

# FreeE-JIS: A Prototype Co-operative Free E-journals Content Management and Access System

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## ABSTRACT

Resource sharing is an age-old concept in the Library and Information profession, which is addressed by terms such as co-operation, consortia, networking etc. Information explosion has made it difficult for libraries to acquire all the required information resources, which are published. The change in information generation and transmission has made us to move from print to electronic in terms of acquiring information resources and to provide services. *freeE-Journals Information Service (freeE-JIS)* is a demonstration system, developed at NCSI as an extension for E-journal Information Service (E-JIS) provided by the Centre in IISc. The prototype *freeE-JIS* supports Co-operative E-journals Content Management System, where libraries willing to participate can share their knowledge of free E-journals, available on the Internet. The software for *freeE-JIS* was developed on Linux platform using Apache Web Server with MySQL database as the back end. With the additional features of login and session management, it can be a valuable service for a group of library or information centers.

**KEY WORDS:** Free E-Journals, Content Management System, Co-operation; Cataloguing System, Web Resource Sharing

## **0. INTRODUCTION**

**Information revolution has brought about major changes in all most all the sectors of day-to-day life since last decade. The entry of computers to market at affordable cost, telecommunication networks spread to remote areas, awareness about Internet and its usefulness, creation of vast quantities of digital content - all these significant forces have accelerated the pace of changes in our libraries and their services. In this era of global competition, organizations are looking forward to generate extra value for their assets. People and information are two critical resources increasingly being recognized as valuable.**

## **1. NEED FOR CO-OPERATION IN PRESENT E-INFORMATION WORLD**

**Internet has become the primary communication media to get the nascent information. More and more information is available on the web, which is free as well as paid. Information managers have recognized the importance of e-information. Hence, they are making use of e-information, which is more current in nature, to meet their user needs. Especially in Science and Technology, information explosion has made the librarians to think about acquiring more and more information that is available on the web. The scientific information that is available freely on the web, need to be organized for easy access, which asks for resources in terms of money, manpower and time. But, the diminishing buying power and decreasing budgets of libraries, ever-increasing prices are significantly affecting the way the libraries and information centers are attempting to meet their clientele needs. To accomplish their objectives, libraries are establishing co-operation amongst themselves to improve services and to cut costs. Co-operation among library and information centers is nothing but sharing of resources such as information, manpower and other facilities with appropriate policies. Co-operative cataloguing is a type of cooperation wherein a number of independent libraries share their work of producing a catalogue for their mutual benefit. This saves manpower, money and time for each participating library. Co-operation may operate locally, regionally, nationally or internationally.**

**An example of a cooperative web resource catalogue at international level is CORC. OCLC has developed a web based set of cataloguing tools and databases, known as Co-operative Resource Cataloguing (CORC), now known as OCLC Connexion service (<http://www.oclc.org/connexion/>), using which one can catalogue electronic resources in MARC and Dublin Core formats, maintain URLs in records, provide authority control. CORC has been built by and for librarians, wherein librarians/information professionals are extending the traditional practices and principles of librarianship and applying their knowledge access management expertise to world of electronic information. Fuel of CORC is Co-operation. CORC's large-scale cooperation provides many benefits for each library. CORC enables librarians around the world to work together to fill local needs, minimize duplication of effort, and maximize knowledge sharing. This is a paid service, but it is free for those who participate in the co-operation.**

## 2. E-JOURNAL INFORMATION SERVICE OF NCSI

National Centre for Science Information (NCSI) is a department and central e-information services facility in Indian Institute of Science (IISc), Bangalore. NCSI provides seamless, network access to worldwide scholarly information of relevance to the IISc academic community, facilitating improved learning, teaching, research, collaboration and information sharing. NCSI's vision is to bring world class electronic information services to the IISc academic community, because of which it has developed many E-information services such as SCIGATE, bibliographic database service, alerting services, etc., And one such service is E-Journal Information Service (E-JIS, <http://e-jis.ncsi.iisc.ernet.in/>), which is a e-journal gateway service provided to IISc community, in co-operation with JRD Tata Memorial Library. It is a web-accessible directory database of all journals currently subscribed by IISc. The goal of E-JIS is to provide desktop access to electronic version of journals subscribed by IISc Library exclusively to IISc community. It also catalogues and provides access to a few peer-reviewed free e-journals, access to which is available for outside IISc community also, while subscribed journals are available only for IISc users. E-JIS has sophisticated search and browse features, where the user can search the required journals based on the keyword(s), or subject. The search results will provide the complete information along with journal title, description, published and whether free or subscribed. And if the user would like to get the full text of the journal, a link is provided, which takes the user to journal site.

## 3. CO-OPERATIVE EFFORTS IN FREE E-JOURNAL SERVICE AND *freeE-JIS*

Journals have been the most important medium of communicating research findings in the scholarly information cycle. E-journals have emerged since the early 1990's primarily due to electronic publishing (computer-based document creation, editing, formatting and printing) and the Internet (content hosting and delivery mechanism). This decade saw a rapid growth in e-journals about 27 in 1991 and several thousands in 2000. Most peer-reviewed journals are available on the Internet today.

E-journals may be defined broadly as any serial publication (journal, magazine, newsletter) in digital format and made available on CD-ROM, Online systems and the Internet. Internet has become the primary medium for e-journals today. Based on the access types, e-journals can be broadly categorized into: Free journals, Subscription-based journals, Free online against print subscription, Online only journals for which there are no print counterparts, Pay-per-view journals, Virtual journals - Journals dealing on specific topics. In recent decades the price of journals, especially scientific journals, has continued to rise beyond affordable limit and thus has prompted the librarians to look for supplementing commercial e-journals with 'Free electronic journals'. In order to give single gateway access to all freely available quality e-journals, an attempt was made to develop and demonstrate a web-based software for 'Co-Operative Cataloguing System for free E-Journals (*freeE-JIS*)' where the responsibilities of maintaining the free e-journals catalogue is done with the help of co-operating

participating libraries.

### 3.1 Factors considered while developing *freeE-JIS*

While developing such a system we took into consideration following factors:

Ø Factors related to content:

- o Types of Journals to be covered.
- o Quality of information that is available on the journal.
- o Subject area to be covered.
- o Who can participate in such a system?

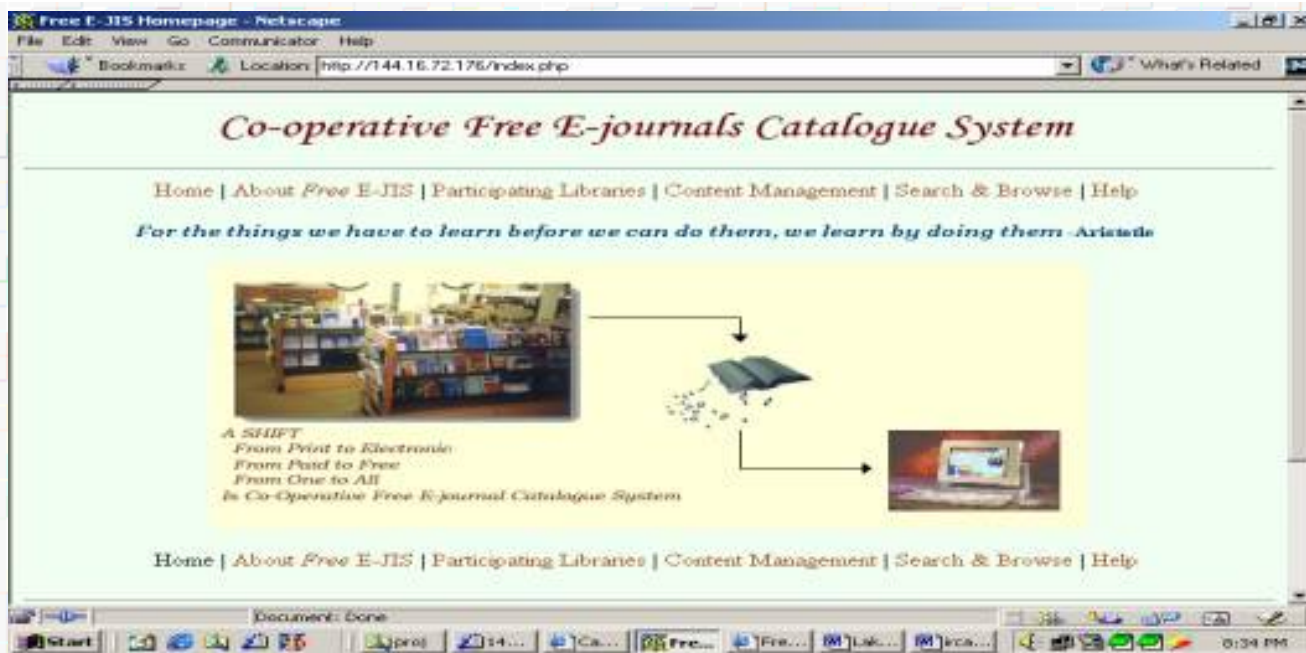
Ø Factors related to System:

- o How to add and update *freeE-JIS*?
- o How to facilitate the search, browse and display features?
- o What back-end database is required to support content management, search and retrieval? What is its design?

## 4. FREEE-JIS: DEMONSTRATION SOFTWARE FOR CO-OPERATIVE CATALOGUING SYSTEM FOR FREE E-JOURNALS

*freeE-JIS* is a demonstration system, which was basically developed to enhance E-JIS features by having a web-based co-operative catalogue system for libraries in Bangalore for adding information about free e-journals in the field of science and technology. Participating libraries would be provided with a web-based Content Management System to contribute information regarding free e-journals. Searching and Browsing could also be done for those E-journals available in the catalogue.

**Homepage for *freeE-JIS***

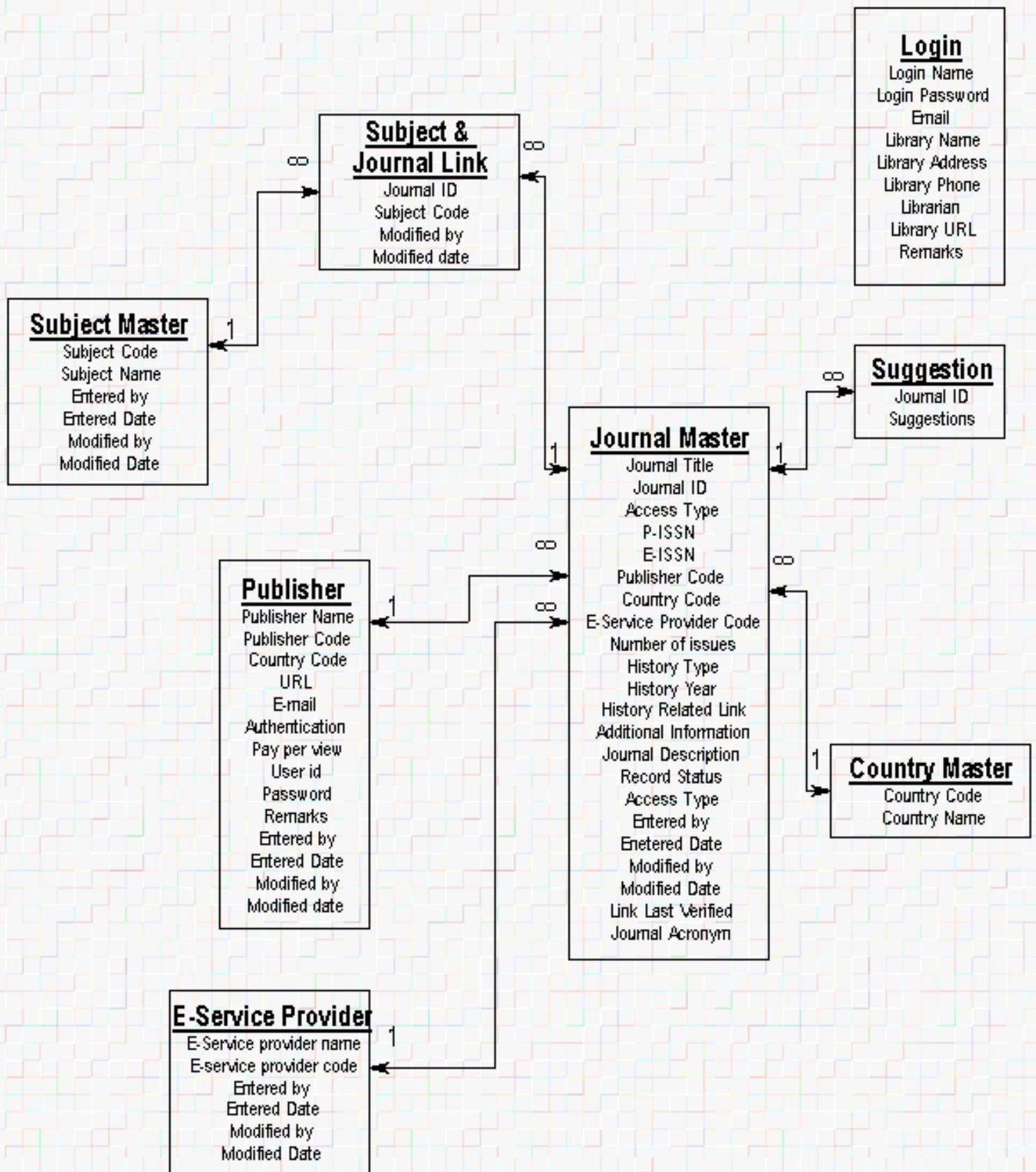


## 4.1 Development Environment of freeE-JIS

*freeE-JIS* was developed as an extension of E-JIS, which was developed in PHP, MySQL and Apache on Linux platform. These are open source software and make a very good combination to serve the dynamic web pages. Hence, the same development environment was chosen for *freeE-JIS* also. PHP is a server-side cross-platform HTML embedded scripting language. Much of its syntax is borrowed from C, Java and Perl with a couple of unique PHP-specific features thrown in. The goal of the language is to allow web developers to write dynamically generated pages quickly. MySQL is relational database management system, which uses a subset of ANSI SQL (Structured Query Language). MySQL is one of the most popular relational database systems used for web development. Apache is a Web server, which has numerous features and strengths. And more than half of the Internet's Web sites use Apache. Among the most notable features are its cross-platform support, protocol support (HTTP/1.1), modularity (API), security, logging, and overall performance and robustness. Client-side JavaScript was used to extend the core language by supplying objects to control a browser to place elements on an HTML form and respond to user events such as mouse clicks, form input, and page navigation.

## 4.2 Database Design

*freeE-JIS* uses MySQL as the backend database. It has 8 tables, 6 Master tables, for holding the main content, and 2 link tables for linking multiple occurrences of subject, suggestions, journal details and journal identifier as the linking field. Below is an illustration of tables and their relationship (Fig. 1)



*1: Illustration of tables and their relationship in freeE-JIS database design*

### 4.3 Content Design

**Designing of Content is the first and foremost in the development of software for content-rich applications such as *freeE-JIS*. Before developing software, we have to identify the fields that are required to describe the E-journals, how this data is going to be collected and how to organize them properly to be used for future. Who should add the data about the journals should also be decided. *freeE-JIS* system tries to identify and collect the sources of information for identifying the free e-journals, and for classifying the e-journals based on the subject. Hence, to include E-journals into *freeE-JIS*, the following methods were applied.**

## **I. Criteria for Identifying and Selecting the E-Journals**

**Ø Only scholarly free e-journals providing access to full text articles, related to the following subjects need to be added.**

- o Science and Technology**
- o Management Science**
- o Health Sciences**
- o Library and Information Science**

**Ø Electronic newsletters, providing substantial R&D information, developments and news, are also acceptable. However, institutional newsletters, meant for reporting news about an organization, are not acceptable.**

**Ø E-journals that are available partially free i.e., either for the specified time duration or only some full text articles that will be available free can also be incorporated.**

## **II. Policies for Describing the Fields for E-Journals**

**Ø *freeE-JIS* software tries to identify the fields for describing Free E-journals and partially free E-journals. Most of the fields to identify these E-journals are taken from E-JIS, and few more fields were added which were felt important, such as journal acronym, and time coverage for partially free E-journals.**

#### 4.4 Content Management System (CMS)

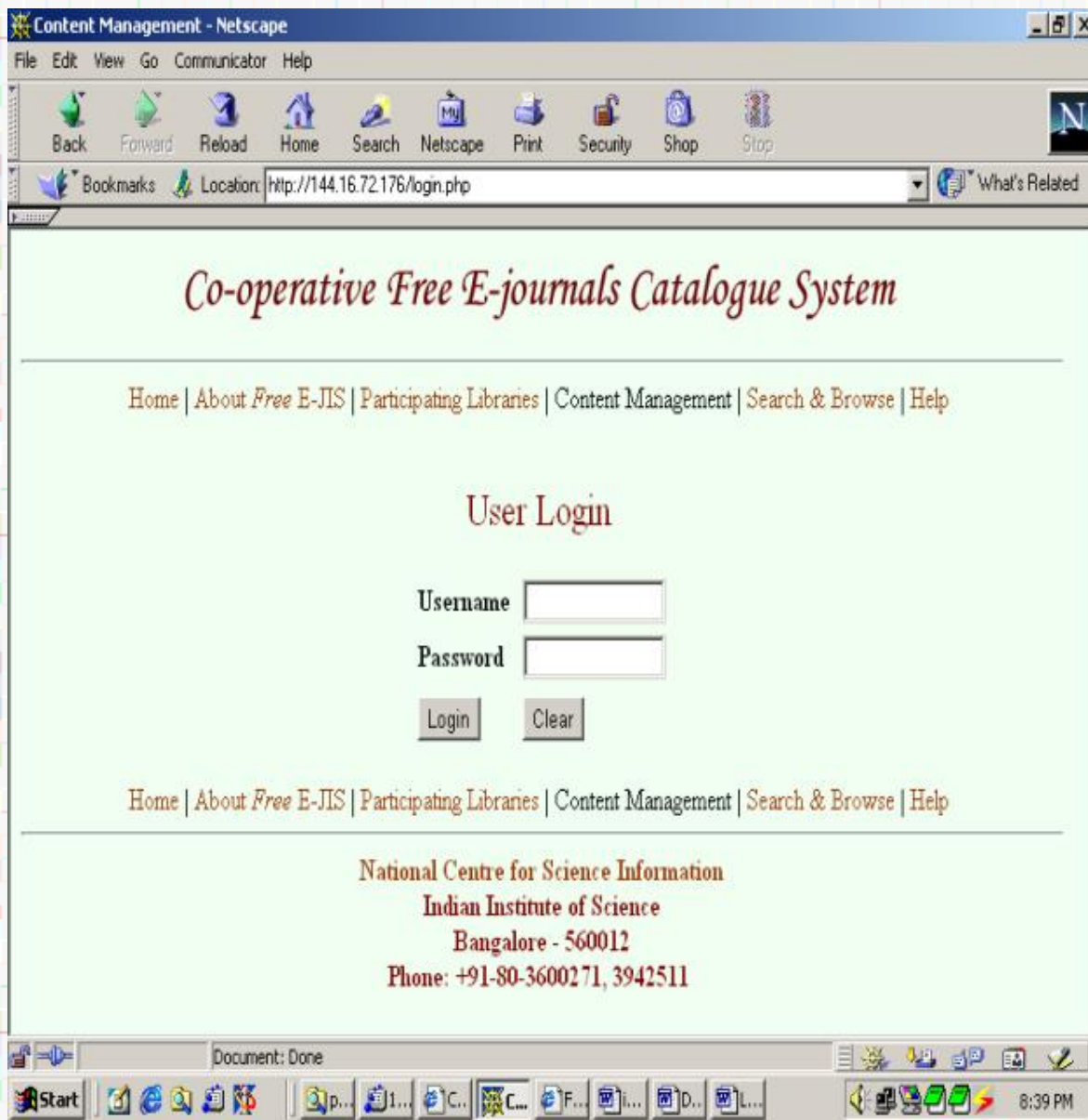
Content Management module is the tool in which the management of library profile and free E-journals are taken care by adding, modifying and deleting, with the help of user interface based on the specific privileges as explained further in Section 4.5. This is an important module in the *freeE-JIS* Catalogue. Content Manager will review every journal that is added by participating library, to ensure the quality of information. Once this is done, the Content Manager approves the particular journal, which will be available for search and browse for everyone.

#### 4.5 Data Integrity and Security

To ensure the integrity of data in database, access to the database is given based on the Login id and password. Login Management includes two modules, where Content Manager (CM) has the privileges of creating, modifying and deleting the library profiles, and also, CM has the privileges of adding, reviewing, deleting and restoring the E-journals. CM has the privilege of approving or rejecting the E-journal added by the Participating Library. The privileges for Participating Libraries are different, i.e., participating libraries can only add a new electronic journal, modify it until it is approved, and can modify their own profile. The complete CMS is dependent on sessions. Session is a method of tracking the every authorized user, once they login to CMS. Cookie is associated with a browser, and some kind of storage resource is allocated on the server to hold session variables.

User Login Page for *freeE-JIS*





## Content Management Page for Content Manager *freeE-JIS*

**Welcome to F-EJIS dear Administrator !**

## Content Management

Dear Content Manager, the following are the E-Journals added by the Participating Libraries which are awaiting for your review/approval

Sl. No	Journal Title	Ent_by	Ent_date
1	Information Research: An International Electronic Journal	lakshmi	2002-07-30

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To Modify, select a Library Profile/E-Journal, and click on the Review button

**Library Profiles**

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**Electronic Journals**

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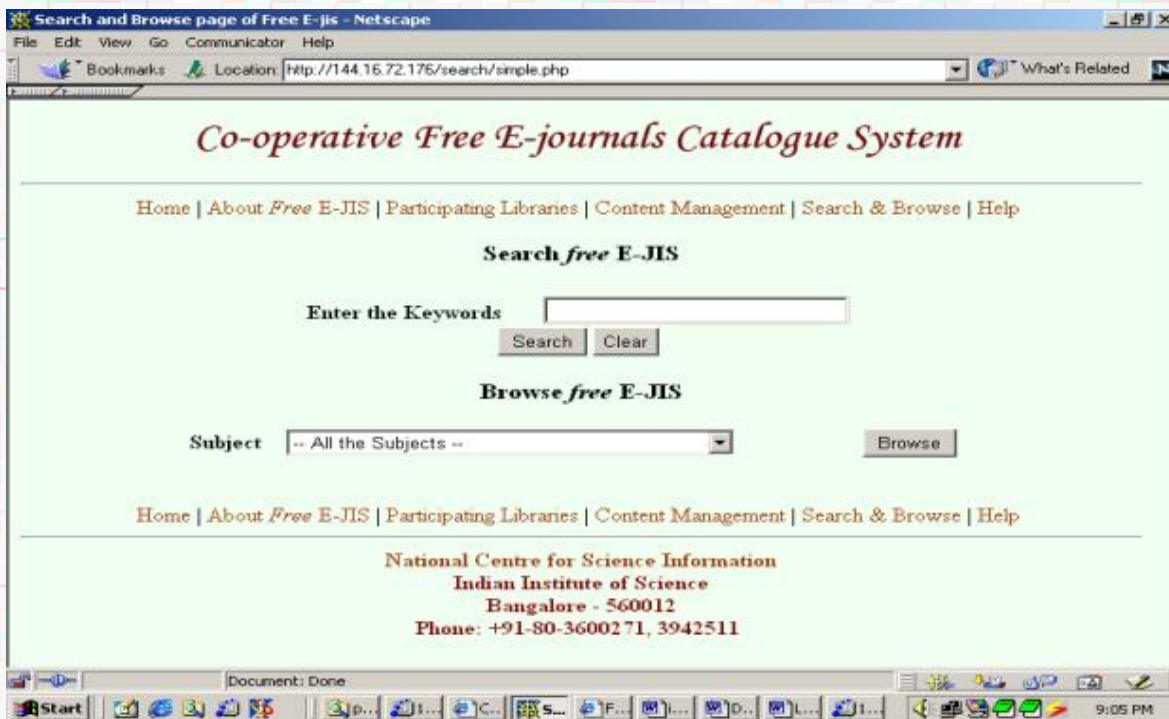
To Restore a Deleted journal, select an E-Journal and click on Restore button

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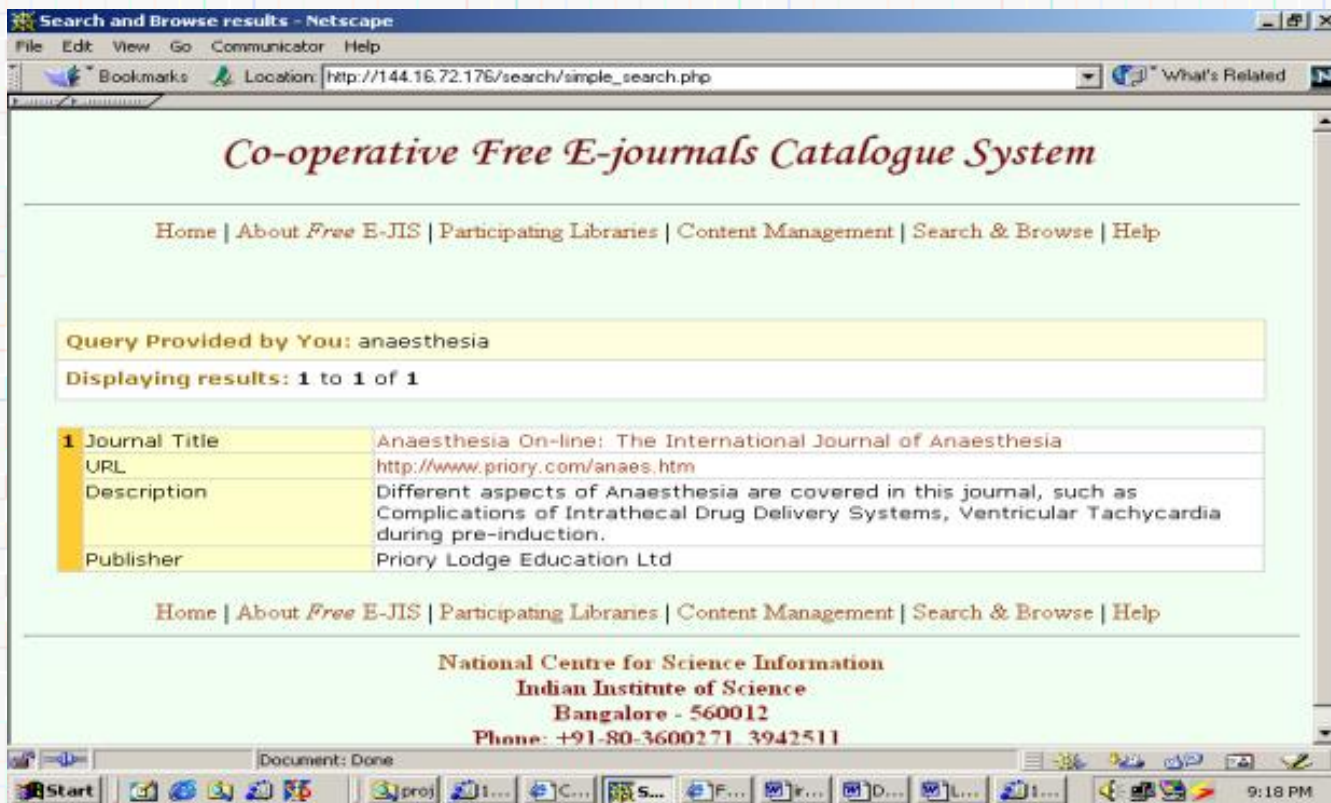
#### 4.6 Search and Browse Interface

Interface design consists of interface for searching and browsing *freeE-JIS*. Context based help is given for searching. Search interface is able to search a word or combination of words or a part of a word. Browse interface allows one to browse the journals based on subject. Results are displayed with major fields like Journal Title, URL, Description and Publisher. Provision is made for obtaining full details of a free E-journal with all the fields. Also provision is made for opening a separate browser window and visit the website of a particular resource from the results page.

#### Search & Browse Interface for *freeE-JIS*



## Search & Browse Results Display Page of freeE-JIS



## 4.7 Operational Features

Operation of *freeE-JIS* is coordinated with a home page. The home page links to 'About *freeE-JIS*' (which tells about the service, criteria for libraries to participate and selection criteria for including free E-journals into *freeE-JIS*), 'Participating libraries' (which provides the details about the participating library and how many journals they have contributed for *freeE-JIS*), 'Content Management' (which takes to login page, for the administrator or the participating library to add or modify the free E-journals), 'Search and Browse' (where the user can search and browse the available free E-journals) and 'Help' (where the user can get the help if any required). While any user can open the user interface, CMS is password protected restricting its use to authorized staff to add and edit contents in the database.

## 5. CONCLUSION

Internet is becoming a primary communication medium for all types of information resources. It has grown to this level, because any body can host their information on the Internet with minimum requirement. Large number of Information Resources on the Internet is available freely. Like wise, many scholarly e-journals are also available freely. No single library can keep the track of all the free E-journals. Hence, an attempt was made to develop a Co-operative Content Management System, where the Libraries can add the information regarding the free E-journals with the help of this CMS. This will surely add a value to library and information professionals.

An interesting fact about this *freeE-JIS* is that, the Content Management is decentralized, i.e., any organization, which come across free e-journal, can provide the information through the CMS. The administration of *freeE-JIS* is centralized, i.e., the information provided by the participating organizations is quality controlled by CM and accepted only if it falls under selection criteria.

This *freeE-JIS* content management is easy to use and even search and browse is made very easy. With all these, an attempt is made to demonstrate how a co-operation could work among libraries, where a tool like *freeE-JIS* can serve well for creating a catalogue for free E-journals. It is hoped that the demonstration version of *freeE-JIS* will be converted into a production system to bring practical benefit to libraries and users.

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