

World War I - Access Enhancement Project #7

Rebaseline Life Cycle Architecture

System and Software Requirements Definition

University of Southern California
Center for Software Engineering

CSCI 577b

◆ Team 13 ◆

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Version	Date	
1.0	Oct. 28 1998	LCO draft
1.1	Nov. 04 1998	LCO
2.0	Dec. 02 1998	LCA draft
2.1	Dec. 14 1998	LCA
3.0	Feb. 11 1999	<p>Rebaseline LCA draft, TOC format, Changed number, Added project requirements, Changed output for TOC, Changed field for TOC, Changed modify field for TOC, Chenged Programming Language, Erased Hardware assumption, Changed Tools, Changed Programming Language, Changed Computer Hardware requirements, Changed computer software requirements, Changed Package Requirements(Erased 2/18), Erased some capability evolutions, Added Error, Modified references, Modified Capability Requirements, Added some clarifications or detailed explanations.</p>
3.1	Feb. 18 1999	<p>Changed Administrative subsystem definition, since IBM DL is used Changed NMRQ-01 description for using IBM DL Changed NMRQ-01 Input for text and PDF format Deleted NMRQ-03 search requirements from administrative subsystem Deleted NMRQ-04 change password (administrator) requirements Deleted NMRQ-07 change password (reference librarian) requirements Changed NMRQ-09 input for text and PDF format Changed NMRQ-11 description for text and PDF format Changed menu tree for administrative sub system (deleted search and change password screen) Changed menu tree for web-based subsystem (detailed result, one book record, displayed in one web page) Changed menu tree for web-based sub system (PDF file is displayed if the book is not written in English) Delete change password button, report button, and search button Changed fields for TOC and abstract format Deleted Change password screen for administrative system Deleted Search function for administrative system Add search field " Language" Main result screen is the list of book title and author, user choose one book and see detailed book description (I-2). Detailed book description consists of title, author, imprint, call number, abstract, TOC, and language. All information is displayed as text or PDF file. Deleted librarian's requirement (formally NMRQ-06) Deleted "report" function from administrative subsystem If the book is written in non-English or the information contains map image, the detailed result is displayed in PDF file. So TOC is stored in image data, it is displayed in other screen from detailed book description. Add Acrobat in software requirements</p>

3.2	Feb. 19 1999	Fixed traceability Add 3.2.4 Reliability 3.2.5 Performance
3.3	Feb. 21 1999	Changed the administrative subsystem interface, which will be built on IBM DL.(Rajnish e-mail 2-21-1999,1:42PM)
3.4	Feb. 22 1999	Added one capability requirement Changed the delete/modify user interface
3.5	Feb. 23 1999	Changed the OCD responsibility number to keep consistency

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1. Introduction

The SSRD describes the requirements for the World War I Access Enhancement System. The requirements are divided into several categories such as project requirements, system requirements and quality requirements. The requirements cover both hardware and software. The SSRD also provides constraints for the project and assumptions used.

1.1 Purpose of the System and Software Requirements Definition Document

The main purpose of this document is to identify the requirements and global constraints that the system being developed will satisfy. This system is designed for searching information on World War I books. The requirements relate to all the important stakeholders in the project such as the customer (i.e. VKC Library, users who are the patrons, and the team developing the project. The document divides the requirements into the following categories Project Requirements, the System's Functional Requirements, Quality Attribute Requirements, System Interface Requirements, Environment and Data Requirements, and Evolution Requirements. This is very important because all the stakeholders should agree on one consistent view of the various requirements of the system.

1.2 References

[Operational Concept Description](#)

This document depends on the OCD's "Statement of Purpose", "Project Goals", and "System responsibilities".

WinWin tool – result

The Outline of this document is based on Winwin taxonomy.

2. Capability Requirements

This section explains the overall project, and system functional requirements.

2.1 System Definition

We plan to provide a Web Based Interface to the VKC library users in order to help them find information on World War I books, which will be moved to remote storage in the future. The system will enable users to browse through detailed information about the book. The World War I – Access Enhancement system has two main parts. The first part is the one that provides a web interface to access the information about these books. The second part provides the ISD member(s) with the ability to maintain and add information about the World War I books. World War I book information will be stored in database. The information will be searched by search engine. The users can search the information with using Internet browser. Both of these parts are now explained in further detail.

[Consistent with Statement of Purpose ([OCD 3.1](#))]

2.1.1 Administrative subsystem

In order to achieve one of the purposes written in [OCD 3.1.2](#), the ISD member(s) should maintain the information of World War I books. The ISD member(s) uses this part to maintain the information about the World War I collection. To input the information into the database, the librarian asks the inputting the data to the ISD member. The ISD member input the data into the database using the administrative system built on IBM Digital Library. The ISD staff using this may have little or no computer education. The ISD member(s) will have the privilege to enhance the information and modify existing information. Such a capability cannot be provided to the general public and hence will not be permitted through the web interface. The ISD member(s) can access and change the information as required but will have to present proper authorization in the form of a code. The database will be built on the IBM Digital Library. The ISD member(s) can access the database using the administrative subsystem and modify it.

2.1.2. Web access subsystem

The main purpose of this system allow users to "view information about WWI books via the Internet" ([OCD3.1.1](#)). The students, staff and faculty of USC will access this part through the Internet. However this can be accessed by any person and there is no restriction that the person should be related to the University. This web interface will provide the users with a facility to view the information about the World War I books located in the remote storage. Users will be provided with facilities to search for particular books in the collection. They will provide some textual description that will be matched with the description of each book and the matching books will be displayed. The users will be able to access the information with using the Internet browser. The information server will be set up within USC network system. The English book information will be provided basically as a text format. If the information contains the map data, the information will be PDF format. All non-English books will be provided in PDF format.

The detailed system block diagram showing the logical system components is as shown below:

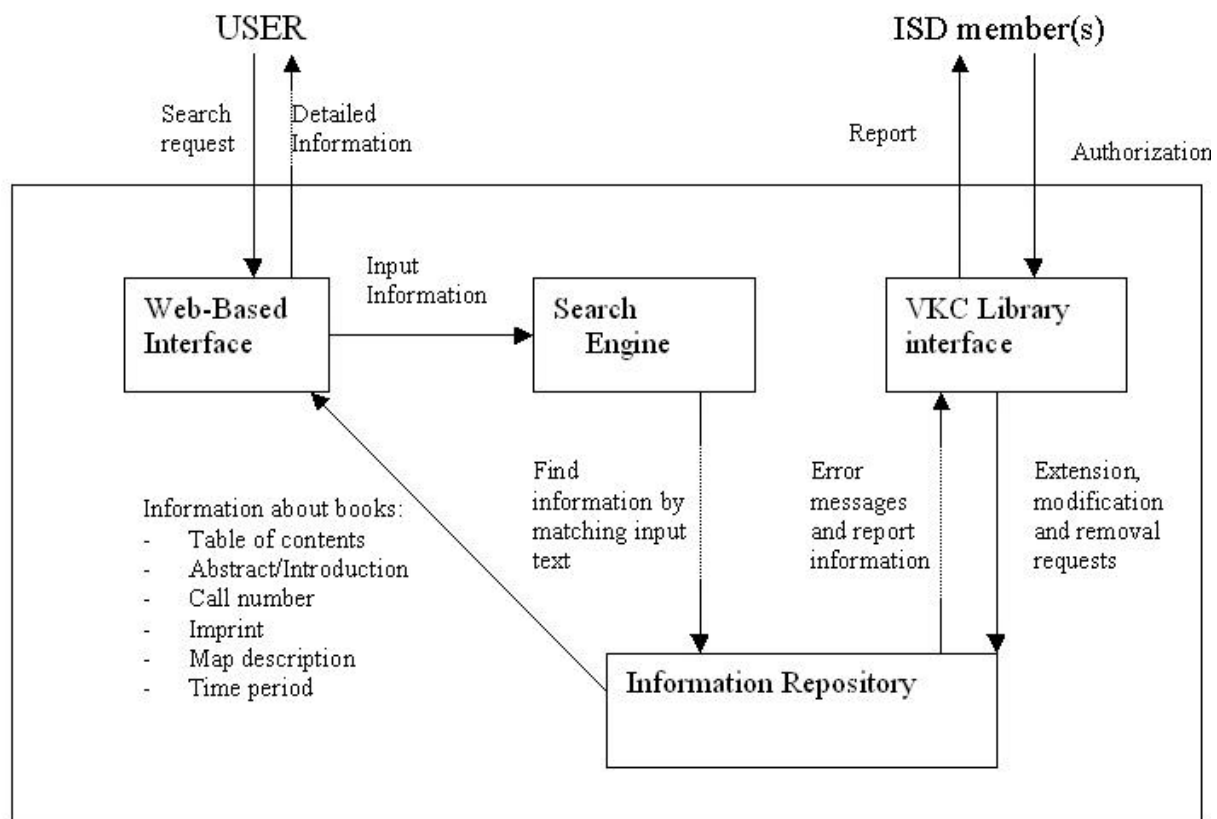


Figure 2.1 System Block Diagram

[Consistent with context diagram in System Analysis ([OCD3.1.1](#))]

2.2 Project Requirements

The project level requirements mainly consist of the requirements related to the development of the project and those that affect the overall project. The requirements related to the development process have been covered in more detail in the Life-Cycle plan. The requirements that relate to the overall project are:

1. Schedule

The development of the IOC should be achieved within 12 weeks. The Life Cycle plan has a schedule that is of 12 weeks. The CS577b team has only 12 weeks to develop this system. If this system is not completed within 12 weeks, we consider that this project requirement is not be able to achieve.

[Consistent with Project Goals' 2 ([OCD 3.2](#))]

2. Browser Independence

The WWI-AE Search Engine should be browser independent.

Allowing patrons the ability to use either Netscape's Communicator and/or Microsoft's Internet Explorer.

[Consistent with Project Goals' 1 ([OCD 3.2](#))]

3. Security

The security on the WWI-AE System should keep unauthorized user from accesses the WWI-AE Administrative Subsystem which could compromise the integrity of the system.

[Consistent with Project Goals' 4 ([OCD 3.2](#))]

2.3 System Requirements

The system consists of the two major subsystems as mentioned above. The requirements of both these parts are now discussed. The administrative and the web access subsystems have different requirements such as the security and the operations performed by them. The functional requirements of the administrative subsystem are as follows:

2.3.1 Nominal requirements

2.3.1.1 Administrative Subsystem

Number	NMRQ-01
Name	Adding information about new books.
Description	The ISD member(s) should be able to add description of new books being sent to remote storage. This will allow users to view book description, as the original book cannot be accessed directly from the shelf. The World War I book information is stored in the database. The database will be built on IBM digital library. The ISD member(s) can add, modify, and search this information via Internet. Since some books are not written English, these tables of contents and abstract will be stored image data. The English books' table of contents and abstract are stored in text style.
Priority	Very High
Rationale	The VKC library should be able to include description of books being sent to remote storage after the system is fully operational.
Input	Mandatory - Title Author Imprint Call number Table of contents (text or image) Language Optional - Abstract / Introduction (text or image) PDF file(For non-English book and English book with map information)
Action	Above information is stored in the database.
Events	Book being sent to remote storage is treated as new book.
Output	This information is provided to the users through the user interface.
Sources	Books of World War I
Traceability	OCD3.3.1 SRES-02, SSRD 3.2.1 QARQ-02

Number	NMRQ-02
Name	Modification and deletion of existing information.
Description	The ISD member(s) should be able to change the description of books, which might be inappropriate or simply add to the existing description. If a book is shifted from remote storage to the library or is lost, the ISD members(s) should be able to remove the book description. The information that the ISD member(s) modifies is in the database.
Priority	Very High
Rationale	The VKC library should be able to maintain and modify book descriptions after the system is fully operational.
Input	Same data as RQA-03 in modification.
Action	Modifications are made to the database.
Output	This information is provided to the users.
Sources	Books of World War I
Traceability	OCD 3.3.1 SRES-02, SSRD 3.2.1 QARQ-02

Number	NMRQ-05
Name	Administrative subsystem user authorization
Description	The ISD member(s) should be identified using his login and password.
Priority	High
Rationale	Only the ISD member(s) can access every function of the administrative subsystem.
Input	Password
Action	The administrative subsystem allows accessing all the administrative functions.
Traceability	OCD 3.3.1 SRES-03

2.3.1.2 Web access subsystem

Number	NMRQ-09
Name	Detailed information on World War I
Description	The users can search the information of World War book with keyword. The system should help the users such as researchers and students find desired books on World War I. The World War I books will be located in remote storage and hence users will not be able to see them like other books in the library. The World War I book information is stored in the database, so the search engine searches the information based on the keyword, which the user input, and the search result is reported to the user. The table of contents, which is stored in the image data, is not an object of the search.
Priority	Very High
Rationale	HOMER only provides users with such information as the title, author, and imprint of the books. This is insufficient in case the users are not able to see the books. Hence more information such as the table of contents, abstract, are required so that the users can better decide the book they want without actually seeing it.
Input	Any, all or some of the following Title Author Imprint Call number Table of contents(Text) Abstract(Text) Language
Action	When user input search keyword and perform search, this system starts search in the database and display result.
Output	List of books that match text supplied by the user. The user can view detailed information about these book
Traceability	OCD 3.3.2 SRES-04, SRES-05, SSRD 3.2.2 QARQ-03

Number:	NMRQ-10
Name	User should be able to communicate with the ISD staff
Description	The user might have problems in finding books or using the system and might need help. He may want to send suggestions, in such situations it is helpful if he can communicate with the ISD staff. Users can communicate with ISD staff by e-mail.
Priority	High
Traceability	OCD 3.3.2 SRES-06

Number	NMRQ-11
Name	User should be able to perform search with varying information about the book
Description	Usually the users know the name of the book or the author, they should be able to search books based on this information. They should also be able to search by providing keywords in any or all of the following fields Title Author Imprint Call number Table of contents (Text) Abstract (Text) Language
Priority	High
Input	Keyword(s)
Action	The system searches the books from the database based on the word(s) which the use input.
Output	Result of the searching(list of the books)
Traceability	OCD 3.3.2 SRES-04

Number	NMRQ-12
Name	User can search the information of World War I book from their home
Description	The user can search the information of World War I book from their home. User can access the World War I book enchanted search homepage via internet, and can search the information on it. This is similar to Homer.
Priority	High
Input	Keyword(s)
Action	The keyword, which the user input, is send to the search engine via internet and back the result via internet.
Output	Result of the searching(list of the books)
Traceability	OCD 3.3.2 SRES-04, SRES-05

2.3.2 Off-nominal Requirements

Number	ONRQ-01
Name	Error for entering data without mandatory input
Description	If the ISD member(s) enters data that does not contain the mandatory input fields, then he should not be allowed to insert the records.
Priority	Medium
Traceability	OCD 3.3.1 SRES-02

Number	ONRQ-02
Name	Error for inserting existing books
Description	If the ISD member(s) enters a call number that already exists, then he will be given an error.
Priority	Medium
Traceability	OCD 3.3.1 SRES-02

Number	ONRQ-03
Name	Error for performing search without search key
Description	If the user performs search without search key, then the system gives an error.
Priority	Medium
Traceability	OCD 3.3.2 SRES-03

3. Quality Attribute Requirements

This section describes quality attribute requirements such as the security of the system and usability of the system.

3.1 Security

Number	QARQ-01
Name	Secure access to the information.
Description	The ISD member(s) should be the only authority allowed modifying the information about the books on World War I. This is very important as the information can be accessed by anyone on the internet.
Priority	High
Rationale	The ISD staff should only be allowed to maintain and modify the information, not the general public.
Achievable Specific	When the administrative subsystem is protected from unauthorized modification, we consider that the security of the system is achieved. If the use of this system has proper ID and password, users are considered authorized person. If any wrong ID or wrong password is inputted to the system, the administrative subsystem is not activated. Using ID number and password, the system allows access to the function. One special ID (ISD member(s)) can access all function of administrative subsystem.
Traceability	OCD-3.3.1-SRES-01 , 3.4-Quality Goals4
Relevant	The administrative subsystem is designed mainly for adding and modifying the information of the database. The database should be protected from unauthorized modification. ID and password (if they are used correctly) protect the system from unauthorized modification. If the information modified wrongly, the users can't search appropriate World War I book from this system. So this system should be protected from unauthorized modification.

3.2 Usability

This section describes usability of the system.

3.2.1 Ease of learning

Number	QARQ-02
Name	Easy to input book description
Description	The person entering the data should not have to waste time figuring how to input the description. He should not have a problem in interpreting the information to be included in the description of the books. If he doesn't have much knowledge about the computer, he can input the data with a few hours of training. This system should be designed that the ISD member(s) can start working with half day training at the first day. "Working" means that the ISD member(s) can add and modify the information of World War I books.
Priority	Normal
Achievable Specific	To achieve this requirement, the system provides on-line help. And the system's user interface should be designed simple and understandable to input book description. If the ISD member(s) can add and modify the information, we consider this requirement is achieved.
Traceability	OCD 3.4 Quality Goals-3
Relevant	We assume the ISD member(s) is a not expert of using PC. If the ISD member(s) can not input the information into this system, users can not get the information of World War I books. Therefore, to make the system usable is important to this system. Providing on-line help can make users enable to use this system.

3.2.2 Ease of use

Number	QARQ-03
Name	Ease of use of application
Description	The system should be easy to use, since it will be used mainly by people who may have very little computer knowledge. If users have basic navigational knowledge of web browsers, they should be able to use the system and online help should help users.
Priority	High
Rationale	This system will mainly be used by people involved in the research of European wars and should not be complex
Achievable Specific	To achieve this requirement, the system provides on-line help. And the system's user interface should be designed simple and understandable to use web-based subsystem. We test this requirement's achievement, by doing user test. The testers should satisfy operating assumptions shown below. If the result of test shows 80% of users can search the books, which they want, we consider the system achieves this requirement.
Traceability	OCD 3.4 Quality Goals 3
Relevant	We assume the user of web-based subsystem is a not expert of using PC. If the users can not use this system, users can not get the information of World War I books. Therefore, to make the system usable is important to this system. Providing on-line help can make users enable to use this system.

3.2.3 Help requirements

Number	QARQ-04
Name	Help for using and modifying the package.
Description	The system should be self explanatory in the sense that it should provide help in using it.
Priority	Medium
Rationale	In case users or ISD member(s) are not able to perform some operation, then they should be able to find out in what way they can use the system to achieve desired results.
Input	A request by the use.
Action	Display help
Output	Help scripts
Achievable Specific	The system provides useful information to the users of the system. The on-line help should help expected pitfalls. We test this requirement's achievement, by doing user test. The testers should satisfy operating assumptions shown below. If the result of test shows 80% of users can use on-line help and know how to use this system, we consider the system achieves this requirement.
Traceability	OCD 3.4 Quality Goals 3, 3.3.1-SRES-02
Relevant	The on-line help should help users when they are in trouble in using this system. (of course the system should be designed not to get the user confused) The librarian doesn't have enough time to lecture to all users. Therefore the on-line help is important to make users use this system.

3.2.4 Reliability

Number	QARQ-05
Name	Handling of the transactions
Description	This system shall handle at least 80-90% of all completed transactions successfully, without crashing. The system crashing has an adverse affect on the usability of the system and the confidence of the users.
Priority	Medium
Achievable Specific	By logging the number of all transactions and successful transactions. Sample size depends on time available and length of service. The IBM DB2 Digital Library will be used. The reliability of the use of this system aids in the achievement of this requirement
Traceability	OCD 3.4 Quality Goals 2
Relevant	The system crashing has an adverse affect on the usability of the system and the confidence of the users.

3.2.5 Performance

Number	QARQ-06
Name	Response Time
Description	This system shall be accessed from any Internet connected machine that has an HTML compliant 'browser'. Either a modem or direct Internet connections shall support the transfer of images and data. All accesses to the system from within the University of Southern California Local Area Network (LAN) and have a direct Internet access of at least 10 MBPS shall be fulfilled by the system in two minutes or less. When the information must traverse a Wide Area Network (WAN), for which the developer has no control, then there is no system response time requirement. However, under such circumstances a goal of 3 minutes or less to fulfill every request shall be attempted.
Priority	Medium
Achievable Specific	Measured in elapsed time. With the use of the IBM DB2 Digital library, Optimization can be accomplished reducing search response times. This coupled with the use of the 'Server Object' that can store recently accessed information with minimal access penalty. Therefore aids in fast retrieval times.
Traceability	OCD 3.4 Quality Goals 1
Relevant	Adequate response times are necessary to avoid making the system unusable to the user. If the system had long response times users would avoid using the system entirely.

4. System Interface Requirements

The two most critical interfaces of this system are the administrator interface and the web based interface used by the students, faculty and general public.

4.1 Graphical User Interface

4.1.1 Administrative subsystem

These charts show the sequence of the screen. Each screen has only the button, which transit to the other screen. The other information, which each screen should have such as input field or display messages, is shown in the screen shots on section under or Appendix in OCD.

4.1.1.2. Screen Sequence

On the screen sequence, the help button is omitted.

[Consistent with Administrative Subsystem Mainstream Scenarios ([OCD5.2.1](#))]

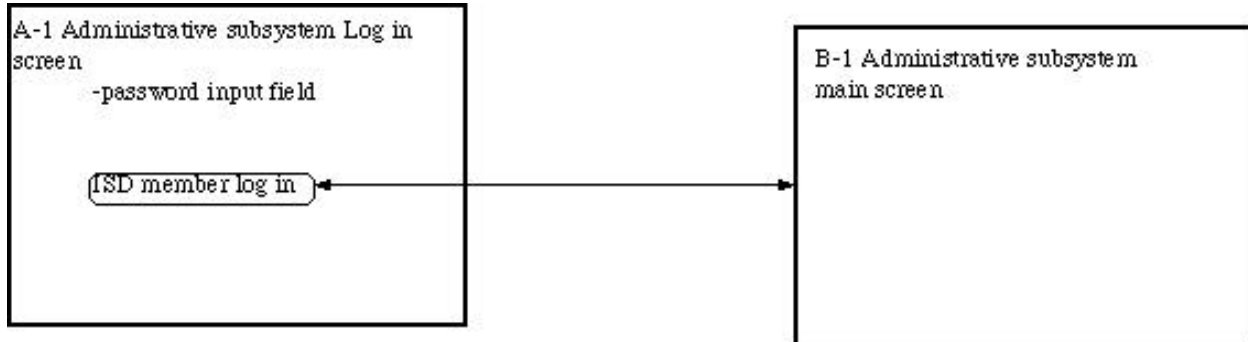


Figure 4.1- ISD member(s) interface-1

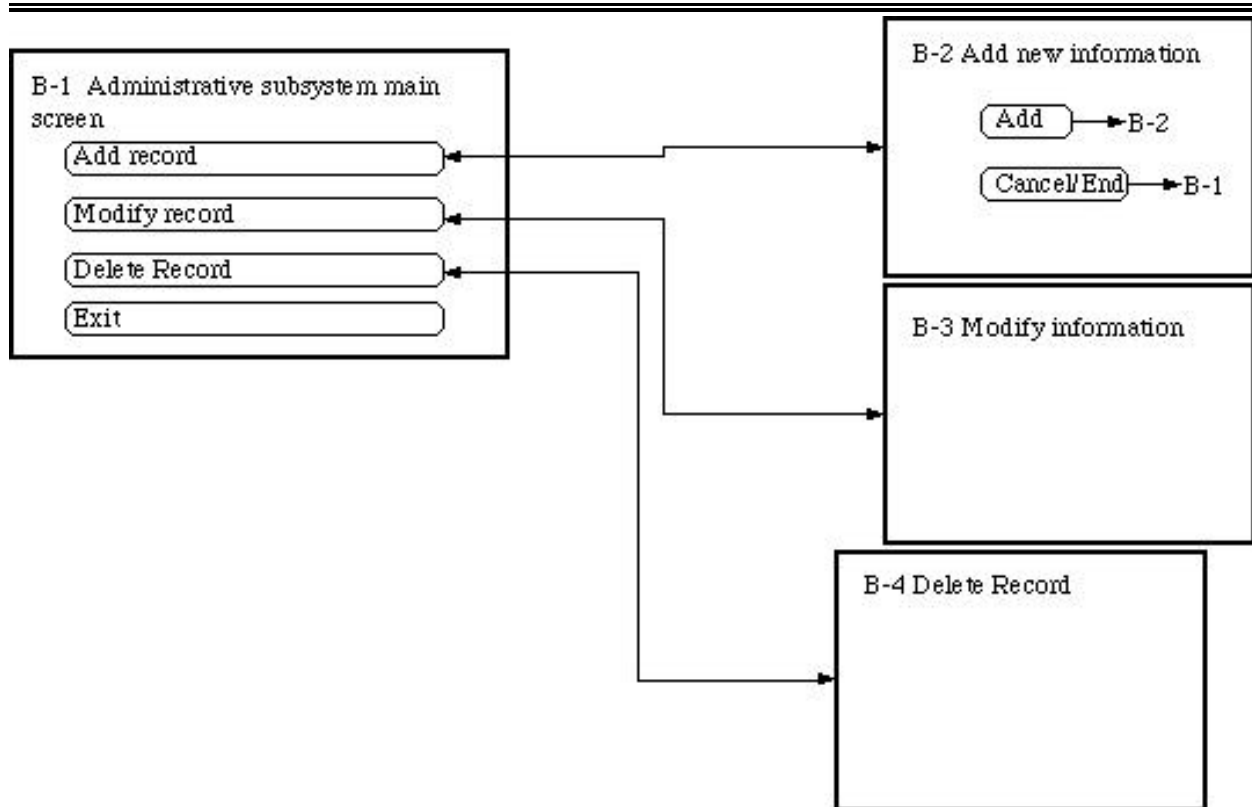


Figure 4.2- ISD member(s) interface-2 (The administrator mode)

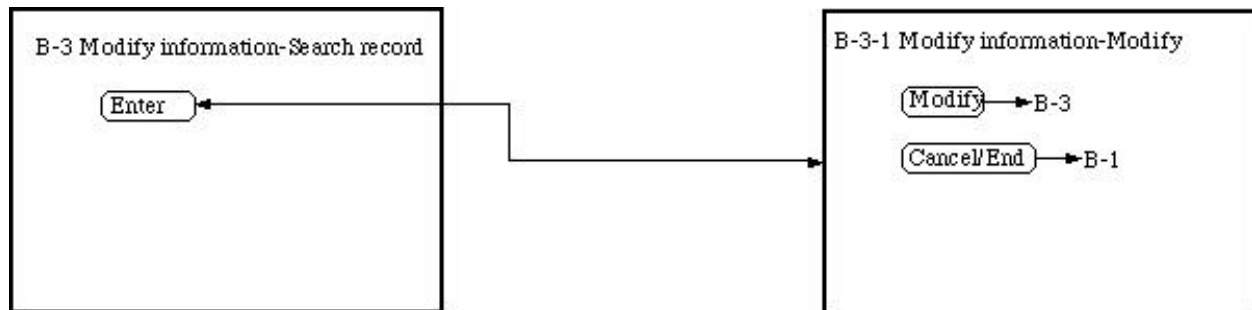


Figure 4.3- ISD member(s) interface-3 (The administrator mode)

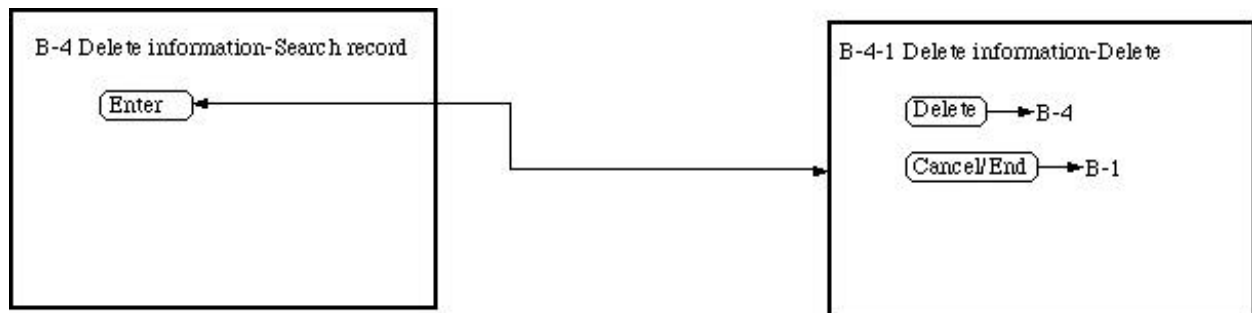


Figure 4.4- ISD member(s) interface-4 (The administrator mode)

All screens have help button, which display the information of helping user's task by text description.

The database is built on the IBM Digital Library and the ISD member(s) uses the system interface built on the IBM Digital Library. Below images are only for the user interface concept.

A-1 Administrative subsystem log in screen

This screen is for login of ISD member(s)

This screen has the following fields -login name -password
This screen has the following buttons OK Help Cancel

[Screen Image - OCD 8 Appendix [Figure P-14](#)]

[Consistent with OCD Administrative Subsystem Mainstream Scenarios SC-09([OCD5.2.1](#))]

B-1 Administrative subsystem main screen

From this screen the ISD member(s) can choose the function.

This screen has the following buttons Add Records Modify Records Delete Records Report Exit Help
--

[Screen Image - OCD 8 Appendix [Figure P-16](#)]

[Consistent with OCD Administrative Subsystem Mainstream Scenarios SC-10([OCD5.2.1](#))]

B-2 Add new information screen

The ISD member(s) can add new information from this screen.

This screen has the following fields Call number Title Author Table of contents-Text data Abstract-Text data Language PDF file(For non-English book and English book with map information)
This screen has the following buttons Add new record Cancel/home Help

[Screen Image - OCD 8 Appendix Figure [P-17](#)]

[Consistent with OCD Administrative Subsystem Mainstream Scenarios SC-11([OCD5.2.1](#))]

B-3 Modify information screen-search existing information

The ISD member(s) can search the information of the book, which he/she wants to modify the information.

This screen has the following fields Author Book title
This screen has the following buttons Cancel/home Help

[Screen Image - OCD 8 Appendix Figure [P-17](#)]

[Consistent with OCD Administrative Subsystem Mainstream Scenarios SC-11([OCD5.2.1](#))]

B-3-1 Modify information screen-modify existing information

This screen is the result of searching performed on B-3. The ISD member(s) can modify the information on this screen.

<p>This screen has the following fields</p> <ul style="list-style-type: none"> Call number Title Author Table of contents-Text data Abstract Language PDF file(For non-English book and English book with map information)
<p>This screen has the following buttons</p> <ul style="list-style-type: none"> Modify record Cancel/home Help

[Screen Image - OCD 8 Appendix [Figure P-20](#)]

[Consistent with OCD Administrative Subsystem Mainstream Scenarios SC-12([OCD5.2.1](#))]

B-4 Delete record

The ISD member(s) can search the information of the book, which he/she wants to delete the information.

<p>This screen has the following fields</p> <ul style="list-style-type: none"> Author Book title
<p>This screen has the following buttons</p> <ul style="list-style-type: none"> Delete record Cancel/home Help

[Screen Image - OCD 8 Appendix [Figure P-19](#)]

[Consistent with OCD Administrative Subsystem Mainstream Scenarios SC-12([OCD5.2.1](#))]

B-4-1 Delete record screen-Delete existing information

The ISD member(s) can delete the information of the book, which he/she searched on B-4.

<p>This screen has the following buttons</p> <ul style="list-style-type: none"> Delete record Cancel/home Help

[Screen Image - OCD 8 Appendix [Figure P-19](#)]

[Consistent with OCD Administrative Subsystem Mainstream Scenarios SC-12([OCD5.2.1](#))]

4.1.2 Web Access Subsystem

The web-based subsystem is built by HTML. All buttons, fields, or images depend on the Internet browser.

4.1.1.2. Screen Sequence

On the screen sequence, the help button is omitted.

[Consistent with Search Engine Mainstream Scenarios ([OCD5.1.1](#))]

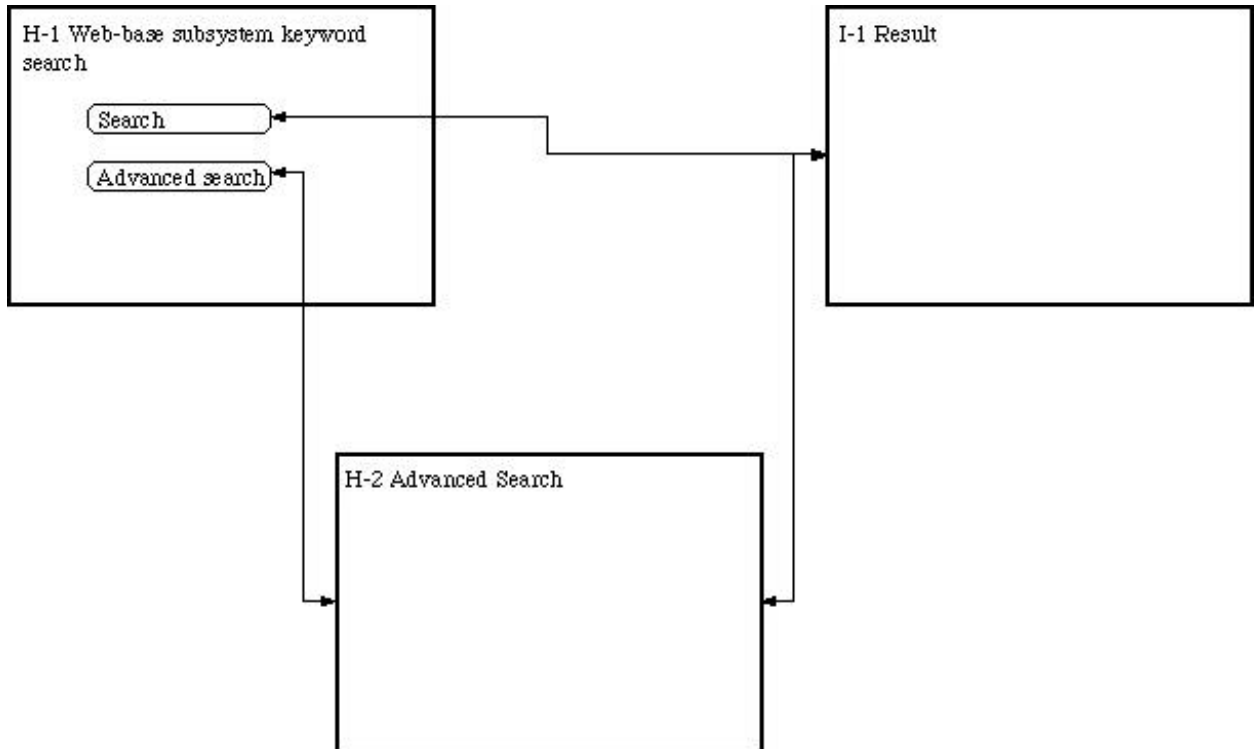


Figure 4.7- Web access subsystem-1

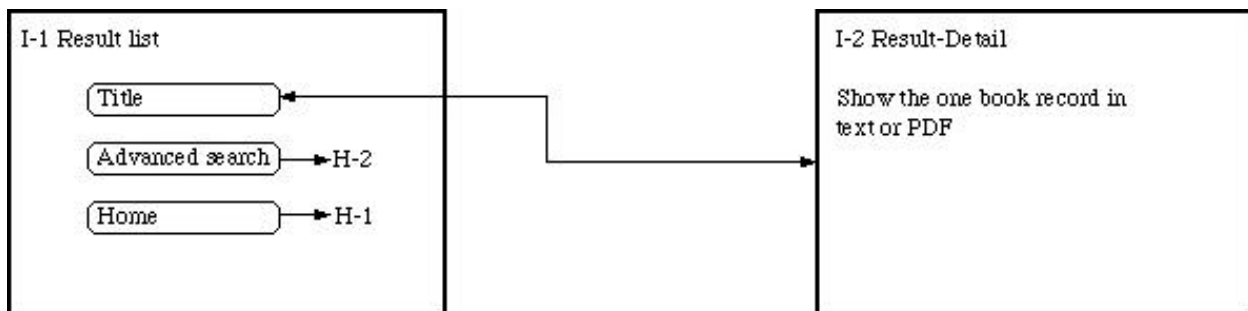


Figure 4.8- Web access subsystem-2

H-1 Web-based subsystem keyword search

This screen takes as input the keyword(s) that will be used to perform the search and has the following buttons.

The users can perform keyword search on this screen.

- search
- Advanced search
- search policy
- online help
- contact library staff via e-mail

[Screen Image - OCD 8 Appendix [Figure P-02](#)]

[Consistent with OCD Search Engine Mainstream Scenarios SC-01, SC-02([OCD5.1.1](#))]

H-2 Advanced Search

The user can perform advanced search on this screen.

<p>This screen needs the following displaying field</p> <ul style="list-style-type: none"> -title -author -call number -table of contents -abstract -Language -Imprint
<p>This screen needs following buttons</p> <ul style="list-style-type: none"> -search -displaying policy -searching policy -online help -communicate with library staff via e-mail

World War I - Access Enhancement *(Advanced Search)*

For help/information on search engine, click here -

Please enter the keywords in the fields for which you wish to perform a search.

Author Name

And Or

Book Title

And Or

Call Number

And Or

Table Of Contents

And Or

Abstract and display results at a time.

[[Contact Library Staff : vkclibrary@usc.edu](#)] [[Home](#)]



VKC Library Hours : 9.00 -- 20.00 (Mon-Sat)

<http://wwwindex.nlm.nih.gov/index/nlminindex.html> *(for my refernece)*

[Consistent with OCD Search Engine Mainstream Scenarios SC-01, SC-02([OCD5.1.1](#))]

I-1 main result screen

The search results are displayed on this screen. The results are listed and title is the anchor point to the detailed information.

<p>This screen has the following fields</p> <ul style="list-style-type: none"> -title -author
<p>This screen has the following buttons</p> <ul style="list-style-type: none"> -Advanced search H-2 -Back to home page H-1 -contact library staff via email -next page (next n search) -previous page (previous n search)

[Screen Image - OCD 8 Appendix [Figure P-03](#)]

[Consistent with OCD Search Engine Mainstream Scenarios SC-04 ([OCD5.1.1](#))]

I-2 Result - detail

The one book information is displayed on this page. The information is displayed either text or PDF.

<p>This screen needs the following displaying field</p> <ul style="list-style-type: none"> -title -author -imprint -call number -table of contents -abstract -language <p>all above information is text data or PDF</p>
<p>This screen needs following buttons</p> <ul style="list-style-type: none"> -Table of contents(If language is not English)I-3 -Abstract(If language is not English)I-4 -Map(if it's available)I-5 -back to main result screen I-1 -go to advanced search H-2 -go to home H-1 -communicate with library staff via e-mail

[Screen Image - OCD 8 Appendix [Figure P-04](#)]

[Consistent with OCD Search Engine Mainstream Scenarios SC-05([OCD5.1.1](#))]

5. Environment and Data Requirements

This section describes assumptions, constraints, hardware requirements and other requirements.

5.1 Operating Assumptions

5.1.1 User assumption

The administrative subsystem	
The ISD member(s)'s knowledge about using the system	
	Include usage of standard application, usage of windows, usage of Internet browser (Internet explorer or Netscape navigator), usage of e-mail and other necessity knowledge of using PC.

The Web-based subsystem	
The users knowledge	
	At least the users should be able to use their own computer, in addition usage of Internet browser (Internet explorer or Netscape navigator) and usage of e-mail.

5.2 Design and Construction Constraints

5.2.1 Tools

To make database of WWI, the following commercial off the shelf package are helpful.

-IBM's Digital Library scripting tools

To check and debug the web-based subsystem, Internet explorer 4.x or Netscape4.x is used.

5.2.2 Programming Languages

Administration Client

The Administrator mode is build with using Net.data. This development tools is available for both AIX UNIX and Windows NT operating systems.

World War I book enhanced search Information (Front End)

The World War I book enhanced search Information shall be developed using IBM's DB2 Digital Library's scripting language called "Net.data". This development tools is available for both AIX UNIX and Windows NT operating systems.

No CGI

No CGI scripts will be used for development It is easy to check whether this system uses the CGI or not. Because this system is operated within USC's system, it is required to obey ISD's policy. ISD prohibits the use of CGI.

[Consistent with Project Goals' 4 ([OCD 3.2](#))]

5.2.3 Computer Hardware Requirements

Since the administrative system is a part of ISD system, we don't discuss about it.

These assumptions are based on the hardware requirements that are from the web-based system. These don't include requirements from the operating systems or some other applications.

[Consistent with Operational Policies and Constraints ([OCD 4.1.3](#))]

Minimum requirement for Web-based subsystem

Macintosh

PowerPC 604e or better

System 8.0 or better

16MB RAM

50MB HD

28.8kbps modem or better

15 inch monitor

Keyboard

Mouse

Or equivalent PowerBook

PC

Pentium 100MHz or better
16MB RAM
500MB HD
28.8kbps modem or better
15 inch monitor
Standard 101 key keyboard
Mouse
Or equivalent notebook computer

5.2.4 Computer software requirements

Server:

Windows NT Server Version 4.0 or AIX Unix OS
IBM's DB2 Digital Library Package
IBM's DB2 DBMS
Web Server software package

Administrative subsystem

Win 95, NT 4.0, UNIX Operating Systems

Web-based subsystem

Microsoft Internet Explorer 4.x and/or Netscape
Communicator 4.x
Adobe Acrobat

6. Evolution Requirements

This section describes evolutions that are not included in the system, but in the future these evolutions might be included.

6.1 Capability Evolution

Linkage with SIRSI's database

Although SIRSI's database has some same information as this system, linkage to SIRSI's database would hamper the response time of the system.
[Consistent with Changes Considered But Not Included 5([OCD 3.5](#))]

Status of a book

If the user could know whether the desired book were borrowed or not, the user could know the books were available or not. This function requires connecting to the other database. And this would be hamper for the response time.
[Consistent with Changes Considered But Not Included 3([OCD 3.5](#))]

Request of checking out

Now this system provides only the information of the books. If the system can request the books instead of e-mailing the call number to the librarian, this would be helpful for the user. To achieve this function, this system should have the connection to the basic information system, which are Homer and Global Express to determine whether book can be check out.
[Consistent with Changes Considered but Not included3 ([OCD3.5](#))]

Administrative subsystem as web-based

The librarians can modify directly the database, if the administrative subsystem is built with web-based. However, this time we built it as stand-alone. Of course, more security features are needed, if the administrative subsystem is built with web-based.
[Consistent with Changes Considered but Not included1,6([OCD3.5](#))]

7. Common Definition Language for Requirements

Imprint

A publisher's name, date and place of publication which are printed at the bottom of the title page HOMER USC's online book catalog. The user can search book through Homer about 2.3 million books.

Pentium

Pentium is a central processing unit like a brain of the computer. Pentium is used basically PC/AT based computer. When PC/AT computer uses Pentium as its CPU, it is considered that it is applicable for the standard computer with internet access. Generally Pentium is described as "Intel's microprocessor called "Pentium" because it is the fifth in the 80x86 Product's line. It would have been called the 80586 had a US court not ruled that you couldn't trademark a number. "[1]

HTTP

Hypertext Transfer Protocol. The client-server TCP/IP protocol used on the World-Wide Web for the exchange of HTML documents. We use this term for explaining the server which serves the information of WWI books.

Java

This system is designed for multi platform so Java is appropriate language for designing this system. "Java is named after the Indonesian Island, a source of programming fluid. A simple, object-oriented, general-purpose programming language developed by Sun Microsystems in 1995. The Java libraries provide portable interfaces. For example, there is an abstract Window class and implementations of it for Unix, Microsoft Windows and the Macintosh."[1]

SIRSI

"SIRSI, a private company, develops, markets, and supports information software systems for libraries, businesses, and archives."[2] SIRSI build USC library's information system.

HTML

With HTML, the user mode page is designed. Hypertext Markup Language. A Hypertext document format used on the World-Wide Web.

ISD member(s)

ISD member(s) is received written request of adding/modifying/deleting the information of World War I book, which is stored in the database. They are not library members.

Administrator/Librarian

The administrator is the one who is in charge of the system in VKC library. The librarian is the one who supports the administrator in VKC library. Both the administrator and the librarian are working in VKC library. The administrator prepares written information of the World War I books and asks ISD member(s) to input.

User interface

Through the documents, we use this word as especially describing the graphical user interface of the web-based subsystem. We don't use this word as general meaning in our documents.

PDF

When the book information is non-English or contains the map data, the information is displayed in PDF style. PDF is readable by Adobe Acrobat.

References

- [1]Free online Dictionary of Computing
- [2]SIRSI homepage