



# Optimization of Web-based Hierarchical Workgroups to Automate Workflow

By Jeba Moses .T, U. Palani & Parthiban .R

*IFET College of Engineering, India*

**Abstract-** This project is aimed at developing web application which provide services for an education institution such as requesting leave, reserving books and posting suggestions. It is an Intranet based web-application which can be accessed by all the students and faculties throughout the department. A different access level login has been provided for students, faculties and the head of the department to access the services. This application can be used to automate the workflow of leave applications and their approvals. Through this application students can send a leave request to both the head of the department and the faculty. Each and every leave request of the students will be stored in the database. Thus the students who took leave frequently can be identified easily by the head of the department. There are options available for the students and faculties to reserve the books from the department library.

A library catalogue has been provided with this application so that the desired books and magazines can be searched and reserved at anytime. After the reservation details are verified, the librarian or the managing staff will issue the books. In addition to this, department functions and upcoming events can be viewed through an event calendar.

**Keywords:** *intranet, web app, library, service oriented.*

**GJCST-C Classification:** *D.3.4 G.1.6*



*Strictly as per the compliance and regulations of:*



RESEARCH | DIVERSITY | ETHICS

# Optimization of Web-based Hierarchical Workgroups to Automate Workflow

Jeba Moses .T<sup>α</sup>, U. Palani<sup>σ</sup> & Parthiban .R<sup>ρ</sup>

**Abstract-** This project is aimed at developing web application which provide services for an education institution such as requesting leave, reserving books and posting suggestions. It is an Intranet based web-application which can be accessed by all the students and faculties throughout the department. A different access level login has been provided for students, faculties and the head of the department to access the services. This application can be used to automate the workflow of leave applications and their approvals. Through this application students can send a leave request to both the head of the department and the faculty. Each and every leave request of the students will be stored in the database. Thus the students who took leave frequently can be identified easily by the head of the department. There are options available for the students and faculties to reserve the books from the department library.

A library catalogue has been provided with this application so that the desired books and magazines can be searched and reserved at anytime. After the reservation details are verified, the librarian or the managing staff will issue the books. In addition to this, department functions and upcoming events can be viewed through an event calendar. Innovative thoughts and ideas are always accepted by the department, the Feedback or Suggestion Box scheme provided by this application gives an opportunity for the students to give their creative idea and getting them to be implemented for achieving department excellence

*Index-terms: intranet, web app, library, service oriented.*

## I. INTRODUCTION

Automation is the process of converting a traditional system into a computer organization. Traditional system is no longer being dynamic and efficient as per our need. In order to overcome the defects of traditional system automation is introduced in our workflows. Some of the work flows which are going to be automated in this project are leave request, book reservation, suggestion box and an event calendar.

This web application is developed to optimize the system in a hierarchical environment. This application allows the user to access various automated services in an efficient and convenient manner.

Through this application students can able to send a leave request to their faculty and can reserve the

*Author α: Dept of Information Technology, IFET College of Engineering, e-mail: jebamosesmtech@gmail.com*

*Author σ: Dept of Information Technology, IFET College of Engineering, e-mail: palani\_uin@yahoo.com*

*Author ρ: Dept of Information Technology, IFET College of Engineering, e-mail: parthi\_neyveli@yahoo.co.in*

book from the library then they can view the upcoming events and functions through the event calendar and can post their innovative ideas and thoughts through suggestion box.

This web application implements the automation in our workflow and it eliminates the manual process. Each and every data will be stored in the database so that the chances of losing data will be less.

### a) Existing System

Existing systems are managed manually. Maintenance of data is very complex task. It requires lot of time to record or retrieve the details. The employee who has to record the details must perform their job very carefully. Even a small mistake would create many problems. All the operations must be performed in a perfect manner without any degradation.

### b) Disadvantages to Overcome

- **Loss of Data:** A lot of paper works are needed for the safe keeping of the details.
- **Time Wasting:** user time is wasted as a result of searching for a book that has been borrowed by a user whose record cannot be traced on the paper records.
- **Error Prone:** The existing system of operation is prone to error.
- **Tedious:** It is tedious because it must take a routine
- **Processing Speed:** The processing speed is very low resulting into low output.

### c) Literature Survey

#### i. Leave Management System

- In MNC's LMS is carried out by means of smart cards.
- Employees use their smart cards for login in order to access the services.
- After login they can request their leave to their higher officials.
- Each and every request of the employees will be stored in the form of database.
- Storing and retrieving of datas will be simple and the data loss has been greatly reduced.

#### ii. Book Reservation System

Before the advent of computer in modern age there are different methods of keeping records in the library. Records are kept in the library on shelves and each shelf are labeled in an alphabetical or numerical order, in which the categories of books available are

arranged on different position on the shelves and as well are recorded on the library manuscript and when any book is to be referenced the manuscript is being referred to, to know the position of such required book by the person that requested for the book.

After the invention of computer different researchers have carried out various approach on an automated library management system in which this project is as well all about.

The first library management system to be reviewed is the KOHA library management system. Since the original implementation in 1999, Koha functionality has been adopted by thousands of libraries worldwide, each adding features and functions, deepening the capability of the system.

The major setback of this library management system is that it is a web based and as a result it is not security conscious because hackers could have the database hacked and access or modify the information of such user.

Another Library Management System is the Capita's library software with the following benefits Increases support available for staff and users in any modern library service , Integrated, innovative system saves your library time, Improves the user experience.

The setback of this library management system is the cost of purchase and information generated from the software cannot be easily exported to be used in another system in case there is a system failure.

The set of researcher to be reviewed on an automated library system is a project carried out by Bhupendra, Singh Baghela, Shraddha Panwar, Vijay Vaishnav during as a partial fulfillment of the requirement for the System Design Project of Masters of Computer Application IV Semester, of the Rajasthan Technical University, Kota. The purpose of the application is for automation of library management.

## II. PROPOSED SYSTEM

Proposed system solves the inconvenience of existing system it is fully automated. In this system chance of losing data is not possible because data is maintained in the form of database. It is more flexible to access the information and also it will reduce the workload.

### a) *Advantages of the Proposed System*

- Time consumption is less.
- Access control is provided.
- Reliability can be improved with the help of security.
- Give accurate results.

### b) *List of Modules*

1. Registration, Login.
2. Leave request.
3. Book reservation.
4. Event calendar.

### 5. Suggestion box.

#### c) *Module Description*

##### i. *Registration*

This module is to register the details of the user. A new user has to register first in order to access the services. During the registration process the user has to give the details such as their Role, Register number (or) Employee-ID, Name, Department, Year, Date of birth, Mail-ID, Password, Cell number, Address, City, State.

After the details are given it will be stored in the database. The server has to check whether the username is already exist or not. If the username is already exists the user has to perform the registration again. After the successful registration the user can perform the login to access the services.

##### ii. *Login*

This module allows the user to perform the login. The login form holds two fields they are username and password.

The Mail-ID of the user will be acted as the username. The user has to give the username and password as mentioned in the registration form. Then the username and password are verified by obtaining the details stored in the database. If the username and password matches then the user will be authenticated to access the services.

After the successful login, based on the role their corresponding module will be displayed.

##### iii. *Leave Request*

In this module students can request their leave to the faculty by filling the leave request form. This form holds the field such as their Faculty Name, Purpose of Leave, Number of Days and Duration of leave. All the fields are mandatory. The student has to give all the details. After the details given by the student they can send the request. Leave request of the student will be send through mail.

Head of the department and the faculty have the rights to access the mail and send a response. Each and every request of the student will be stored in the database. Response to their request will be send by the faculty through notification. That notification will be send to the corresponding student. If the request of the student is in need of HOD's approval faculty can forward the request to the head of the department. Both the faculty and the Head of the department can have the rights to approve as well as decline the leave. The approval and cancellation of leave has to be updated in the database dynamically. There is also option available to search the leave details of a particular student and can also identify the student who took leave frequently

##### iv. *Book Reservation*

This module allows the student and faculties to reserve the book from the library. For that purpose a catalogue is provided which holds the details of books and magazines. If the user is in need of books it is very

difficult to search the books manually. By using this module they can make an easy search by simply entering the name of the book in the search field. After the book details are entered the details about the book will be listed out. If the book is available they can reserve it otherwise they can search other book or logout from the application.

If the book is reserved the reservation details are send to the library staff they can verify the details and can issue the books to the corresponding user. Each and every reservation details are stored in the database. The user can just view the details of the book and its availability. The administrator can have the rights to manipulate the details. This module is designed to make the book search easy.

#### v. Event Calendar

This module can be accessed by all the registered users it allows the user to view information about the events in a chronological fashion. In the event calendar the upcoming events and functions are posted by the administrator. The events are highlighted in varied colors so that it is easy for the users to view the events easily. The administrator can have the rights to make modification like updation and deletion of events the user can just view it.

#### vi. Suggestion Box

This module is to post the suggestions, thoughts and ideas of the user through suggestion box. All the registered users can post their suggestions. It gives an opportunity for the users to post their creative thoughts and getting them to be implemented for department excellence.

### III. SYSTEM ARCHITECTURE

#### a) Registration and Login

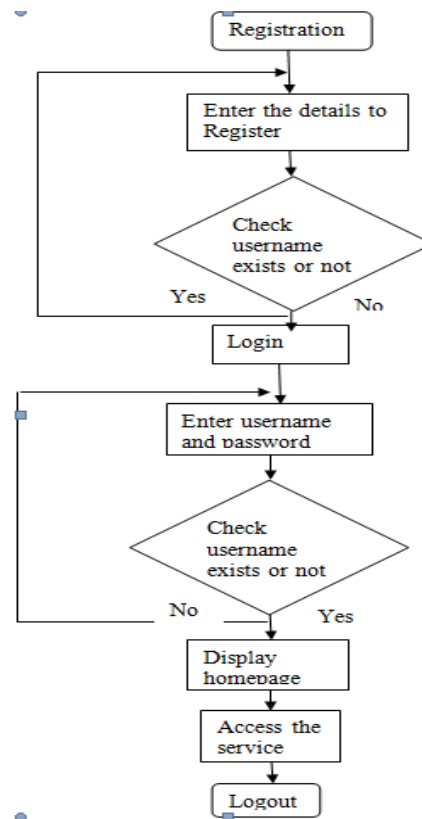


Figure 3.1 : Registration and Login

#### b) Leave Request

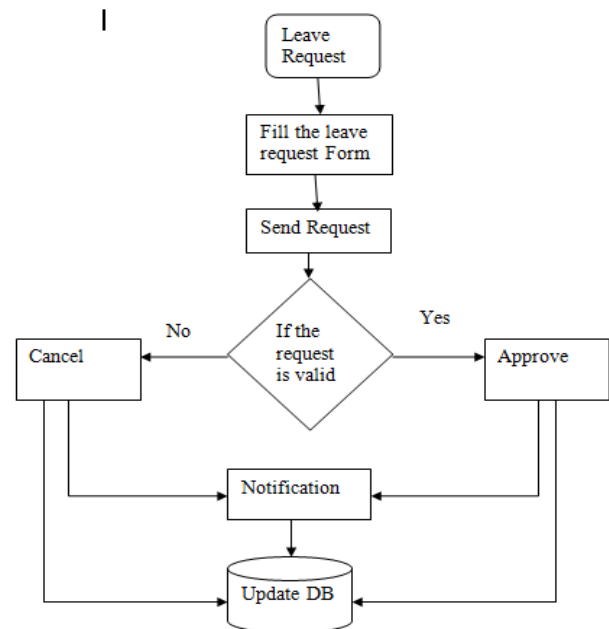


Figure 3.2 : Leave Request

c) Book Reservation

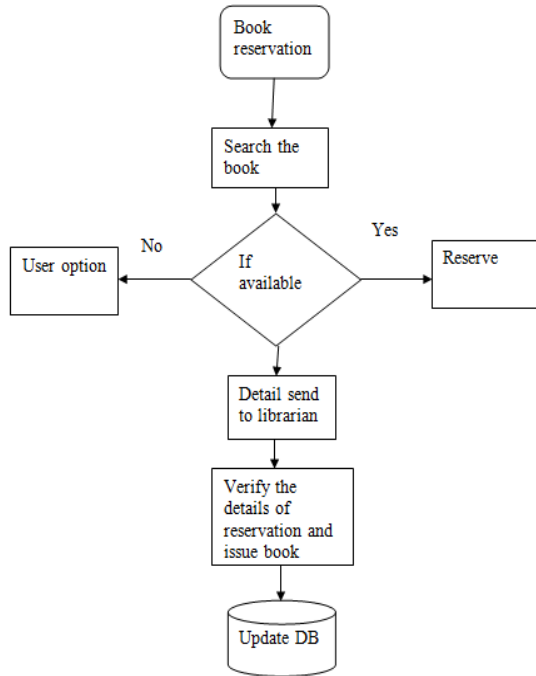


Figure 3.3 : Book Reservation

IV. SYTEM TESTING

System testing of software or hardware is testing conducted on a complete, integrated system to evaluate the system's compliance with its specified requirements. System testing falls within the scope of black box testing, and as such, should require no knowledge of the inner design of the code or logic

a) Testing of Registration and Login

Table 4.1 : Testing of Registration and Login

S.NO	TESTCASE NAME	TESTCASE DESCRIPTION	PRECONDITION STEP	PASS/FAIL
1	REGISTRATION	New user have to fill the details to perform the registration	Fields are filled	Pass
			Fields are not filled	Fail
2.	LOGIN	Enter Username and Password as given in registration	Username entered without password	Fail
			Password entered without username	Fail
			Both Username and Password entered	Pass

b) Testing of Leave Request

Table 4.2 : Testing of Leave Request

S.NO	TESTCASE NAME	TESTCASE DESCRIPTION	PRECONDITION STEP	PASS/FAIL
1	LEAVE REQUEST	Students have to select their faculty and fill the leave request form to send request	Fields are filled	Pass
			Fields are not filled	Fail

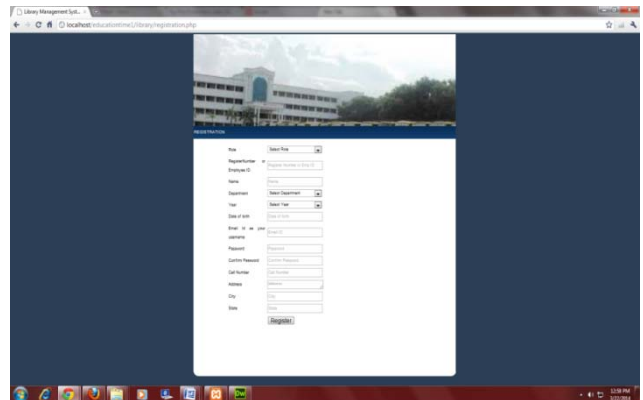
c) Testing of Book Reservation

Table 4.3 : Testing of Book Reservation

S.NO	TESTCASE NAME	TESTCASE DESCRIPTION	PRECONDITION STEP	PASS/FAIL
1	BOOK RESERVATION	Users can make a search of books	If book is available user can reserve the book	Pass
			If book is unavailable user can't reserve	Fail

V. RESULT AND DISCUSSION

a) Registration



**Registration success**

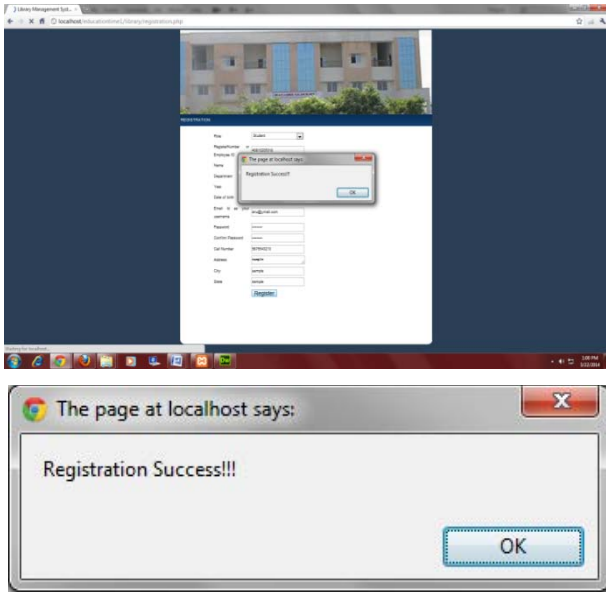


Figure 5.1 : Registration

**b) Login**

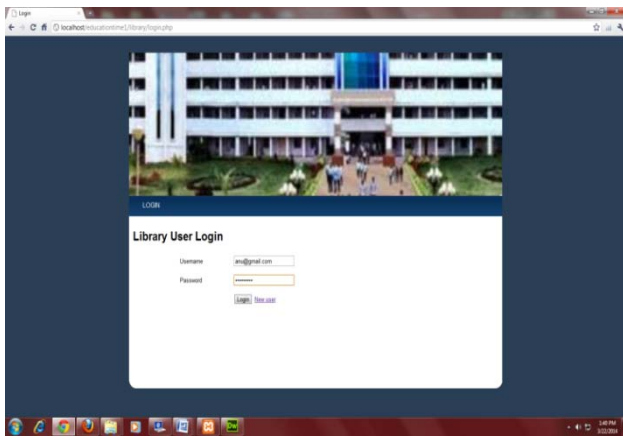
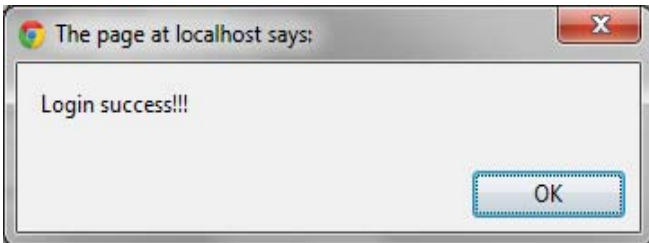


Figure 5.2 : Login

**Login Success**



**c) Leave Request**

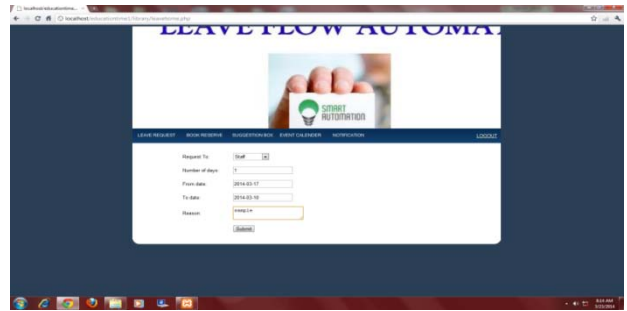
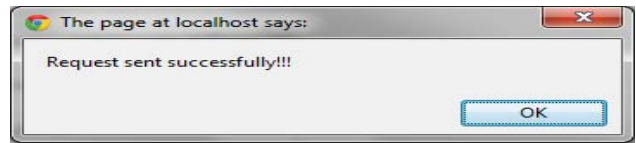


Figure 5.3 : Leave Request

**Request Sent Successfully**



**d) Book Reservation**

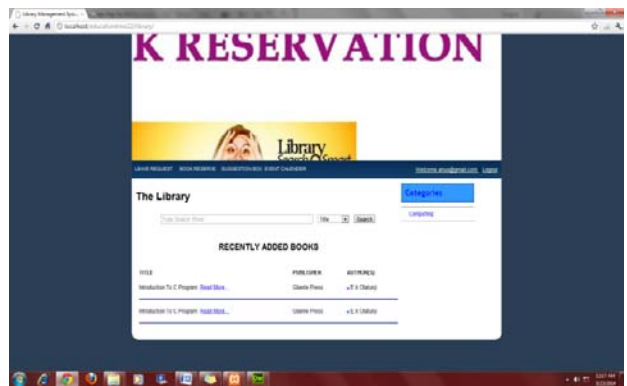


Figure 5.4 : Book Reservation

**i. Category search**

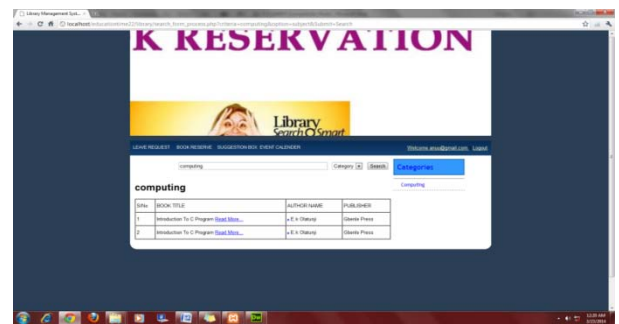


Figure 5.4.1 : Category Search

ii. *Publisher search*

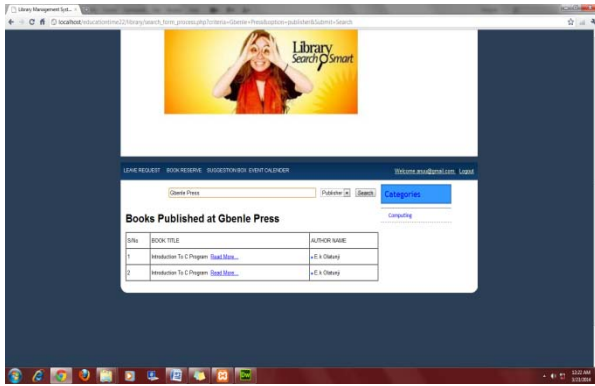


Figure 5.4.2 : Publisher Search

iii. *Author search*

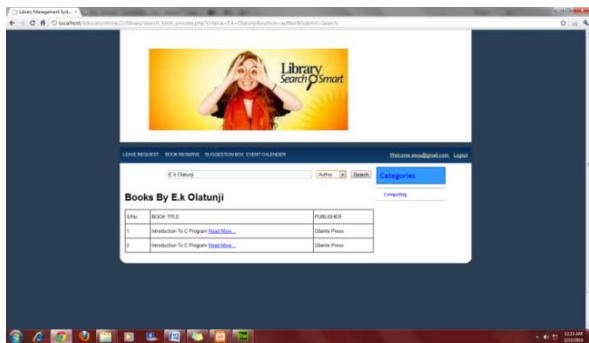


Figure 5.4.3 : Author Search

e) *Suggestion Box*

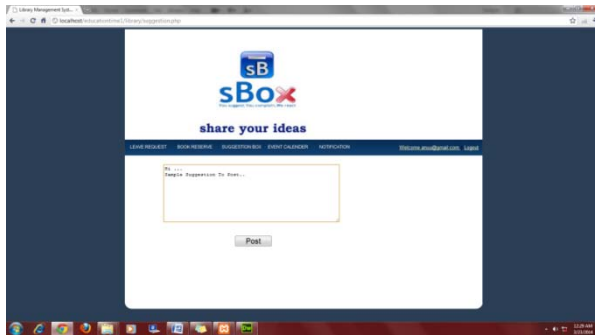
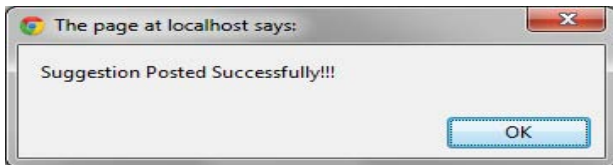


Figure 5.5 : Suggestion Box



f) *Event Calendar*

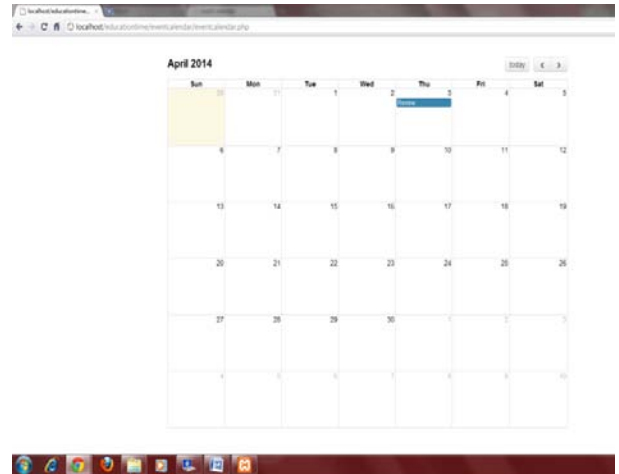


Figure 5.6 : Event Calendar

## VI. CONCLUSION AND FUTURE ENHANCEMENT

The primary goal of the project is to automate the workflow in a hierarchical environment that has been implemented successfully with the help of Dreamweaver as a text editor, php as a scripting language and mysql as a back end database.

This application can provide a number of services which enhance the automated process.

The scope of the project is not having an end. This application is designed to automate the workflow for a single department. In future it will be developed to automate the workflow for a college.

## REFERENCES RÉFÉRENCES REFERENCIAS

1. [www.w3schools.com](http://www.w3schools.com)
2. [www.php.net](http://www.php.net)
3. [www.tutorialspoint.com](http://www.tutorialspoint.com)
4. [www.freeprogrammingresources.com/phpbook.html](http://www.freeprogrammingresources.com/phpbook.html)
5. [www.freetechbooks.com](http://www.freetechbooks.com)