LIVE TO LEARN & LEARN TO SHARE

MRCET CAMPUS

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

(AUTONOMOUS INSTITUTION - UGC, GOVT. OF INDIA)

Affiliated to JNTUH; Approved by AICTE, NBA-Tier 1 & NAAC with A-GRADE | ISO 9001:2015
Maisammaguda, Dhulapally, Komaplly, Secunderabad - 500100, Telangana State, India

LABORATORY MANUAL & RECORD

Name:..

Roll No:................Branch:...

Year:..................Sem:...

CA

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Certificate

Certified that this is the Bonafide Record of the Work Done by

Mr./Ms...Roll.No.....................of

B.Tech............year.......................... Semester for Academic year........................

in..Laboratory.

Date: Faculty Incharge HOD

Internal Examiner External Examiner

INDEX

S.No	Date	Name of the Activity/Experiment	Grade/ Marks	Faculty Signature

SOFTWARE ENGINEERING LAB MANUAL

B.TECH

(II YEAR – I SEM)
(2024-25)

DEPARTMENT OF COMPUTATIONAL INTELLIGENCE

(CSE-AIML)

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY
(Autonomous Institution – UGC, Govt. of India)

Recognized under 2(f) and 12 (B) of UGC ACT 1956
(Affiliated to JNTUH, Hyderabad, Approved by AICTE - Accredited by NBA & NAAC – 'A' Grade - ISO 9001:2015 Certified)
Maisammaguda, Dhulapally (Post Via. Hakimpet), Secunderabad – 500100, Telangana State, India

Department of Computer Science & Engineering
(Artificial Intelligence & Machine Learning)

Vision

To be a premier centre for academic excellence and research through innovative interdisciplinary collaborations and making significant contributions to the community, organizations, and society as a whole.

Mission

- To impart cutting-edge Artificial Intelligence technology in accordance with industry norms.
- To instill in students a desire to conduct research in order to tackle challenging technical problems for industry.
- To develop effective graduates who are responsible for their professional growth, leadership qualities and are committed to lifelong learning.

Quality Policy

- To provide sophisticated technical infrastructure and to inspire students to reach their full potential.
- To provide students with a solid academic and research environment for a comprehensive learning experience.
- To provide research development, consulting, testing, and customized training to satisfy specific industrial demands, thereby encouraging self-employment and entrepreneurship among students.

Programme Educational Objectives (PEO):

PEO 1: To discuss and analyze how to develop software requirements specification for a given problem.

PEO 2: To understand Software development as a process.

PEO 3: To implement various software designs, data flow diagram models.

PEO 4: To implement various testing techniques including white box testing black box testing, regression testing.

PEO 5: To have hands on experience in developing a software project by using various software engineering principles and methods in each of the phases of software development.

Programme Specific Outcomes (PSO):

After successful completion of the program a student is expected to have Specific abilities to:

PSO 1: Translate end-user requirements into system and software requirements.

PSO 2: Generate a high-level design of the system from the software requirements.

PSO 3: Experience and/or awareness of testing problems and will be able to develop a simple testing report.

PSO 4: Understand and develop various structure and behavior UML diagrams.

PSO 5: Explain the knowledge of project management tool Demonstrate how tomanage file using Project Libre project management tool.

PROGRAM OUTCOMES (POs)

Engineering Graduates should possess the following:

1. **Engineering knowledge**: Apply the knowledge of mathematics, science, engineering fundamentals, and an engineering specialization to the solution of complex engineering problems.

2. **Problem analysis**: Identify, formulate, review research literature, and analyze complex engineering problems reaching substantiated conclusions using first principles of mathematics, natural sciences, and engineering sciences.

3. **Design / development of solutions**: Design solutions for complex engineering problems and design system components or processes that meet the specified needs with appropriate consideration for the public health and safety, and the cultural, societal, and environmental considerations.

4. **Conduct investigations of complex problems**: Use research-based knowledge and research methods including design of experiments, analysis and interpretation of data, and synthesis of the information to provide valid conclusions.

5. **Modern tool usage**: Create, select, and apply appropriate techniques, resources, and modern engineering and IT tools including prediction and modeling to complex engineering activities with an understanding of the limitations.

6. **The engineer and society**: Apply reasoning informed by the contextual knowledge toassess societal, health, safety, legal and cultural issues and the consequent responsibilities relevant to the professional engineering practice.

7. **Environment and sustainability**: Understand the impact of the professional engineering solutions in societal and environmental contexts, and demonstrate the knowledge of, and need for sustainable development.

8. **Ethics**: Apply ethical principles and commit to professional ethics and responsibilities and norms of the engineering practice.

9. **Individual and team work**: Function effectively as an individual, and as a member or leader in diverse teams, and in multidisciplinary settings.

10. **Communication**: Communicate effectively on complex engineering activities with the engineering community and with society at large, such as, being able to comprehend and write effective reports and design documentation, make effective presentations, and give and receive clear instructions.

11. **Project management and finance**: Demonstrate knowledge and understanding of the engineering and management principles and apply these to one’s own work, as a member and leader in a team, to manage projects and in multi-disciplinary environments.

12. **Life- long learning**: Recognize the need for, and have the preparation and ability to engage in independent and life-long learning in the broadest context of technological change.

MALLA REDDY COLLEGE OF ENGINEERING & TECHNOLOGY

Maisammaguda, Dhulapally Post, Via Hakimpet, Secunderabad – 500100

DEPARTMENT OF COMPUTATIONAL INTELLIGENCE (CSE-AIML)

GENERAL LABORATORY INSTRUCTIONS

1. Students are advised to come to the laboratory at least 5 minutes before (to starting time), those who come after 5 minutes will not be allowed into the lab.
2. Plan your task properly much before to the commencement, come prepared to the lab with the synopsis / program / experiment details.
3. Student should enter into the laboratory with:
   a. Laboratory observation notes with all the details (Problem statement, Aim, Algorithm, Procedure, Program, Expected Output, etc.,) filled in for the lab session.
   b. Laboratory Record updated up to the last session experiments and other utensils (if any) needed in the lab.
   c. Proper Dress code and Identity card.
4. Sign in the laboratory login register, write the TIME-IN, and occupy the computer system allotted to you by the faculty.
5. Execute your task in the laboratory, and record the results / output in the lab observation notebook, and get certified by the concerned faculty.
6. All the students should be polite and cooperative with the laboratory staff, must maintain the discipline and decency in the laboratory.
7. Computer labs are established with sophisticated and high-end branded systems, which should be utilized properly.
8. Students / Faculty must keep their mobile phones in SWITCHED OFF mode during the lab sessions. Misuse of the equipment, misbehaviors with the staff and systems etc., will attract severe punishment.
9. Students must take the permission of the faculty in case of any urgency to go out; if anybody found loitering outside the lab / class without permission during working hours will be treated seriously and punished appropriately.
10. Students should LOG OFF/ SHUT DOWN the computer system before he/she leaves the lab after completing the task (experiment) in all aspects. He/she must ensure the system / seat is kept properly.

Head of the Department **Principal**

II Year B.Tech. CSE- I Sem **L/T/P/C**
0/0/2/1

SOFTWARE ENGINEERING LAB (R22A0585)

Objectives:

- Discuss and Analyses how to develop software requirements specifications for a given problem.
- To understand Software development as a process
- To implement various software designs, data flow diagram models.
- various testing techniques including white box testing black box testing regression testing
- To have hands on experience in developing a software project by using various software engineering principles and methods in each of the phases of software development.

WEEK 1:
Development of problem statements.

WEEK 2:
Preparation of Software Requirement Specification Document, Design Documents and Testing Phase related documents.

WEEK 3:
Preparation of Software Configuration Management and Risk Management related documents.

WEEK 4:
Study and usage of any Design phase CASE tool.

WEEK 5:
Performing the Design by using any Design phase CASE tools.

WEEK 6:
Develop test cases for unit testing and integration testing.

WEEK 7:
Develop test cases for various white box and black box testing techniques.

Sample Projects:

1. Passport automation System
2. Book Bank
3. Online Exam Registration
4. Stock Maintenance System
5. Online course reservation system
6. E-ticketing
7. Software Personnel Management System

8. Credit Card Processing
9. E-book management System.
10. Recruitment system

TEXT BOOKS:

1. Software Engineering, A practitioner's Approach- Roger S. Pressman, 6th edition, McGraw Hill International Edition.
2. Software Engineering-Sommerville, 7th edition, Pearson Education.
3. The unified modeling language user guide Grady Booch, James Rambaugh, Ivar Jacobson, Pearson Education.

REFERENCE BOOKS:

1. Software Engineering, an Engineering approach- James F. Peters, Witold Pedrycz, John Wiley.
2. Software Engineering principles and practice-Waman S Jawadekar

COURSE OUTCOMES:

- Ability to translate end-user requirements into system and software requirements
- Ability to generate a high-level design of the system from the software requirements
- Will have experience and/or awareness of testing problems and will be able to develop a simple testing report
- Understand and develop various structure and behavior UML diagrams.
- Explain the knowledge of project management tool Demonstrate how to manage file using Project Libre project management tool.

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DEPARTMENT OF COMPUTATIONAL INTELLIGENCE(CSE-AIML)

SOFTWARE ENGINEERING Lab Manual (R22A0585)

TABLE OF CONTENTS

WEEK 1

AIM: To develop problem statements for a library management system.

Problem Statement:

Statement of a current issue/problem that requires timely action to improve the situation.

Process Flow of Library Management System:

- ➔ A Book Bank lends books and magazines to member, who is registered in the system.
- ➔ Also it handles the purchase of new titles for the Book Bank.
- ➔ Popular titles are brought into multiple copies.
- ➔ Old books and magazines are removed when they are out or date or poor in condition.
- ➔ A member can reserve a book or magazine that is not currently available in the book bank, so that when it is returned or purchased by the book bank, that person is notified.
- ➔The book bank can easily create, replace and delete information about the tiles, members, loans and reservations from the system.

Components:

- ➔ Problem
- ➔ Proposed Solution
- ➔ Solution(s) and its implementation steps

Roles & Responsibilities:

a) Librarian:
  - → Admin
  - → Adding & modifying books etc.
  - → Inventory maintenance

b) Member:
  - → Registered users
  - → Search available books
  - → Order & book return

c) System:
  - → Notifications for overdue, availability of book etc.

Inputs:

- → Author Name
- → Published Year
- → Price
- → Book ID
- → User details like id, password for logging in
- → Communication Details

Problems/Constraints:

- → Updating difficulties on account of adding of new books regularly.
- → Faster due date notification(s).
- → Internet Bandwidth
- → Unavailability of e-books

WEEK 2

AIM:

Preparation of Software Requirement Specification Document, Design Documents and Testing Phase Related documents.

Preparation of Software Requirement Specification Document:

Users Characteristics:

Student: They are the people who desire to obtain the books and submit the information to the database.

Librarian: He has the certain privileges to add the books and to approval of the reservation of books.

System Modules:

Log in: Secure registration of student and librarian by filling online registration form.

Book bank: Book bank contains all the books. New book added to the book bank with book no, titlename, author, edition, publisher name details to the database. Any book is deleted if damaged. Update of the book information also done.

Operations: student and administrator perform their operations like add book, delete book,update information, view book details are implemented in log in Web Pages.

Non-functional requirements:

Privacy: privacy maintained for each and every user by providing user credentials username and password.

Portability: installation on multiple platforms and execution of software.

Design Document:

- ➔ Algorithm, Data Structure, Architecture and other support Information is maintained in a design document.

Diagrams:

a. Use Case:

→ System details summary & all users in the system.

b. Activity:

→ System behavior (inclusive of dynamic aspects).

c. Sequence:

→ Message flow with the time stamp.

d. Class:

→ System Structure (Name, Attributes, Operations).

e. State Chart:

→ States specific to components/objects of a system.

f. Deployment:

→ System architecture with respect to execution.

Test Plan Document:

➔ Test plan document contains all the catalog information of test strategies, objectives, schedule, estimations and resources required to complete the project.

➔ A "Test Case" refers to the actions required to verify a specific feature or functionality in software testing.

Test Case Design Template:

Test Case ID:	**Description:**	**Test Steps:**	**Expected Results:**	**Actual Results:**	**Pre-Requisites:**	**Pass/Fail:**	**Remarks:**

WEEK 3

AIM:

Preparation of Software Configuration Management and Risk Management related documents for library management system.

Preparation of Software Configuration Management

➔ Forms basis for End User License Agreement (EULA).

➔ All the compatibilities of implementing the system can be known.

Software Requirements:

Operating System: Windows 7/10

Front end : J2EE

Back end : MySQL Server

IDE used : NetBeans

Hardware Requirements:

Processor: i3 or higher

RAM : 4 GB

Hard Disk drive: 500 GB

Risk Management:

➔ Relates to the factors that have negative impact on the software project.

➔ Categorized into

i. Known risks

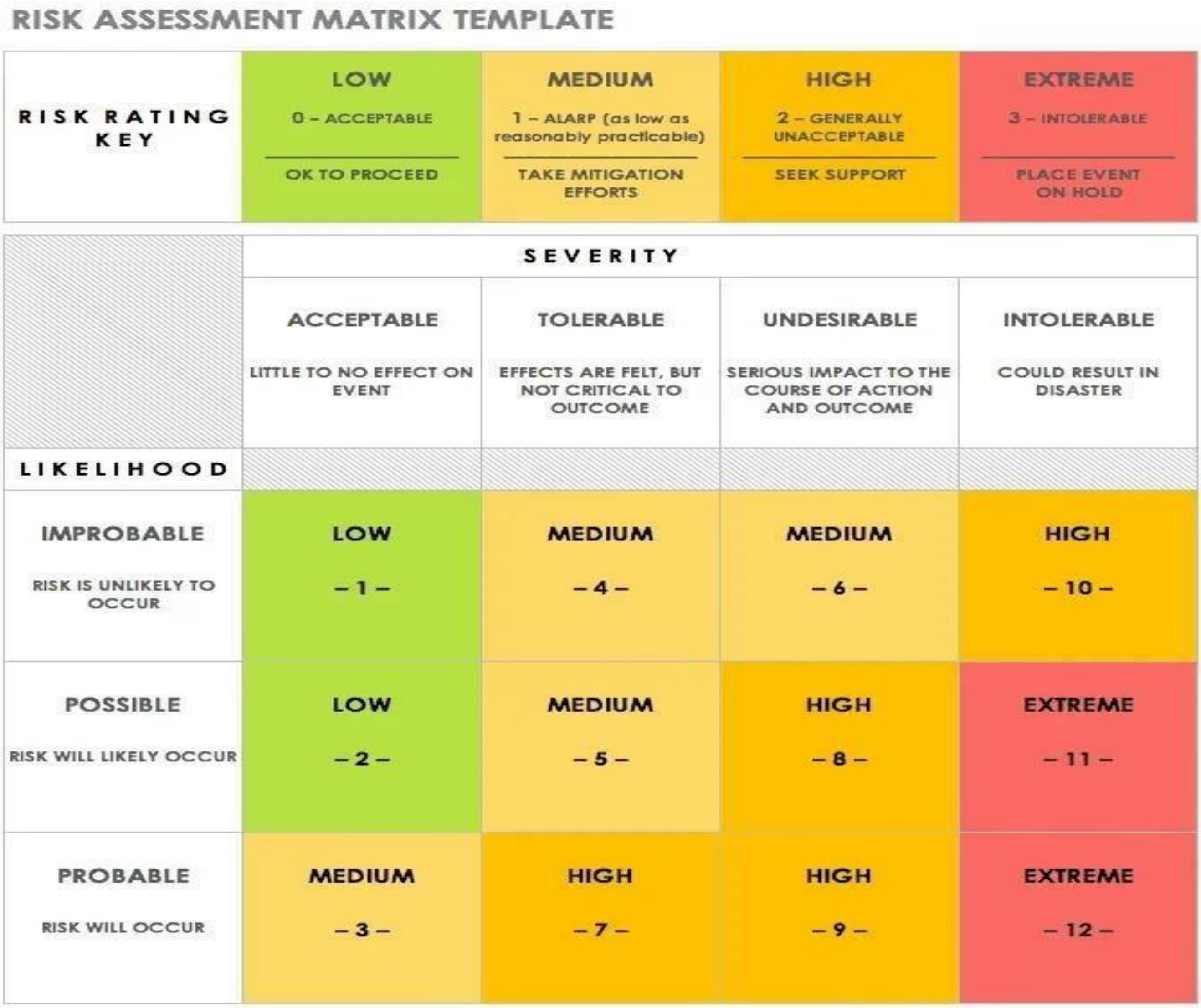
ii. Unknown risks

→ Known risks are the "predictable" risks that can be easily categorized.

Example: Staffing, Code errors etc.

→ Unknown risks are the "unpredictable" risks that cannot be identified and categorized easily.

Example: Natural disasters, epidemic, recession etc.



RISK ASSESSMENT MATRIX TEMPLATE

RISK RATING KEY	LOW	MEDIUM	HIGH	EXTREME
	0 – ACCEPTABLE	1 – ALARP (as low as reasonably practicable)	2 – GENERALLY UNACCEPTABLE	3 – INTOLERABLE
	OK TO PROCEED	TAKE MITIGATION EFFORTS	SEEK SUPPORT	PLACE EVENT ON HOLD

	SEVERITY			
	ACCEPTABLE LITTLE TO NO EFFECT ON EVENT	TOLERABLE EFFECTS ARE FELT, BUT NOT CRITICAL TO OUTCOME	UNDESIRABLE SERIOUS IMPACT TO THE COURSE OF ACTION AND OUTCOME	INTOLERABLE COULD RESULT IN DISASTER
LIKELIHOOD				
IMPROBABLE RISK IS UNLIKELY TO OCCUR	LOW – 1 –	MEDIUM – 4 –	MEDIUM – 6 –	HIGH – 10 –
POSSIBLE RISK WILL LIKELY OCCUR	LOW – 2 –	MEDIUM – 5 –	HIGH – 8 –	EXTREME – 11 –
PROBABLE RISK WILL OCCUR	MEDIUM – 3 –	HIGH – 7 –	HIGH – 9 –	EXTREME – 12 –

WEEK 4

AIM:

Study and usage of any Design phase CASE tool

Design phase CASE tool:

CASE Tool: STARUML

How to Install StarUML on Windows 10

➔ Star UML is a UML (**Unified Modeling Language**) tool introduced by MKLab. It is an open-source modeling tool that supports the UML framework for system and software modeling. StarUML is based on UML version 1.4, which provides 11 different types of diagrams and it accepts UML 2.0 notation. Version 2.0 was released for beta testing under a property license.

➔ StarUML is actively supporting the **MDA (Model Driven Architecture).** It supports the UML profile concept and allowing it to generate code for multiple languages. It also provides a number of bug fixes and improved compatibility with the modern versions of the Windows Operating System.

➔ StarUML is mostly used by the Agile and small development teams, professional persons and used by the educational institutes.

Features of StarUML:

1. It supports multi-platform such as Mac OS, Windows, and Linux.
2. It involves UML 2.x.standard compliant.
3. Includes Entity-Relationship Diagram (ERD), Data-Flow Diagram (DFD) and Flowchart diagrams.
4. It creates multiple windows.
5. It has modern UX and dark and light themes.
6. Featured with retina (High-DPI) display support.
7. Includes model-driven development.
8. It has open Application Programming Interface (API).

9. Supports various third-party extensions.
10. Asynchronous model validation.
11. It can export to HTML docs.

Steps to Download and Install StarUML

Step 1: Go on the browser, type in the URL “StarUML”.

Step 2: Click on the very first search “Download-StarUML”.

Step 3: There will be 3 Operating Systems (OS) options, click on the option as per the devise OS.

Step 4: Now, right-click on the downloaded file, select “Show in Folder” option.

Step 5: Click on the open file, a popup window opens, click on the “Yes” button.

Step 6: Installation gets start. After installation popup opens to ask to buy a license. If you want to click on the “Buy Now” button or else close that window. StarUML is ready to use.

Week 5

Aim: **To design performance using Design phase CASE Tool.**

CASE Tool: StarUML

Use Case Diagrams:

The book bank use cases are:

1. book_issue
2. book_return
3. book_order
4. book_entry
5. search book_details

Actors Involved:

1. Student
2. Librarian
3. Vendor

I) Usecase Name: Search Book_Details

The librarian initiates this use case when any member returns or request the book and checking ifthe book is available.

Precondition: The librarian should enter all Book details.

Normal Flow: Build message for librarian who search the book.

Post Condition: Send message to respective member who reserved the book.

II) Usecase Name: Book_ Issue

Initiated by librarian when any member wants to borrow the desired book. If the book is available, the book is issued.

Precondition: Member should be valid member of library.

Normal Flow: Selected book will be issued to the member.

Alternative Flow: If book is not available then reserved book use case should be initiate. **Post Condition:** Update the catalogue.

III) Usecase Name: Book_Order

Initiated by librarian when the requested book is not available in the library at that moment. The book is reserved for the future and issued to the person when it is available.

Precondition: Initiatedonly when book is not available.

Normal Flow: It reserved the book if requested.

Post Condition: Mention the entry in catalogue for reservation.

IV) Usecase Name: Book_Return

Invoked by the librarian when a member returns the book.

Precondition: Member should be valid member of library.

Normal Flow: Librarian enters bookid and system checks for return date of the book.

AlternativeFlow: System checks for return date and if it returned late fine message will be displayed.

Post Condition: Check the status of reservation.

V) Usecase Name: Book_Entry

The purchase book use-case when new books invoke it or magazines are added to the library.

Precondition: Not available or more copies are required.

Normal Flow: Enter bookid, author information, publication information, purchased date, prize and number of copies.

Post Condition: Update the information in catalogue.

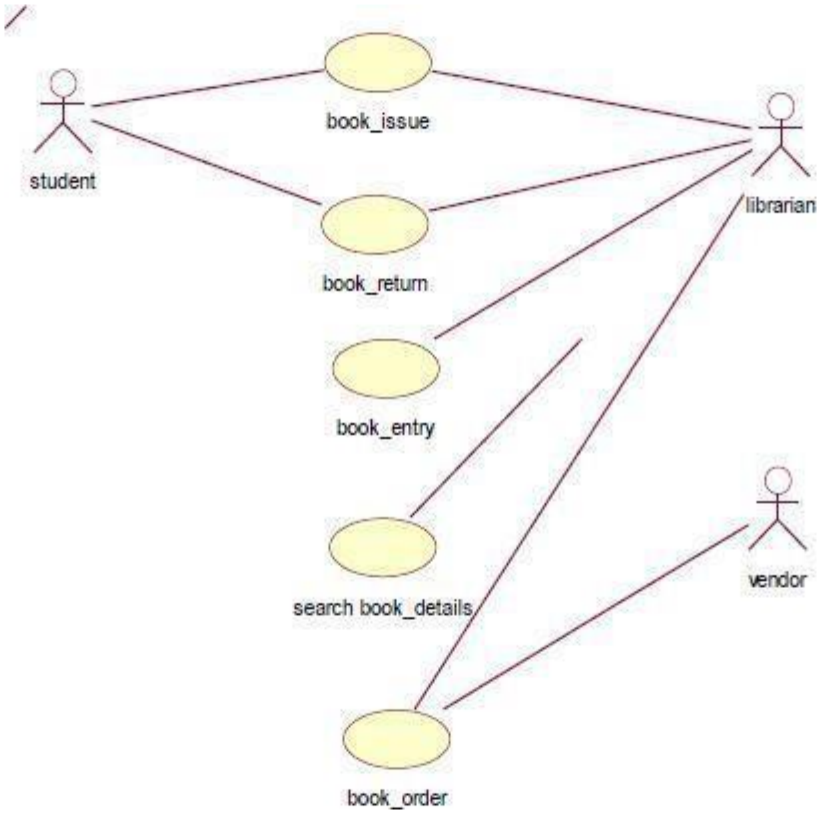


Figure 1. Use case diagram for Book Bank System

Activity Diagrams:

- ➔ They are used to describe the business and operational step-by-step workflows of components in a system.
- ➔ An activity diagram shows the overall flow of control.

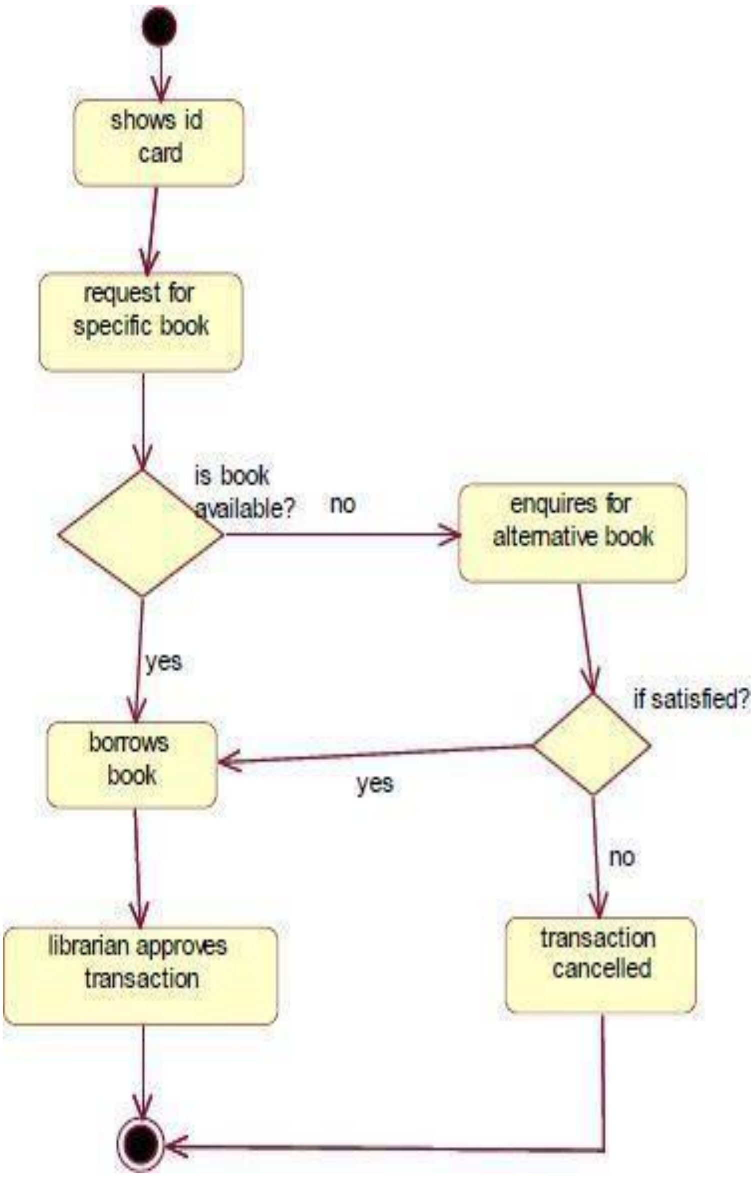


Figure 2. Activity Diagram for Book Bank System [borrow book]

- ➔ An activity is shown as a roundedbox containing the name of the operation. This activity diagram describes the behavior of the system.

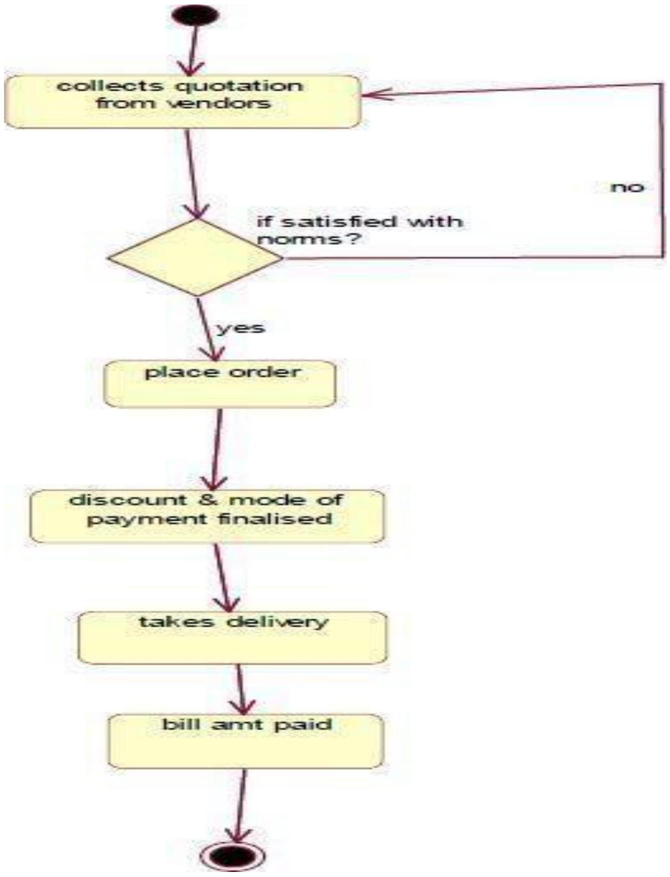


Figure 3. Activity Diagram for Book Bank System [order book]

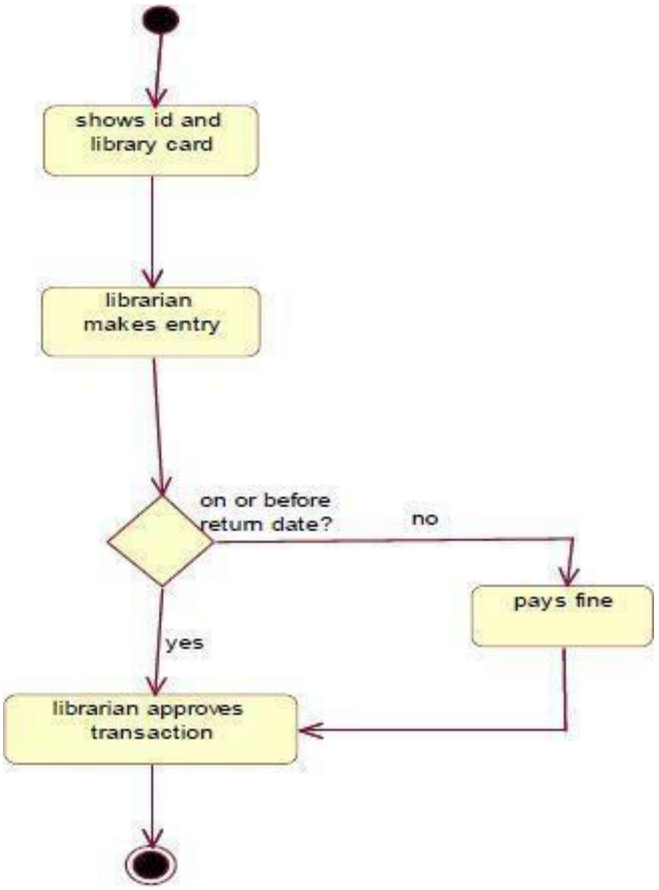


Figure 4. Activity Diagram for Book Bank System [Return book]

Sequence Diagram:

- ➔ A sequence diagram represents the sequence and interactions of a given USE-CASE or scenario. Sequence diagrams can capture most of the information about the system.

- ➔ Most object-to-object interactions and operations are considered events and events include signals, inputs, decisions, interrupts, transitions and actions to or from users or external devices.

- ➔ An event also is considered to be any action by an object that sends information. The event line represents a message sent from one object to another, in which the “form” object is requesting an operation be performed by the “to” object.

- ➔ The “to” object performs the operation using a method that the class contains. It is also represented by the order in which things occur and how the objects in the system sendmessage to one another.

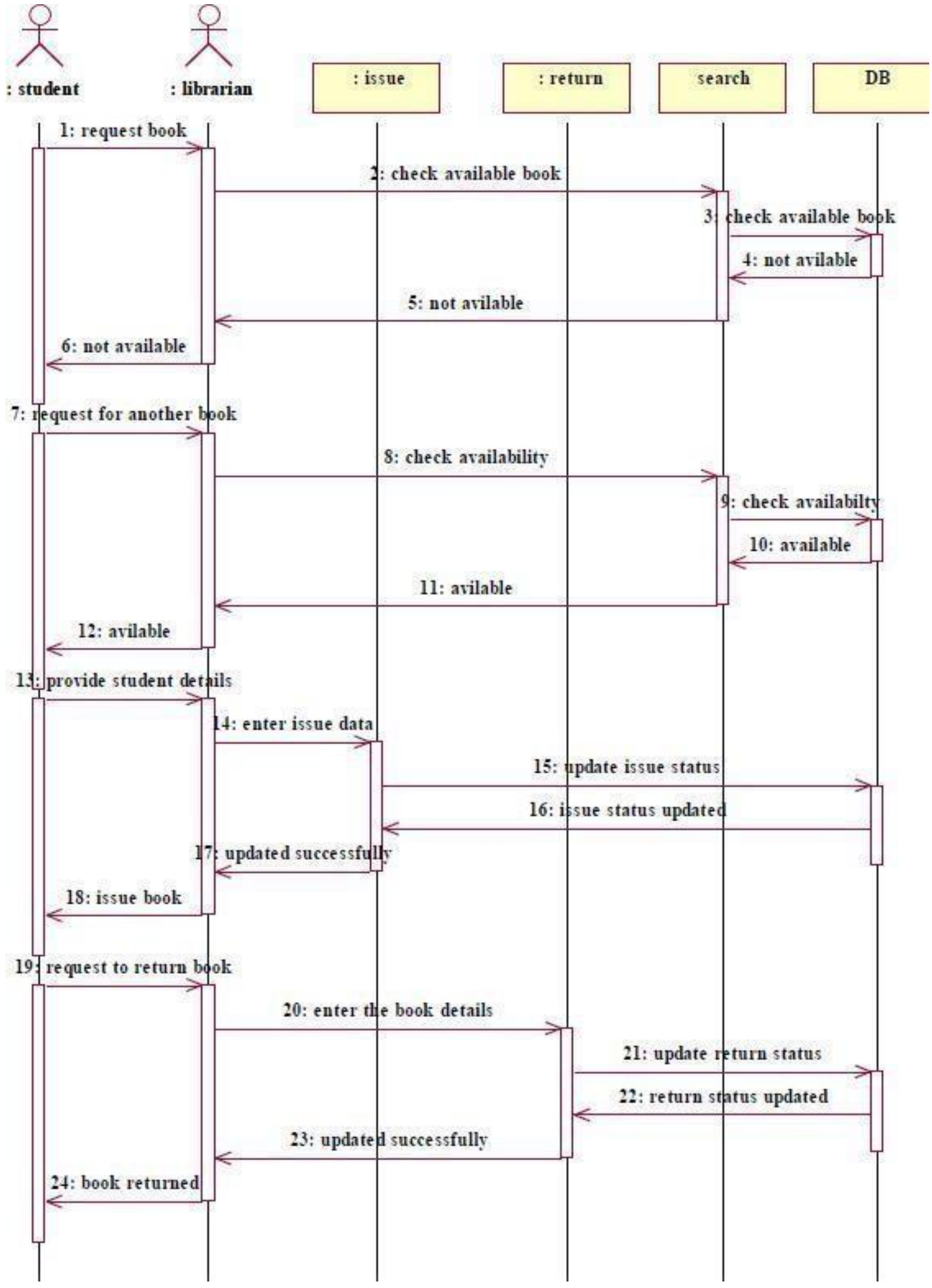


Figure 5. Sequence Diagram for Book Issue & Return

Collaboration Diagram:

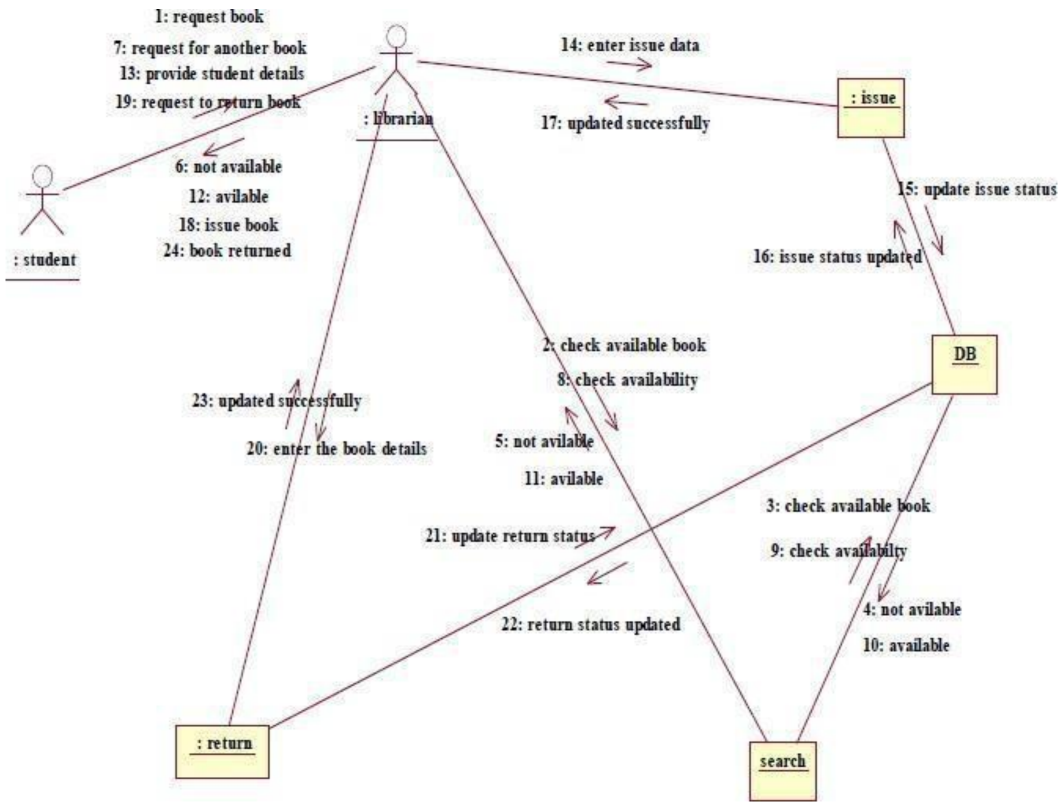


Figure 6. Collaboration Diagram for Book Issue & Return

Class Diagram:

- ➔ The class diagram, also referred to as object modeling is the main static analysis diagram.
- ➔ The main task of object modeling is to graphically show what each object will do in the problem domain.
- ➔ The problem domain describes the structure and the relationships among objects.

The ATM system class diagram consists of five classes:

1. Student
2. Book
3. Issue
4. Return
5. Vendor
6. Details

1) Student:

- ➔ It consists of twelve attributes and three operations.
- ➔ The attributes are enroll no, name, DOB, father name, address, dept name, batch and book limits.
- ➔ The operations of this class are addStInfo(), deleteStInfo(), modifyStInfo().

2) Book:

- ➔ It consists of ten attributes and four operations.
- ➔ This class is used to keep book information such as author, title, vendor, price, etc.

3) Issue:

- ➔ It consists of eight attributes and two operations to maintain issue details such as, issue date, acc no of issued book, name of the student who borrowed book.

4) Return:

- ➔ It consists of eight attributes and two operations to maintain issue details such as, issue date, acc no of issued book, name of the student who borrowed book.

5) Students:

- ➔ The attributes of this class are name, dept, year, bcode no.
- ➔ The operation is display students ().

) Details:

- ➔ The attributes of this class are book name, author, bcode no. The operations are delete details().

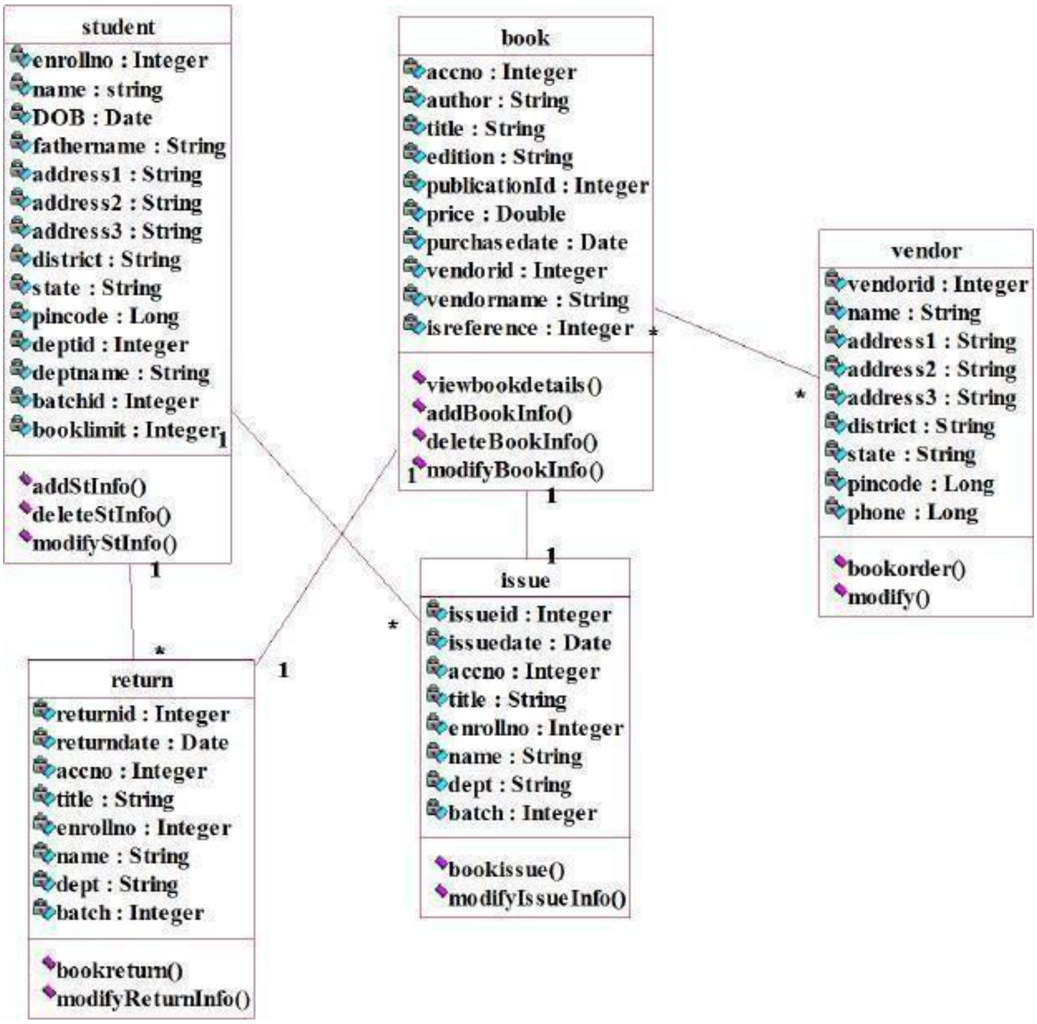


Figure 7. Class Diagram for Book Bank System

State Chart Diagram

It consists of state, events and activities. State diagrams are a familiar technique to describe the behavior of a system. They describe all of the possible states that a particular object can get into and how the object's state changes as a result of events that reach the object.

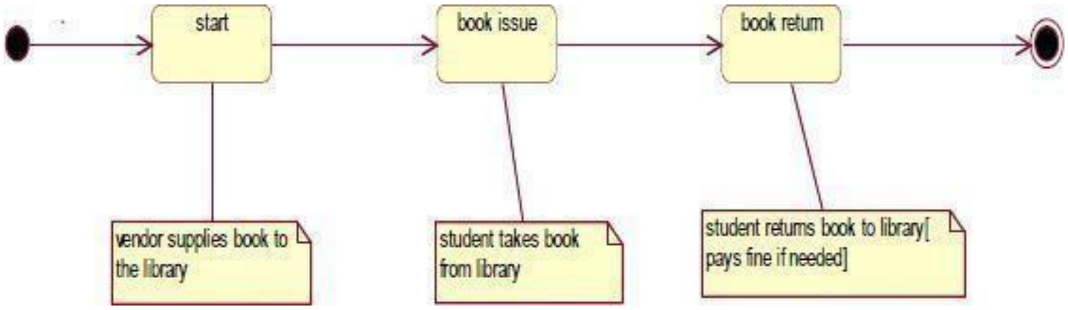


Figure 8. State Chart Diagram for Book Bank System

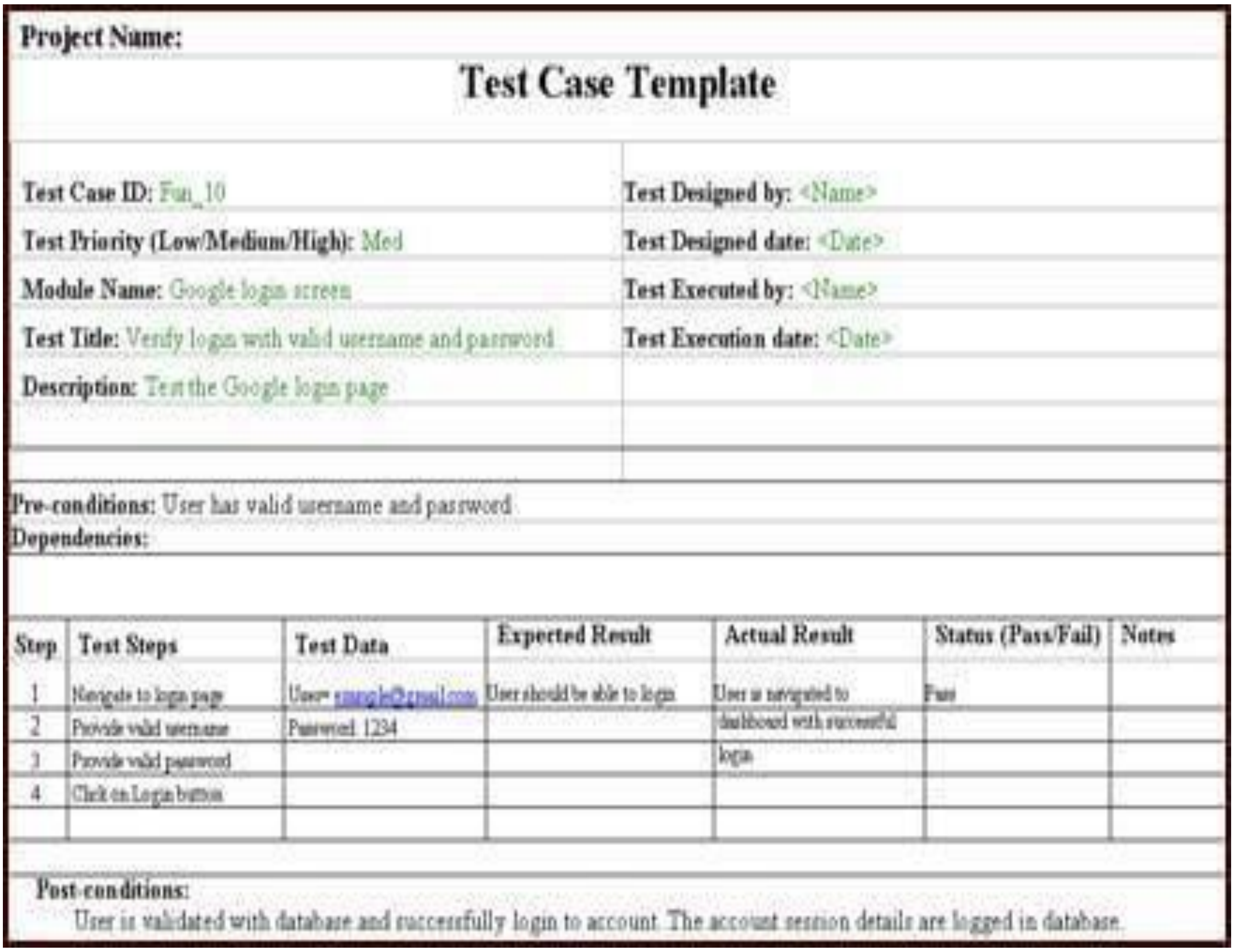
Week 6

Aim: To develop test cases for unit testing and integration testing.

Unit Testing:

→ It is a software development process in which the smallest testable parts of an application, called "units", are individually scrutinized for proper operation.

→ Software developers and sometimes QA staff complete unit tests during the development process.



Project Name:

Test Case Template

Test Case ID: Fun_10	**Test Designed by:** <Name>
Test Priority (Low/Medium/High): Med	**Test Designed date:** <Date>
Module Name: Google login screen	**Test Executed by:** <Name>
Test Title: Verify login with valid username and password	**Test Execution date:** <Date>
Description: Test the Google login page	

Pre-conditions: User has valid username and password

Dependencies:

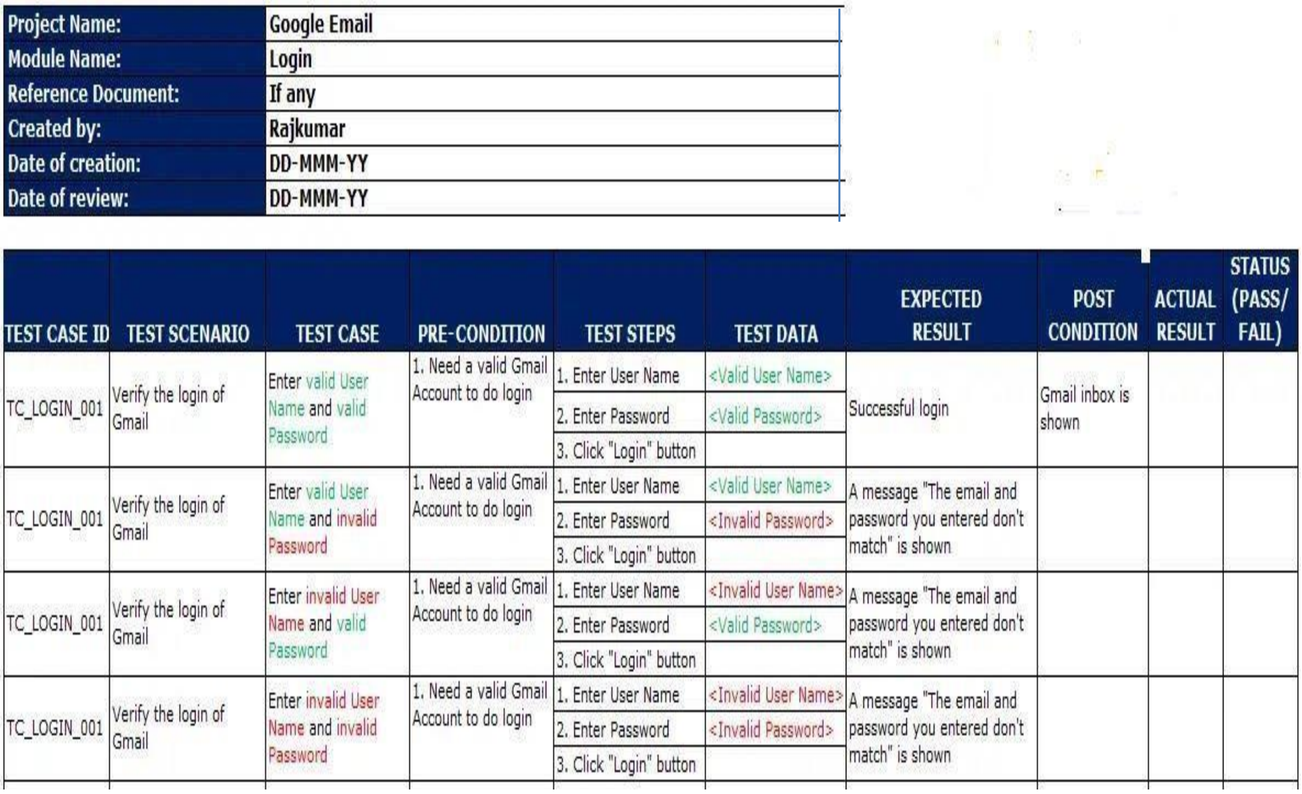
Step	Test Steps	Test Data	Expected Result	Actual Result	Status (Pass/Fail)	Notes
1	Navigate to login page	User= example@gmail.com	User should be able to login	User is navigated to dashboard with successful login	Pass	
2	Provide valid username	Password: 1234				
3	Provide valid password					
4	Click on Login button					

Post-conditions:
User is validated with database and successfully login to account. The account session details are logged in database.

Integration Testing:

→ It is a type of software testing where components of the software are gradually integrated and then tested as a unified group.

→ Usually, these components are already working well individually, but they may break whenintegrated with other components.



Project Name:	Google Email
Module Name:	Login
Reference Document:	If any
Created by:	Rajkumar
Date of creation:	DD-MMM-YY
Date of review:	DD-MMM-YY

TEST CASE ID	TEST SCENARIO	TEST CASE	PRE-CONDITION	TEST STEPS	TEST DATA	EXPECTED RESULT	POST CONDITION	ACTUAL RESULT	STATUS (PASS/ FAIL)
TC_LOGIN_001	Verify the login of Gmail	Enter valid User Name and valid Password	1. Need a valid Gmail Account to do login	1. Enter User Name 2. Enter Password 3. Click "Login" button	<Valid User Name> <Valid Password>	Successful login	Gmail inbox is shown		
TC_LOGIN_001	Verify the login of Gmail	Enter valid User Name and invalid Password	1. Need a valid Gmail Account to do login	1. Enter User Name 2. Enter Password 3. Click "Login" button	<Valid User Name> <Invalid Password>	A message "The email and password you entered don't match" is shown			
TC_LOGIN_001	Verify the login of Gmail	Enter invalid User Name and valid Password	1. Need a valid Gmail Account to do login	1. Enter User Name 2. Enter Password 3. Click "Login" button	<Invalid User Name> <Valid Password>	A message "The email and password you entered don't match" is shown			
TC_LOGIN_001	Verify the login of Gmail	Enter invalid User Name and invalid Password	1. Need a valid Gmail Account to do login	1. Enter User Name 2. Enter Password 3. Click "Login" button	<Invalid User Name> <Invalid Password>	A message "The email and password you entered don't match" is shown			

Week 7

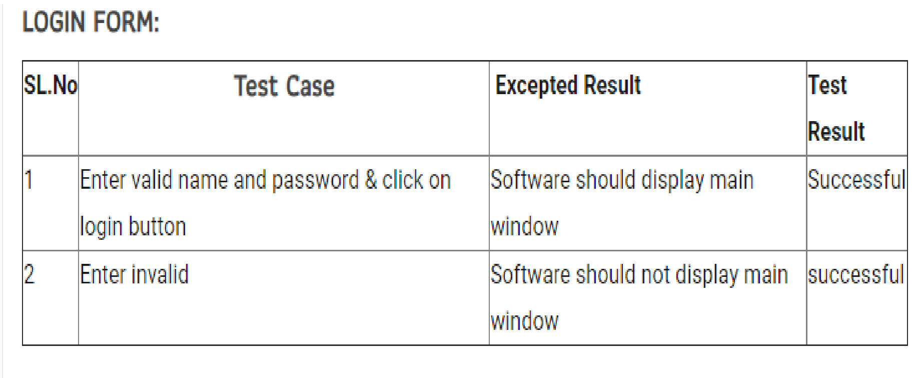
Aim: To develop test cases for various white box and black box testing techniques.

White Box Testing:

It is a form of application testing that provides the tester with complete knowledge of the application Being tested, including access to source code and design documents.

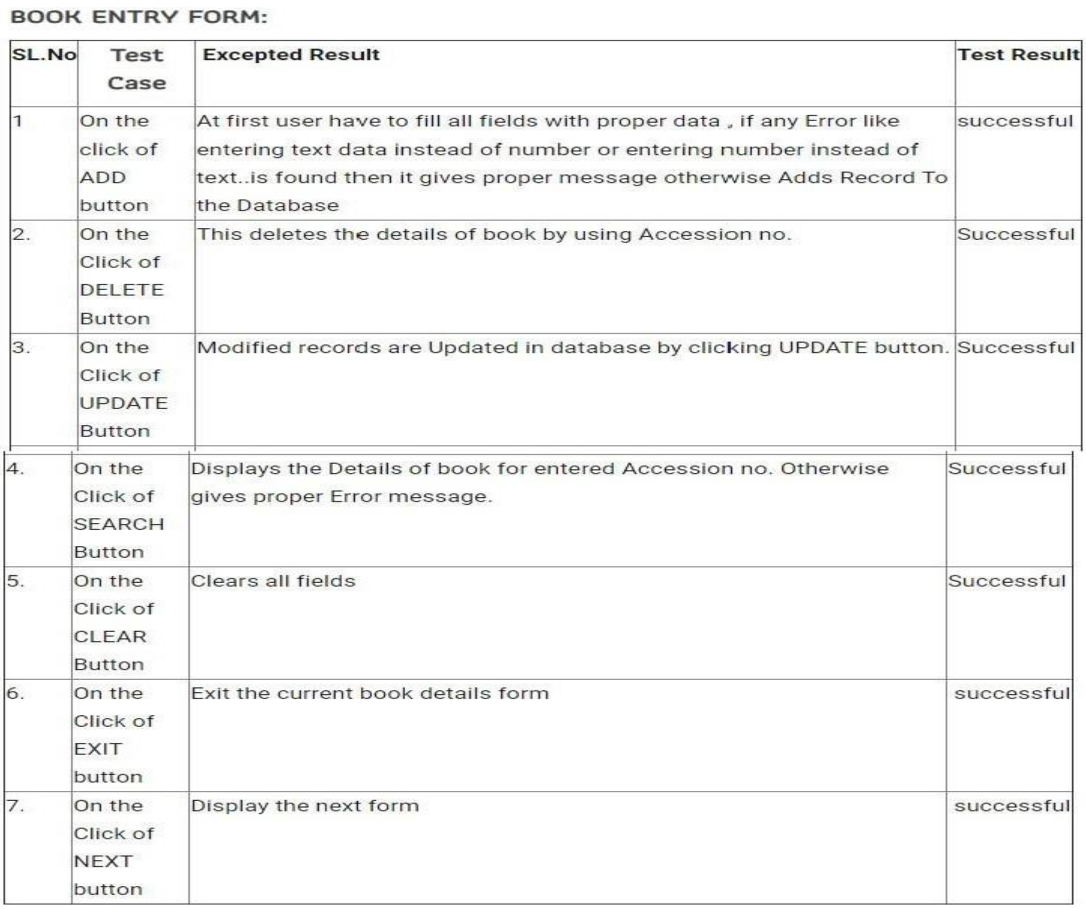
Black Box Testing:

It is a form of testing that is performed with no knowledge of a system's internals, can be carried out to evaluate the functionality, security, performance, and other aspects of an application.



LOGIN FORM:

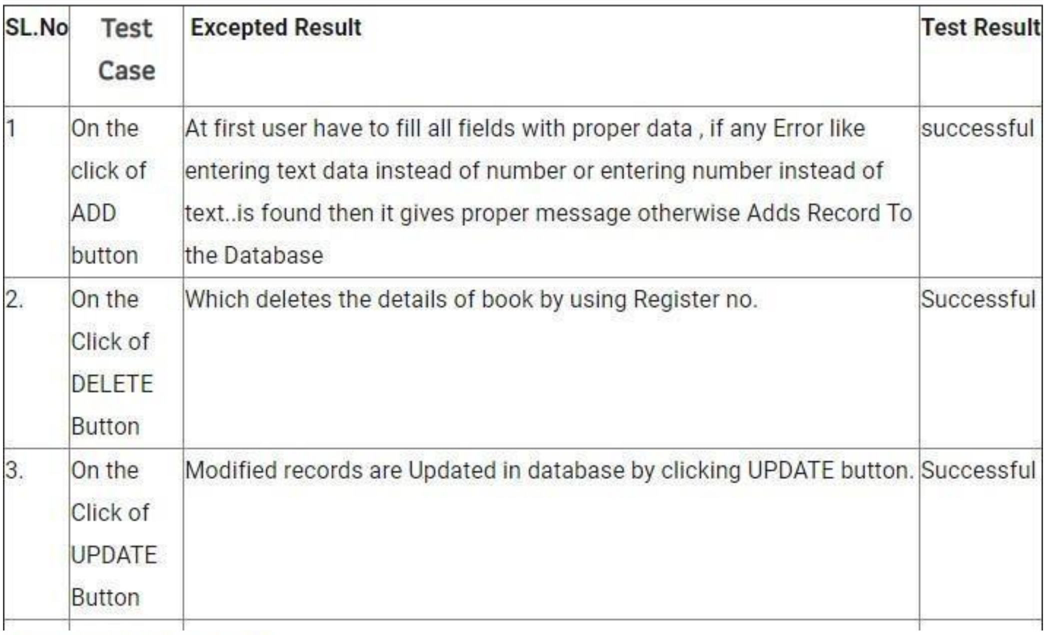
SL.No	Test Case	Excepted Result	Test Result
1	Enter valid name and password & click on login button	Software should display main window	Successful
2	Enter invalid	Software should not display main window	successful



BOOK ENTRY FORM:

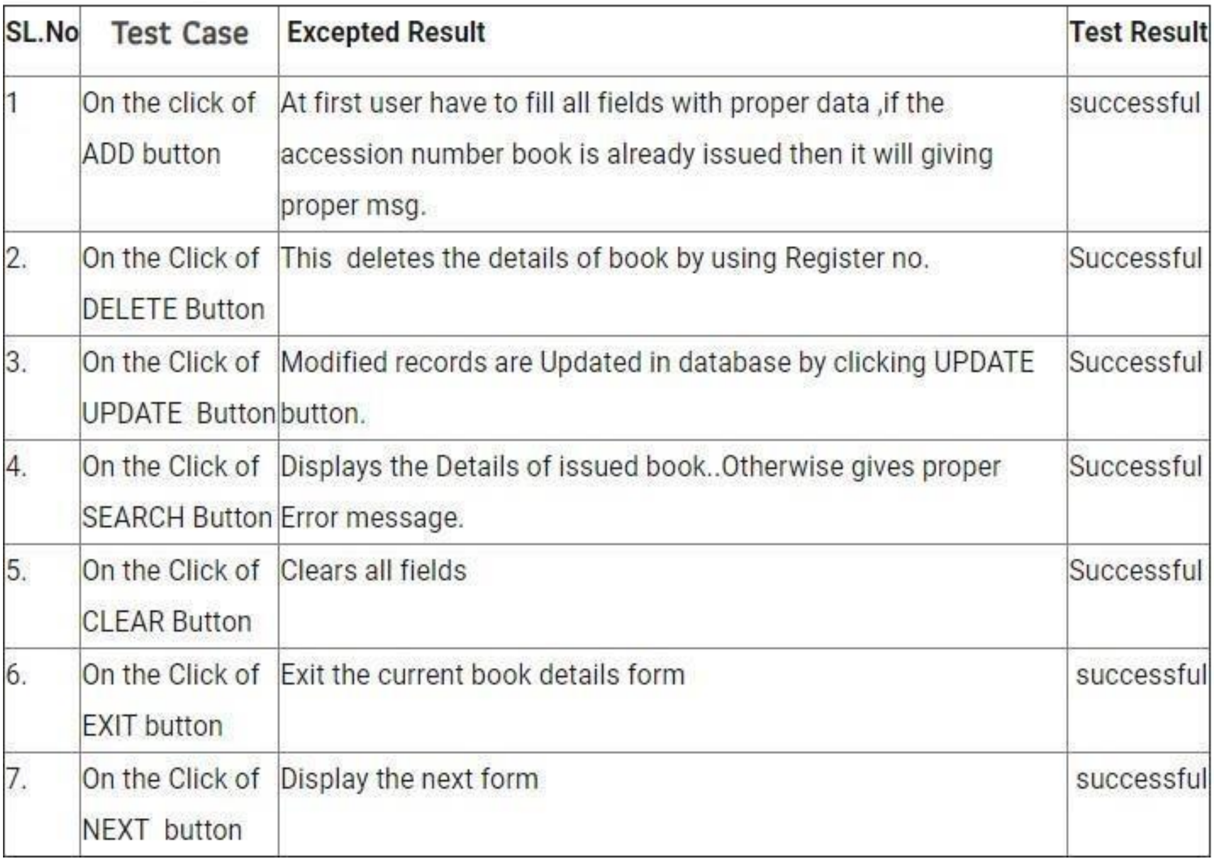
SL.No	Test Case	Excepted Result	Test Result
1	On the click of ADD button	At first user have to fill all fields with proper data , if any Error like entering text data instead of number or entering number instead of text..is found then it gives proper message otherwise Adds Record To the Database	successful
2.	On the Click of DELETE Button	This deletes the details of book by using Accession no.	Successful
3.	On the Click of UPDATE Button	Modified records are Updated in database by clicking UPDATE button.	Successful
4.	On the Click of SEARCH Button	Displays the Details of book for entered Accession no. Otherwise gives proper Error message.	Successful
5.	On the Click of CLEAR Button	Clears all fields	Successful
6.	On the Click of EXIT button	Exit the current book details form	successful
7.	On the Click of NEXT button	Display the next form	successful

BOOK RETURN FORM:

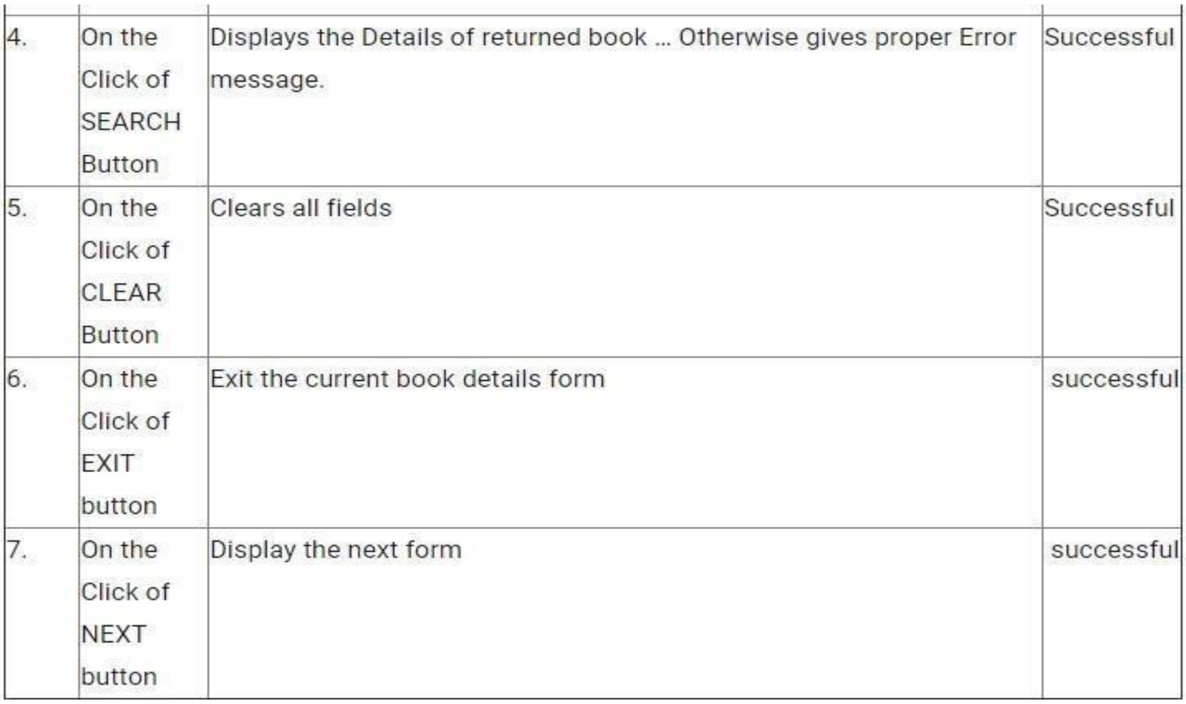


SL.No	Test Case	Excepted Result	Test Result
1	On the click of ADD button	At first user have to fill all fields with proper data , if any Error like entering text data instead of number or entering number instead of text..is found then it gives proper message otherwise Adds Record To the Database	successful
2.	On the Click of DELETE Button	Which deletes the details of book by using Register no.	Successful
3.	On the Click of UPDATE Button	Modified records are Updated in database by clicking UPDATE button.	Successful

BOOK ISSUE FORM:



SL.No	Test Case	Excepted Result	Test Result
1	On the click of ADD button	At first user have to fill all fields with proper data ,if the accession number book is already issued then it will giving proper msg.	successful
2.	On the Click of DELETE Button	This deletes the details of book by using Register no.	Successful
3.	On the Click of UPDATE Button	Modified records are Updated in database by clicking UPDATE button.	Successful
4.	On the Click of SEARCH Button	Displays the Details of issued book..Otherwise gives proper Error message.	Successful
5.	On the Click of CLEAR Button	Clears all fields	Successful
6.	On the Click of EXIT button	Exit the current book details form	successful
7.	On the Click of NEXT button	Display the next form	successful



4.	On the Click of SEARCH Button	Displays the Details of returned book ... Otherwise gives proper Error message.	Successful
5.	On the Click of CLEAR Button	Clears all fields	Successful
6.	On the Click of EXIT button	Exit the current book details form	successful
7.	On the Click of NEXT button	Display the next form	successful