

Darshan University

A Project Report on

"Employee Management System"

Under the subject

Software Engineering (2301CS405)

B. Tech, Semester – IV

Computer Science & Engineering Department

Submitted By

Student Name: Ida Gaurav R. Enrollment No.: 24010101637

Academic Year

(2024-2025)

Internal Guide Dean-DIET

Prof. R. B. Gondaliya Dr. Gopi Sanghani

Darshan University Darshan University



Computer Science & Engineering Department Darshan University

DECLARATION

We hereby declare that the SRS, submitted along with the **Software Engineering (2301CS405)** for entitled "Employee Management System" submitted in partial fulfilment for the Semester-4 of Bachelor Technology (B. Tech) in **Computer Science and Engineering (CSE)** Department to Darshan University, Rajkot, is a record of the work carried out at **Darshan University**, **Rajkot** under the supervision of R. B. Gondaliya and that no part of any of report has been directly copied from any students' reports, without providing due reference.

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e reference.
(Ida Gaurav R.)
Student's Signature
Date:



Computer Science & Engineering Department Darshan University

CERTIFICATE

This is to certify that the SRS on "Employee Management System" has been satisfactorily prepared by Ida Gaurav R. (24010101637) under my guidance in the fulfillment of the course Software Engineering (2301CS405) work during the academic year 2024-2025.

Internal Guide Prof. R. B. Gondaliya Darshan University Dean-DIET
Dr. Gopi Sanghani
Darshan University

ACKNOWLEDGEMENT

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Thus, in conclusion to the above said, I once again thank the faculties and members of **Darshan University** for their valuable support in completion of the project.

Thanking You

Ida Gaurav R.

ABSTRACT

The Employee Management System is a system designed to computerize and streamline the daily administrative and managerial tasks related to employee management within an organization. This system aims to transition traditional manual processes into a fully digital solution. The project includes features that are often missing in manual systems, such as secure user login for employees, managers, and admins, real-time task assignment and tracking, and leave management.

It also provides an admin login facility, enabling the admin to manage employee records, assign managerial roles, and update privileges. Managers can oversee tasks, roles, and department assignments for employees, while employees can log in to view tasks, update their status, check salary details, and apply for leaves.

The system is designed with essential features such as adding, viewing, updating, and deleting employee details, granting or revoking user permissions, and generating leave and task reports. Its primary purpose is to reduce human effort, enhance accuracy, and increase the efficiency of employee management operations.

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1 Introduction

1.1 Product perspective

The **Employee Management System** is designed to streamline and digitize the management of employee-related tasks and processes. This system replaces manual processes with a comprehensive internet-based application that supports multiple user roles, ensuring efficiency and accuracy in managing employees' information, tasks, and privileges. It provides functionality for administrators, managers, and employees, catering to small and medium-sized organizations.

1.2 Product features

1.2.1 User Roles:

- Admin: Responsible for managing employee records and system privileges.
- Manager: Oversees employees, their roles, tasks, and leave management.
- Employee: Performs assigned tasks, applies for leaves, and checks salary details.

1.2.2 Features for Admin:

- Add new employee records to the system.
- Edit employee details, such as contact information and department.
- Grant or revoke privileges for employees.
- Assign an employee as a manager.
- Deallocate a manager back to a standard employee role.
- View and manage the list of all employees.
- Secure login and logout functionality.

1.2.3 Features for Manager:

- Approve or deny leave requests submitted by employees.
- Assign roles and responsibilities to employees.
- Assign tasks and monitor their progress.
- Update the department assignment of an employee.
- View leave records of their team members.
- Secure login and logout functionality.

1.2.4 Features for Employees:

- View assigned tasks and update their status.
- Apply for leaves and track their approval status.
- Check salary details and payment history.
- Secure login and logout functionality.

1.3 Functional Requirement

1.3.1 Admin:

- Add Employee: The system shall allow the admin to input employee details such as name, role, and department.
- Edit Employee Details: The system shall enable the admin to update employee information when required.
- Grant Privileges: Admin can assign specific access permissions to employees.
- Revoke Privileges: Admin can remove specific permissions from employees.
- Assign Manager: Admin can designate an employee as a manager.

- Deallocate Manager: Admin can revoke managerial roles and assign them back as standard employees.
- Manage Employee Records: Admin can view, search, and manage the database of all employees.
- Authentication: Admin must log in securely before accessing the system.

1.3.2 Manager:

- Approve/Deny Leave Requests: Managers can view and respond to leave applications from employees.
- Assign Roles: Managers can assign or update employee roles within their department.
- Assign Tasks: Managers can allocate tasks and set deadlines for employees.
- Update Employee Department: Managers can reassign employees to other departments.
- View Leave Records: Managers can track and view approved leaves for their team.
- Authentication: Managers must log in securely before accessing the system.

1.3.3 Employee:

- Task Status Update: Employees can update their task status (e.g., "In Progress," "Completed").
- Apply for Leaves: Employees can submit leave requests for managerial approval.
- View Salary Details: Employees can check salary breakdowns and payment history.
- Authentication: Employees must log in securely before accessing the system.

1.4 Non-Functional Requirement

1.4.1 Usability:

• The UI should be simple enough for everyone to understand and get the relevant information without any special training. Different languages can be provided based on the requirements.

1.4.2 Accuracy:

• The data stored about the books and the fines calculated should be correct, consistent, and reliable.

1.4.3 Availability:

• The System should be available for the duration when the library operates and must be recovered within an hour or less if it fails. The system should respond to the requests within two seconds or less.

1.4.4 Maintainability:

• The software should be easily maintainable and adding new features and making changes to the software must be as simple as possible. In addition to this, the software must also be portable.

2 Design and Implementation Constraints

2.1 Use case diagram

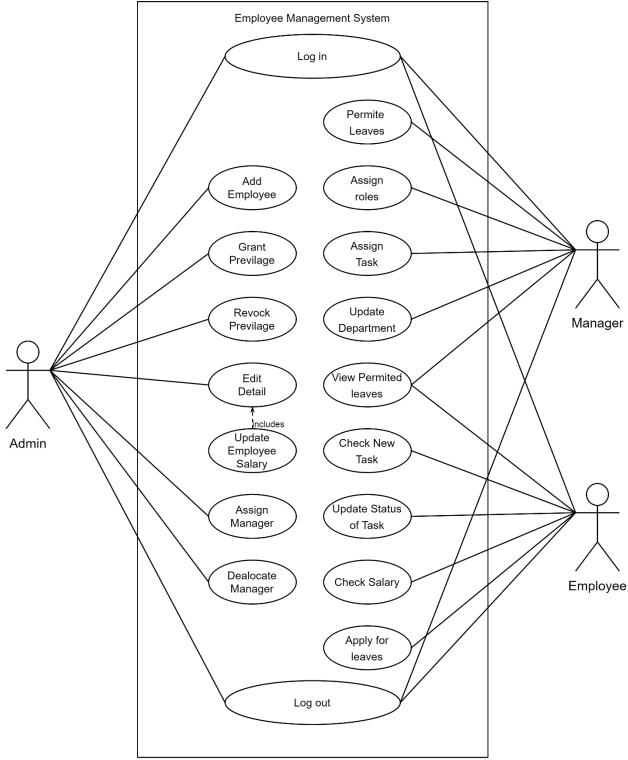


Figure 2.1-1 Use case diagram for Employee Management System

2.2 Activity diagram and Swimlane diagram

2.2.1 Activity diagram and Swimlane diagram for Assigning Manager

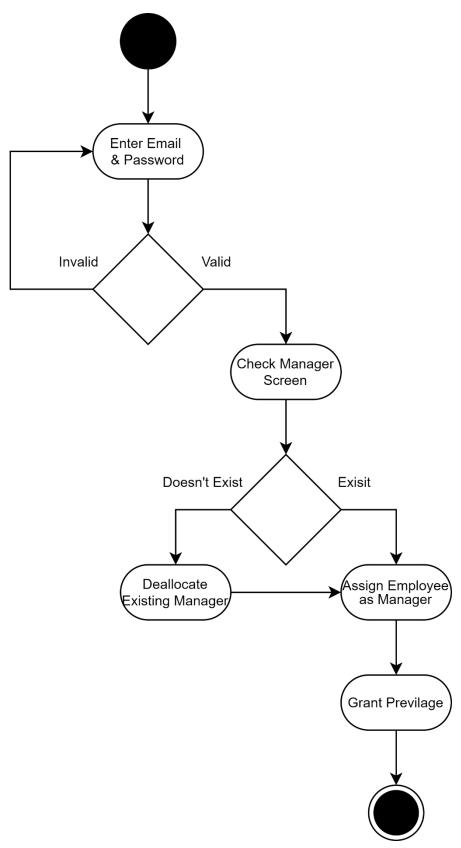


Figure 2.2.1-1 Activity diagram for Assigning Manager

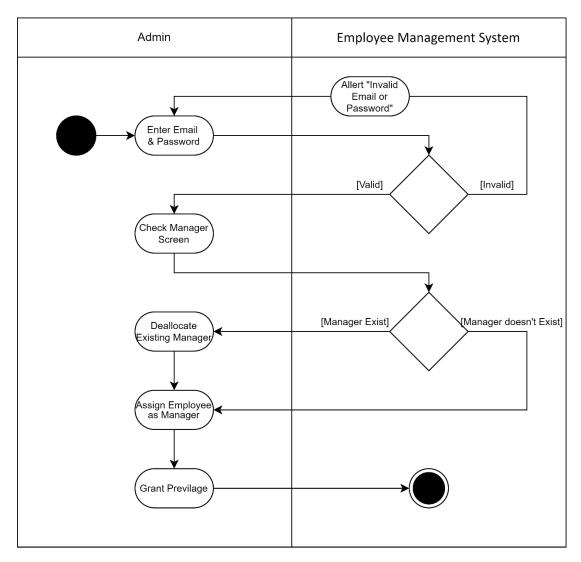


Figure 2.2.1-2 Swimlane diagram for Assigning Manager

2.2.2 Activity diagram and Swimlane diagram for Add Employee

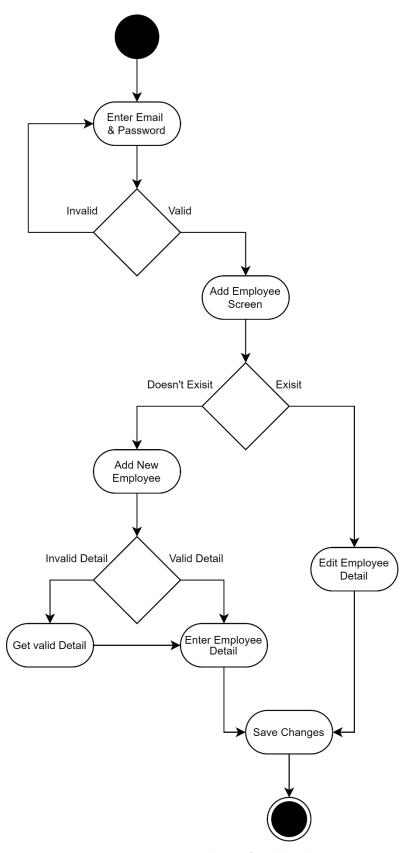


Figure 2.2.2-1 Activity diagram for Add Employee

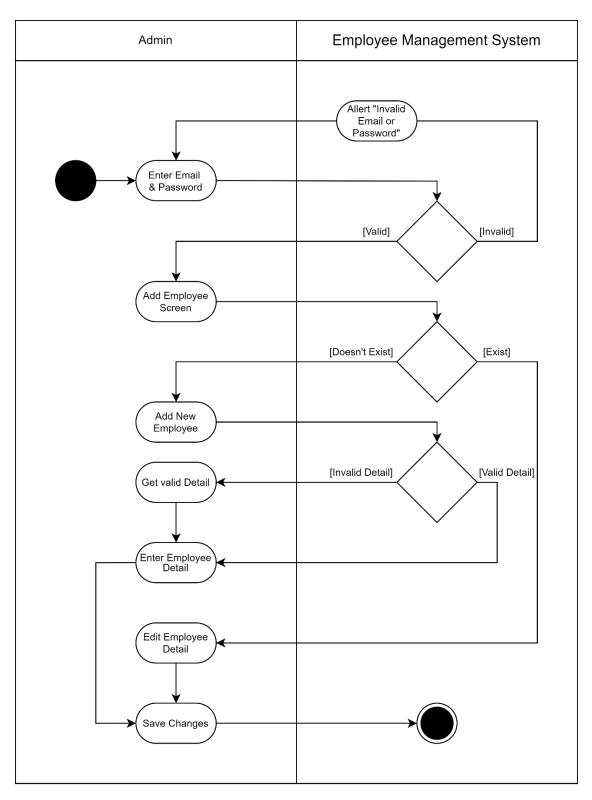


Figure 2.2.2-2 Swimlane diagram for Add Employee

2.3 Sequence diagram

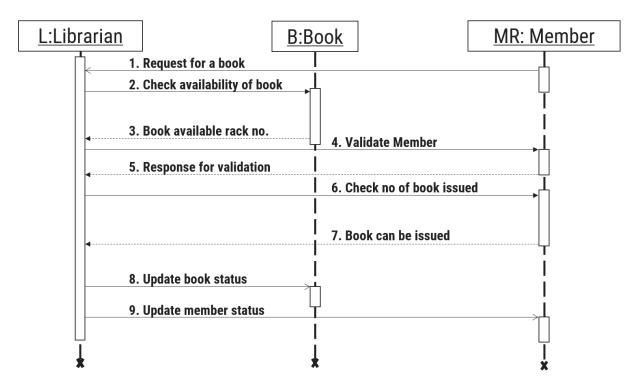


Figure 2.3-1 Sequence diagram for Book Issue

2.4 State diagram

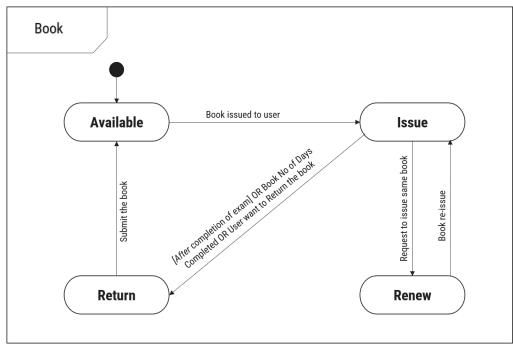


Figure 2.4-1 State diagram of Book

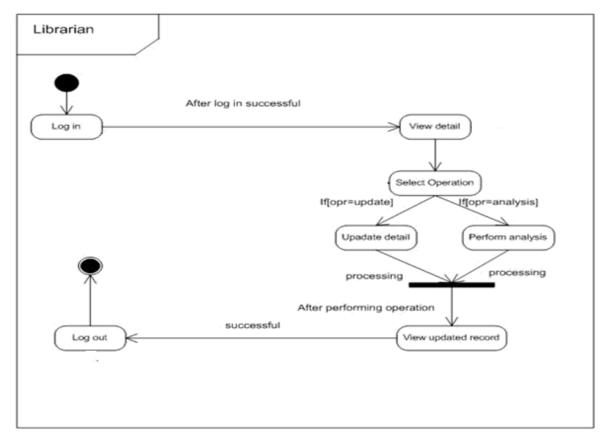


Figure 2.4-2 State diagram for Librarian

2.5 Class diagram

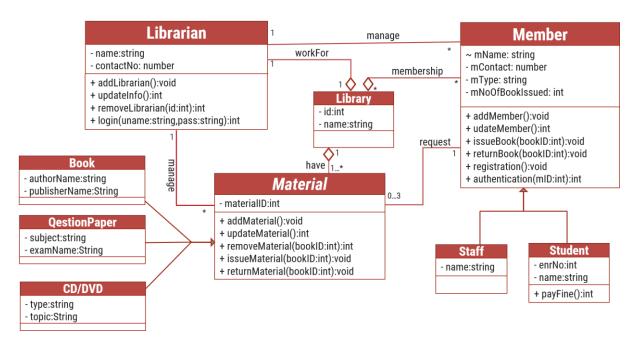


Figure 2.5-1 Class diagram for Library management system

2.6 Data flow diagram

2.6.1 Context diagram (level-0)

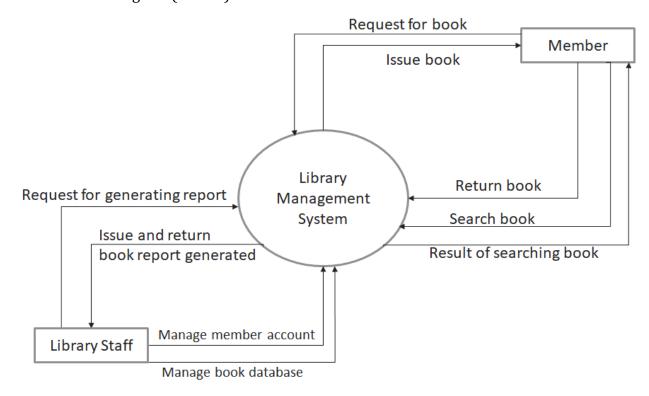


Figure 2.6-1 Context diagram for Library management system

2.6.2 DFD Level-1

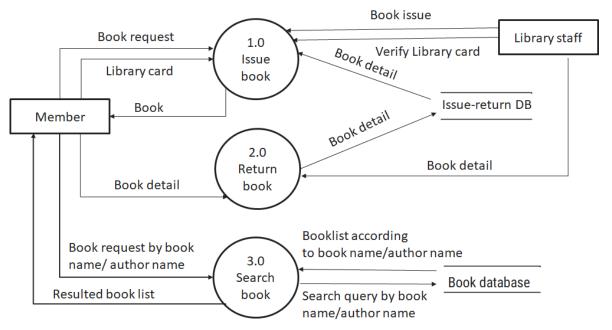


Figure 2.6-2 DFD level-1 for Library management system

2.6.3 DFD Level-2

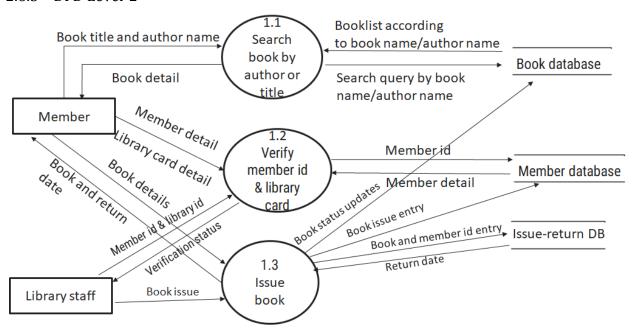


Figure 2.6-3 DFD level-2 for Issue book

3 External interface requirement (Screens)

3.1 Screen-1: Registration Form

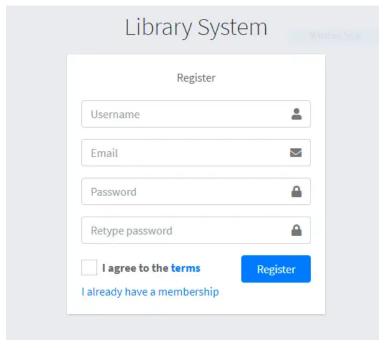


Figure 3.1-1 Screen-1: Registration Form

Purpose: This form will allow the target end-users to register in the system. To register , the following information will be encoded in the system.

Table 3.1-1 Screen element of Registration form

Sr.	Screen Element	Input Type	O/M	1/N	Description
1	Username	Textbox	М	1	Username field should be editable and accept the Username.
2	Email	Textbox	М	1	Email field should be editable and accept the email with proper format.
3	Password	Password	М	1	Password field should be editable and accept the password and display as star or dot.
4	Retype password	Password	М	1	Retype Password field should be editable and accept the password and display as star or dot.
5	I agree to the terms	Checkbox	М	1	Checkbox for accepting terms and condition.
6	I already have a membership	Link			Link for navigate to login page for registered user.
7	Register	Button			Register is a button for store the entered data into database.

3.2 Screen-2: Login Form

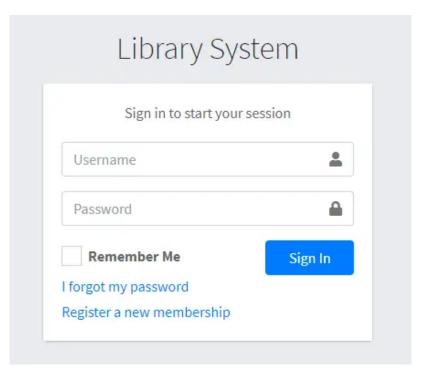


Figure 3.2-1 Screen-2: Login Form

Purpose: This form will be used by the system's users to access records and features of the system. The users will input the correct combination of their username and password to be able to login to the system.

Sr.	Screen Element	Input Type	О/М	1/N	Description
1	Username	Textbox	М	1	Username field should be editable and accept
					the Username.
2	Password	Password	М	1	Password field should be editable and accept the
					password and display as star or dot.
3	Remember Me	Checkbox	M 1	1	Saving login credentials through remember me
					checkbox
4	4 I forgot my Link			Link for navigate to Forgot password page for	
	password				allows users to recover password.
5	Register a new	Link			Link for navigate to membership registration.
	membership				
6	Sign in	Button			Login button navigates to another page even if
					valid login credentials.

Table 3.2-1 Screen element of Login form

3.3 Screen-3: Add borrower book

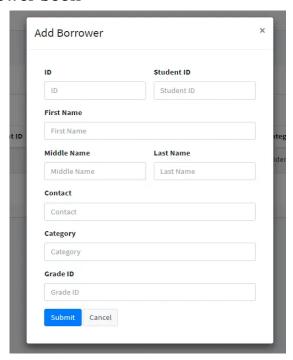


Figure 3.3-1 Screen-3: Add borrower book

Purpose: This module will allow the system administrator to add, edit, update or delete borrowers of book. The admin can add borrower information and manage it.

Table 3.3-1 Screen element of Add borrower book

Sr.	Screen Element	Input Type	O/M	1/N	Description
1	Borrower ID	Textbox	М	1	Borrower ID field should be editable and fill autogenerated Borrower ID.
2	Student ID	Textbox	М	1 Student ID field should be editable and accept Student barcode id.	
3	First Name	Textbox	М	1	First Name field should be editable and accept only string as a borrower first name.
4	Middle Name	Textbox	0	1	Middle Name field should be editable and accept only string as a borrower middle name.
5	Last Name	Textbox	М	1	Last Name field should be editable and accept only string as a borrower last name.
6	Contact	Textbox	М	1	Contact field should be editable and accept only 10-digit mobile number.
7	Grade Id	Textbox	0	1	Auto fetch detail from the database if proper student id is entered.
8	Submit	Button			Submit is a button for store the entered data into database.
9	Cancel	Button			Cancel is a button for close add borrower dialog.

4 Database design

4.1 List of Tables

- Book
- Borrower
- Student
- Staff

Table 4.1-1 Table: Book

Column	Data Type	Null	Keys & Constrains	Default Value & Description
BookID	int	NN	PK (Auto Increment)	
BookName	varchar(100)	NN		
ISBN	varchar(100)	AN		
Publication_year	int	AN		
Language	varchar(50)	AN		

Table 4.1-2 Table: Borrower

Column	Data Type	Null	Keys & Constrains	Default Value & Description
BorrowerID	int	NN	PK (Auto Increment)	
BookID	varchar(100)	NN	FK	Reference of Book Table
BorrowedFromDate	DateTime	AN		
BorrowedToDate	DateTime	AN		
ActualReturnDate	DateTime	AN		
IssuedBy	int	NN	FK	Reference of Student and Staff Table

Table 4.1-3 Table: Staff

Column	Data Type	Null	Keys & Constrains	Default Value & Description
StaffID	int	NN	PK (Auto Increment)	
StaffName	varchar(100)	AN		
IsAdmin	Boolean	AN		
Designation	varchar(100)	AN		

Table 4.1-4 Table: Student

Column	Data Type	Null	Keys & Constrains	Default Value & Description
StudentID	int	NN	PK (Auto Increment)	
StudentName	varchar(100)	AN		
Gender	varchar(100)	AN		
DOB	DateTime	AN		
Department	varchar(100)	AN		
Contact	number(10,0)	AN		

5 Stories and Scenario

5.1 Story-1: Add New Book in Library Catalogue

Story # 51	:	As a Librarian,		
		want to add a new book in library catalogue		
		So that everyone can easily find and borrow it.		
Priority	:	High		
Estimate	:	XL		
Reason	:	The addition of a new book to the library catalogue is crucial for ensuring that		
		the library's collection is up-to-date and accessible to everyone.		

5.1.1 Scenario# S1.1

an is logged in to the Library management system. The Librarian is navigated to the library catalog management page. book information, including title, author, ISBN, and other relevant is added.
The Librarian is navigated to the library catalog management page.
book information, including title, author, ISBN, and other relevant
is added.
rarian selects the "Add New Book" option ne librarian enters valid book details rarian clicks the "Save" button to add the book to the catalog.
he system successfully adds the book to the catalog and the librarian
1

5.1.2 Scenario# S1.2

Scenario# \$1.2	:	Adding a New Book with Invalid Information.			
Prerequisite	:	The librarian is logged into the library management system.			
Acceptance	:	Given: The librarian is on the library catalogue management page			
Criteria		When: The librarian selects the "Add New Book" option and the librarian			
		enters an incomplete or incorrect book details and librarian clicks the			
	"Save" button to add the book to the catalogue.				
		Then the system displays error messages for the incorrect or missing			
		information and the book is not added to the catalogue.			

5.1.3 Scenario# S1.3

Scenario# \$1.3	:	Attempting to Add a Duplicate Book					
Prerequisite	:	The librarian is logged into the library management system and the ibrary catalogue management page					
Acceptance Criteria	:	Given : The book information, including title, author, ISBN, and other relevant details, is available and the book with the same ISBN is already in the catalogue.					
		When : User Clicks on "Add book" button. Enter a number of copies with the same book detail mentioned in the field.					

Then: Generate unique book id, barcode and spine label for various book of same title.

5.2 Story-2: Search Book

Story # S2	:	As a Librarian or member,				
		want to search for books by title, author, or keyword,				
		So that I can quickly find books that match my interests.				
Priority	:	High				
Estimate	:	M				
Reason	:	Implementing a search functionality is essential for enhancing the user experience, as it allows librarian and member to efficiently discover and access the library's resources.				

5.3 Story-3: Manage due date for borrowed book

Story # S3	:	As Librarian,
		I want to manage due dates for borrowed books
		So that I can ensure that books are returned on time and avoid overdue fines.
Priority	:	High
Estimate	:	M
Reason	:	Proper due date management is crucial for maintaining the library's collection
		and ensuring that books are available for all members.

5.4 Story-4: Renew book

S: ".55		
Story # \$3	:	As Librarian,
		I want to renew a book that I have borrowed
		So that I can extend my borrowing period if needed.
Priority	:	Medium
Estimate	:	M
Reason	:	Book renewal functionality is a convenience feature for librarian, allowing
		them to keep a book for an extended period if no one else has requested it.

5.5 Story-5: Generate a report on book usage and availability

Story # \$3	:	As Librarian,					
		want to generate reports on library usage and book availability					
		So that I can make informed decisions about library's books.					
Priority	:	Medium					
Estimate	:	L					
Reason	:	Reporting functionality helps librarians track the usage of library resources and					
		make data-driven decisions to improve services and collections.					

6 Test cases

Project Name:	EMI Calculator	Test Designed by:	P. U. Jadeja
Module Name:	Login	Test Designed date:	01-10-2023
Release Version:	1.0	Test Executed by:	R. B. Gondaliya
		Test Execution date:	15-01-2023

Pre-condition: Web application should be accessible							
Test Case ID	Test Title	Test Type	Description	Test Case ID			
TC_001	Login to web application with valid credential	Functional	Login to Library management system web application through valid credential	TC_001			
TC_002	Login to web application with invalid credential	Functional	Login to Library management system web application through invalid credential	TC_002			
TC_003	Varify login page elements	GUI	varify that all elements are availabe on login page	TC_003			

Test Case Title	Login to web application with valid credential
Test Type	Functional
Test Priority	High
Pre-condition	Web application should be accessible

Test Step	Test Case Description	Expected Result	Actual Result	Status	Comment	Data	BUG ID
1	Access Web application URL	The site launched properly	Site launched successfully	Pass		https://accounts. google.com/Ser viceLogin	
2	Enter valid Username in username field	Username field should be editable and accept the Username	Username input accepted	Pass		Username: Rbgondaliya@ gmail.com	
3	Enter valid Password in Password field	Password field should be editable and accept the password and display as star or dot	Password input displayed in dot and accepted	pass		Password: rbgondaliya	
4	Enter valid captcha code in captch field	Captch field should editable and accept captcha and captcha is case sensitive	Captcha input accepted	Pass	Step require d when human action validati on	get captcha from image which is near by captcha field	

					perfor m	
5	Click on login button	User should login into site and navigated to dashboard	User navigated to dashboard and username should br display in top of the right side.	pass		

Test Case Title Login to web application with invalid credential				
Test Type	Functional			
Test Priority	Medium			
Pre-condition	Web application should be accessible			

Test Step	Test Case Description	Expected Result	Actual Result	Status	Comment	Data	Bug ID
1	Verify that User is not able to Login with invalid Username and invalid Password	Should be display an error message enter wrong username or password	Display an error of wrong username and password	Pass			
2	Verify that User is not able to Login with Valid Username and invalid Password	Should be display an error message enter wrong password	Display an error of wrong password	Pass			
3	Verify that User is not able to Login with	Should be display an error message	Display an error Username not found	Pass			

	invalid Username and Valid Password	User not found				
4	Verify that User is not able to Login with blank Username or Password	Set required field validation message for Username and Password	Display an error of wrong username and password	Fail	Not performa a validation function fix it	Bug_002

Test Case Title Varify login page elements		
Test Type	GUI	
Test Priority	Medium	
Pre-condition	Web application should be accessible	

Test Step	Test Case Description	Expected Result	Actual Result	Status	Comment	Data	Bug ID
1	Launch application with the given url	The site launched properly	Site launched successfully	Pass		https://accounts.googl e.com/ServiceLogin	
2	Verify that the login screen contains elements such as Username, Password, Sign in button, Remember password check box, Forgot password link, and Create an account link.	All listed control displayed properly on the page	Login page loaded successfully	Pass			

4	Verify that cursor is focused on "Usernam e" text box on the page load Verify that tab functionali ty is working	Cursor is focused in Usernam e textbox When tab pressed cursor move in next	Cursor focus in Username textbox Cursor moving in next control	Pass		
	properly or not	control				
5	Verify that all the fields such as Username, Password has a valid placeholde r	All text fields have proper placehold er	All text fields have proper placeholder	Pass		
6	Verify that the labels float upward when the text field is in focus or filled (In case of floating label)	When field is focused or filled, label display on top of the filled	When field is focus or filled, label display on top of the filled	Pass	step required when fields with floating label	
7	verify that forgot password link working properly	when click on forgot password load forgot passworg page	forgot password link not working	Fail		

7 References

- http://www.w3schools.com/html/html_intro.asp
- https://www.w3schools.com/php/default.asp
- https://www.javatpoint.com/uml