
- The member is given a provision to check his account information and change the account information any time in the given valid period.
- The members are provided with the books available roster and allowed to choose the books, which they want to use in the coming up days.
- The librarian can get the information about the members who have borrowed or returned the books.
- The librarian is provided with interfaces to add/delete the books available in the book catalog.
- The members when complete the book borrowing or returning process, the due to be paid by the member must be calculated and the information about the member and the due amount is sent to the university billing system.
- The system uses the University information security requirements to provide the login facility to the users.

### 2.3. User characteristics

The users of the system are members, librarian of the university and the administrators who maintain the system. The members and the librarian are assumed to have basic knowledge of the computers and Internet browsing. The administrators of the system to have more knowledge of the internals of the system and is able to rectify the small problems that may arise due to disk crashes, power failures and other catastrophes to maintain the system. The proper user interface, users manual, online help and the guide to install and maintain the system must be sufficient to educate the users on how to use the system without any problems.

#### 2.4. Constraints

- The information of all the users must be stored in a database that is accessible by the Library Information System.
- The university information security system must be compatible with the Internet applications.
- The Library Information System is connected to the university computer and is running all 24 hours a day.
- The users access the Library Information System from any computer that has Internet browsing capabilities and an Internet connection.
- The billing system is connected to the Library Information System and the database used by the billing system must be compatible with the interface of the Library Information System.
- The users must have their correct usernames and passwords to enter into the Library Information System.

#### 2.5. Assumptions and dependencies

- The users have sufficient knowledge of computers.
- The University computer should have Internet connection and Internet server capabilities.
- The users know the English language, as the user interface will be provided in English
- The product can access the university student database

### 3. Specific requirements

#### 3.1. Functionality

##### *3.1.1. Logon Capabilities*

The system shall provide the users with logon capabilities.

##### *3.1.2. Mobile Devices*

The Library Information System is also supported on mobile devices such as cell phones.

##### *3.1.3. Alerts*

The system can alert the Librarian or the administrator in case of any problems.

#### 3.2. Usability

- The system shall allow the users to access the system from the Internet using HTML or it's derivative technologies. The system uses a web browser as an interface.
- Since all users are familiar with the general usage of browsers, no specific training is required.
- The system is user friendly and self-explanatory.

#### 3.3. Reliability

The system should be very reliable due to the importance of data and the damages incorrect or incomplete data can do.

##### *3.3.1. Availability*

The system is available 100% for the user and is used 24 hours a day and 365 days a year. The system shall be operational 24 hours a day and 7 days a week.

##### *3.3.2. Mean Time Between Failures (MTBF)*

The system will be developed in such a way that it may fail once in a year.

##### *3.3.3. Mean Time to Repair (MTTR)*

Even if the system fails, the system will be recovered back up within an hour or less.

##### *3.3.4. Accuracy*

The accuracy of the system is limited by the accuracy of the speed at which the employees of the library and users of the library use the system.

##### *3.3.5. Maximum Bugs or Defect Rate*

Not specified.

##### *3.3.6. Access Reliability*

The system shall provide 100% access reliability.

### 3.4. Performance

#### 3.4.1. *Response Time*

The Splash Page or Information page should be able to be downloaded within a minute using a 56K modem. The information is refreshed every two minutes. The access time for a mobile device should be less than a minute. The system shall respond to the member in not less than two seconds from the time of the request submittal. The system shall be allowed to take more time when doing large processing jobs.

#### 3.4.2. *Administrator/Librarian Response*

The system shall take as less time as possible to provide service to the administrator or the librarian.

#### 3.4.3. *Throughput*

The number of transactions is directly dependent on the number of users, the users may be the Librarian, employees of the Library and also the people who use the Library for checking-out books, returning books and checking online library account.

#### 3.4.4. *Capacity*

The system is capable of handling 250 users at a time.

#### 3.4.5. *Resource Utilization*

The resources are modified according the user requirements and also according to the books requested by the users.

### 3.5. Supportability

The system designers shall take in to considerations the following supportability and technical limitations.

#### 3.5.1. *Internet Protocols*

The system shall be complied with the TCP/IP protocol standards and shall be designed accordingly.

#### 3.5.2. *Information Security Requirement*

The system shall support the UHCL information security requirements and use the same standard as the UHCL information security requirements.

#### 3.5.3. *Billing System Data Compatibility*

The member balance amount that will be calculated and sent to the billing system shall be compatible with the data types and design constraints of the billing system.

#### 3.5.4. *Maintenance*

The maintenance of the system shall be done as per the maintenance contract.

#### 3.5.5. *Standards*



The coding standards and naming conventions will be as per the American standards.

### 3.6. Design Constraints

#### 3.6.1. *Software Language Used*

The languages that shall be used for coding the Library Information System are Active Server Pages (ASP), Java Servlets, Java Server Pages (JSP), HTML, JavaScript, and VBScript. For working on the coding phase of the Library Information System, the Internet Information Services (IIS) Server needs to be installed.

#### 3.6.2. *Development Tools*

Will make use of the available Java Development Tool kits for working with Java Beans and Java Server Pages. Also will make use of the online references available for developing programs in ASP, HTML and the two scripting languages, JavaScript and VBScript.

#### 3.6.3. *Class Libraries*

Will make use of the existing Java libraries available for JSP and Servlets. Also we need to develop some new libraries for the web-based application. Also will develop new programs using ASP and scripting languages.

### 3.7. On-line User Documentation and Help System Requirements

Online help is provided for each of the feature available with the Library Information System. All the applications provide an on-line help system to assist the user. The nature of these systems is unique to application development as they combine aspects of programming (hyperlinks, etc) with aspects of technical writing (organization, presentation). Online help is provided for each and every feature provided by the system.

The User Manual describes the use of the system to Librarian and Employees. It describes the use of the system on mobile systems. The user manual should be available as a hard copy and also as online help.

An installation document will be provided that includes the installation instructions and configuration guidelines, which is important to a full solution offering. Also, a Read Me file is typically included as a standard component. The Read Me includes a "What's New With This Release" section, and a discussion of compatibility issues with earlier releases. Most users also appreciate documentation defining any known bugs and workarounds in the Read Me file.

Since the installation of Library Information System is a complex process, our experts will do it. So an installation Guide will not be provided to the user.

### 3.8. Purchased Components

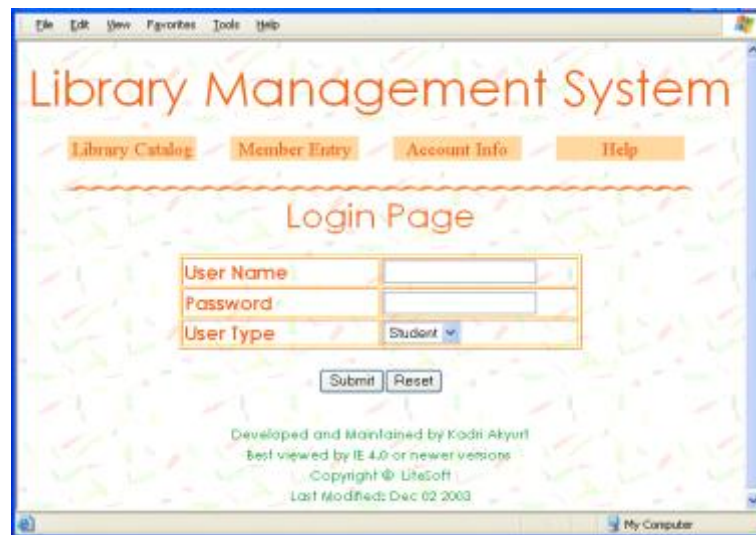
The System Administrator will need to purchase the license for IIS Server. Mostly it is available with Windows Environment. So the system need not purchase any licensing products.

### 3.9. Interfaces

#### 3.9.1. User Interfaces

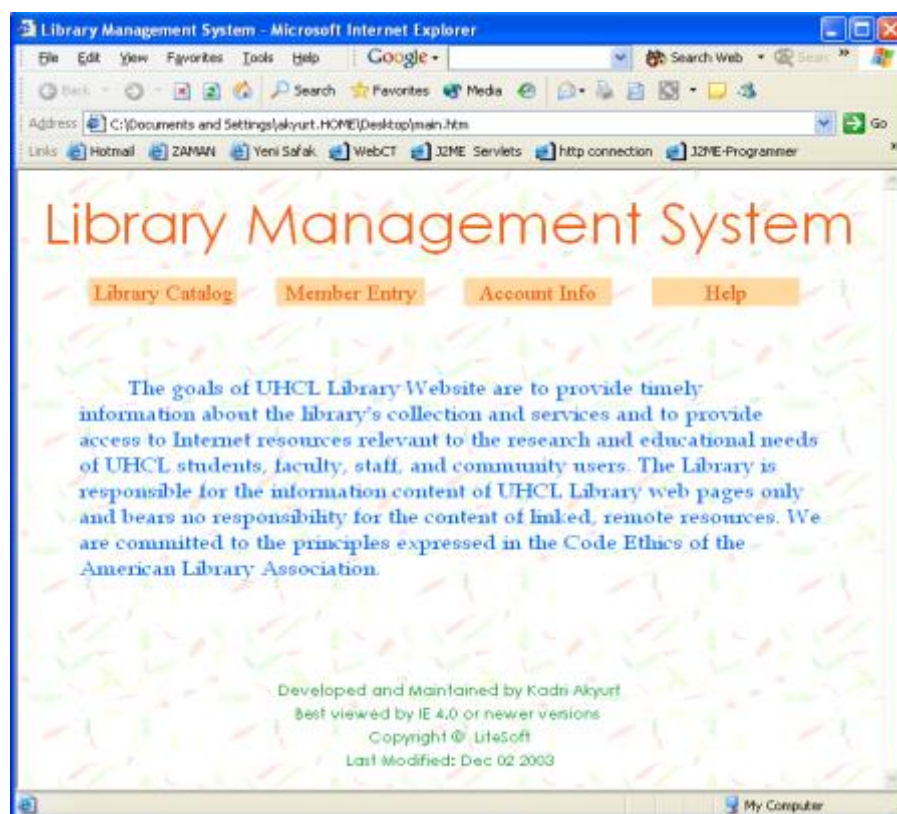
Will make use of the existing Web Browsers such as Microsoft Internet Explorer or Netscape. The user-interface of the system shall be designed as shown in the user-interface prototypes.

##### Logon Screen Prototype:



The screenshot shows a web browser window titled "Library Management System". The page has a light yellow background with a subtle pattern of small, colorful dots. At the top, there are four orange buttons: "Library Catalog", "Member Entry", "Account Info", and "Help". Below these buttons is a dashed line, followed by the text "Login Page" in a large, orange, serif font. Underneath, there is a login form with three input fields: "User Name", "Password", and "User Type". The "User Type" field is a dropdown menu with "Student" selected. Below the form are two buttons: "Submit" and "Reset". At the bottom of the page, there is a small text block: "Developed and Maintained by Kadri Akyurt", "Best viewed by IE 4.0 or newer versions", "Copyright © LiteSoft", and "Last Modified: Dec 02 2003". The browser's status bar at the bottom shows "My Computer".

##### Home Page Of UHCL Library Prototype:



The screenshot shows a web browser window titled "Library Management System - Microsoft Internet Explorer". The page has a light yellow background with a subtle pattern of small, colorful dots. At the top, there are four orange buttons: "Library Catalog", "Member Entry", "Account Info", and "Help". Below these buttons is a large block of text in a blue, serif font: "The goals of UHCL Library Website are to provide timely information about the library's collection and services and to provide access to Internet resources relevant to the research and educational needs of UHCL students, faculty, staff, and community users. The Library is responsible for the information content of UHCL Library web pages only and bears no responsibility for the content of linked, remote resources. We are committed to the principles expressed in the Code Ethics of the American Library Association." Below this text is a small text block: "Developed and Maintained by Kadri Akyurt", "Best viewed by IE 4.0 or newer versions", "Copyright © LiteSoft", and "Last Modified: Dec 02 2003". The browser's status bar at the bottom shows "My Computer".

##### Member Registration Screen:

Library Management System - Microsoft Internet Explorer

File Edit View Favorites Tools Help

# Library Management System

Library Catalog Member Entry Account Info Help

## Member Registration Form

Please enter your information;

First Name	<input type="text"/>
Last Name	<input type="text"/>
SSN	<input type="text"/>
Address	<input type="text"/>
Date Of Birth	<input type="text"/>
Gender	<input type="text"/>
Credit Card Number	<input type="text"/>
Credit Card Expiration Date	<input type="text"/>
Credit Card Type	Visa <input type="button" value="v"/>

My Computer

**Member Information once Logged in:**

Library Management System - Microsoft Internet Explorer

File Edit View Favorites Tools Help

# Library Management System

Library Catalog Member Entry Account Info Help

## Member Account View

Account info of Kadri Akyurt:

First Name	Kadri
Last Name	Akyurt
Member ID	123456789

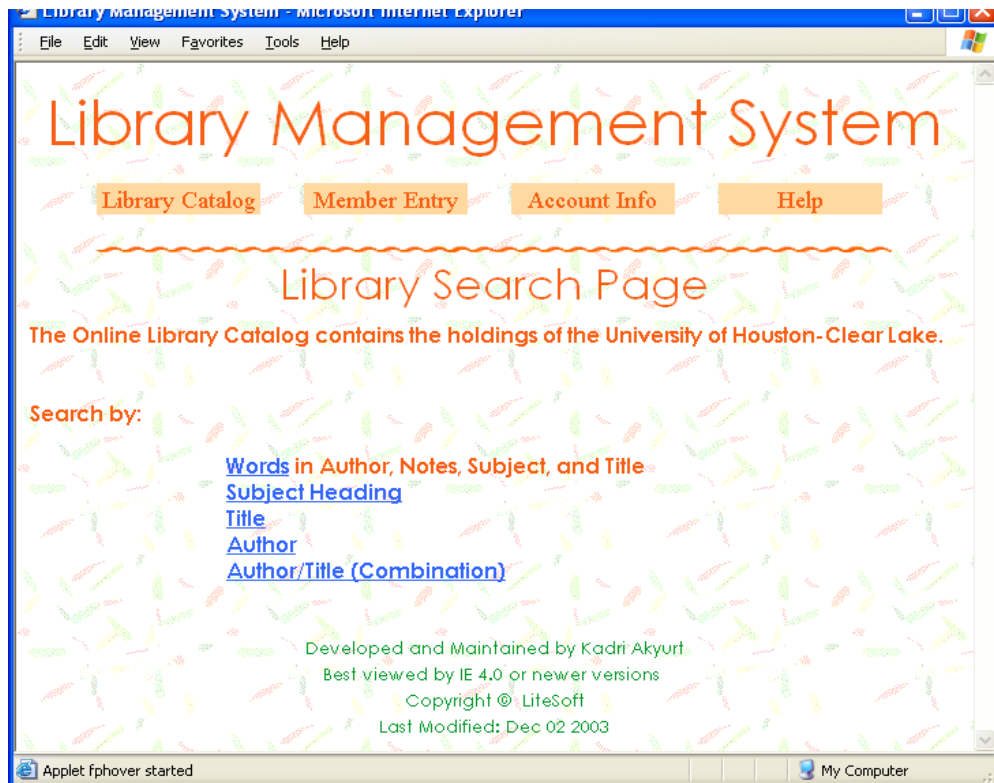
Kadri Akyurt's List of Borrowed Items:

Name	Author	ISBN
J2ME: The Complete Reference	James Keogh	0072227109
Facts and Fallacies of Software Engineering	Robert L. Glass	0321117425

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My Computer

**Main Search Page of Library Catalog:**



### 3.9.2. *Hardware Interfaces*

The existing Local Area Network (LAN) will be used for collecting data from the users and also for updating the Library Catalogue.

### 3.9.3. *Software Interfaces*

A firewall will be used with the server to prevent unauthorized access to the system.

### 3.9.4. *Communications Interfaces*

The Library Information System will be connected to the World Wide Web.

## 3.10. *Licensing Requirements*

The usage is restricted to only University of Houston-Clearlake Library who is purchasing the Library Information System from Library InfoSys and signs the maintenance contract.

## 3.11. *Legal, Copyright, and Other Notices*

Library Information System is a trademark of Library InfoSys and cannot be used without its consent.

## 3.12. *Applicable Standards*

The ISO/IEC 6592 guidelines for the documentation of computer based application systems will be followed.

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