

NARSEE MONJEE COLLEGE OF COMMERCE AND ECONOMICS

(Affiliated to University of Mumbai)

MUMBAI-MAHARASHTRA-400056

DEPARTMENT OF INFORMATION TECHNOLOGY



CERTIFICATE

This is to certify that the project entitled, "**Library Access Application**", is bonafide work of **Khulood Salahuddin Khan** bearing Seat. No: _____ submitted in partial fulfilment of the requirements for the award of degree of BACHELOR OF SCIENCE in INFORMATION TECHNOLOGY from University of Mumbai.

Project Mentor

Technical Guide

Coordinator

External Examiner

Date:

College Seal

DECLARATION

I hereby declare that the entitled, “**Library Access Application**” done at **Narsee Monjee College of Commerce and Economics**, has not been in any case duplicated to submit to any other university for the award of any degree. To the best of my knowledge other than me, no one has submitted to any other university.

The project is done in partial fulfilment of the requirements for the award of degree of **BACHELOR OF SCIENCE (INFORMATION TECHNOLOGY)** to be submitted as final semester project as part of our curriculum.

Name and Signature of the Student

ABSTRACT

Android platform has become more popular and it holds a maximum number of Users when compared to all other platform. Before the introduction of the Android Operating System the access to the Library documents was done only by the librarian. This project implements a method for the library access to go public, that is the public can also access the library database. The Library Access Application helps the students to access their required information and queries without computers or the librarians but through their android devices which saves their time and energy. The Application retrieves the information stored in the library database through the library database for example checking whether the books are available in the library or borrowed without intervening anyone. Due-date of the borrowed books from a library will be intimated by the app as a notification prior to the deadline. Users are privileged to suggest books for the library and they are notified about their suggestion, by the Librarian. This project brings a new idea of the student to access the library.

ACKNOWLEDGEMENT

I would like to express my special thanks of gratitude to my professor, Ms. Ameeta Rawool, as well as our principal, Dr. Parag Ajagaonkar, who gave me the golden opportunity to do this wonderful project on the topic “Library Access Application”, which also helped me in doing a lot of Research and I came to know about so many new things I am really thankful to them.

Secondly I would also like to thank my parents and friends who helped me a lot in finalizing this project within the limited time frame.

With proper coordination and full fledge cooperation among me and my guide, was able to complete this project successfully.

TABLE OF CONTENTS

SR. NO.	TITLE	PAGE NO.	
1.	INTRODUCTION	7	
	1.1	Theoretical Background/ history	8
	1.2	Objective and scope of the project	8
2.	SYSTEM ANALYSIS	10	
	2.1	Existing System	11
	2.2	Problem Definition	11
	2.3	Proposed System	12
	2.4	Modular Description	13
	2.5	Advantages / Features of project	13
3.	REQUIREMENT ANALYSIS	14	
	3.1	Functional Requirements	15
	3.2	Non- Functional Requirements	15
	3.3	User Requirements	16
	3.4	Hardware Requirement	17
	3.5	Software requirement	17
4.	FEASIBILITY STUDY	18	
	4.1	Operational	19
	4.2	Economical	19
	4.3	Technical	20
5.	PROCESS MODEL	21	
6.	METHODOLOGY ADOPTED	25	
7.	SYSTEM DESIGN	27	
	7.1	Use Case diagram	28
	7.2	Class diagram	29
	7.3	Activity diagram	30
	7.4	Sequence diagram	31
	7.5	E-R diagram	32
8.	GANTT CHART	33	

9.		DATA DICTIONARY (This should give a catalogue of the data elements used in the system/sub system. Data name, aliases if any, length (size), type numeric, alpha, binary, etc.)	36
10.		LAYOUT DESIGN	39
	10.1	Screenshots	40
11.		TESTING	60
	11.1	Testing	61
	11.2	Methods of Testing	62
	11.3	Test Cases	63
12.		COST ESTIMATION	67
	12.1	Cost Estimation Model	68
	12.2	COCOMO Model	69
13.		SYSTEM MAINTENANCE	73
14.		User manual - including security aspects, access rights, backup, controls, etc.	74
15.		FUTURE ENHANCEMENT	75
	15.1	Drawbacks	76
	15.1	Future scope	76
16.		CONCLUSION	77
17.		REFERENCES	79
	17.1	Bibliography	80
	17.2	Websites used	80

INTRODUCTION

A Library is an organized collection of sources of information which is made accessible to the people of different Community. The Library usually contains the information physically or in a digitized format. In the Olden period the access was usually in the Library room as the Technology grew up the access was made online. Android is basically an OPEN SOURCE which is based on the Linux Kernel which was introduced by Google. Android operating system is mainly designed for Smart Phone and tablet devices. The Android platform has an embedded feature called the Google Play Store which enables the developers to distribute their applications to the potential users World Wide. A library usually includes books, periodicals, films, maps, cd's, DVD, video tapes, newspaper and so on. The size of the Library usually varies from place to place depending on the items it contains.

1.1. THEORETICAL BACKGROUND

Initially Computer played a major role in the banking and other sectors latter on the introduction of the Internet made them to go a long way. Internet made the Users to access their database 24x7 which was stored centralized. Later emerged the mobile technology and now mobility has become everything. Initially many famous mobility platforms which includes Flash UI, Bada, Symbian etc., and later on the introduction of the Android operating System for mobile and other tablet device created a revolution due to its easy User Interface, fast access and response time.

Database Technology plays a vital role in business applications which helped us to move from paper work to the query processing. Since the Users Internet activities have shifted from browsers to mobile, there emerged new opportunities to interact with products from online. Library Access App is a retail application which is targeted for Android device (i.e. a mobile operating system which works on Linux kernel and also used in televisions and wrist watches), which helps the Users to view their Library related Information.

1.2. OBJECTIVE AND SCOPE OF THE PROJECT

This project describes how the user can find out details about the available books in the Library and also they can view their due dates of borrowed books. The Library Access System Application save's users valuable time by making complete procedure online. The application developed here

is designed for Oreo and Pie version with support for previous android versions. And also the embedded SQLite database which is used to store Library related Information. Only registered students of the college can perform login and access the Library database. Android allows users to customize the home screen with the shortcuts of the application. The Android applications have an extension apk (i.e. Android Application package which is a package file format used to install application onto the android phones). Android Operating System is a collection of software components such as Libraries, Linux Kernel, Android Runtime, Application Framework and Applications layer where the user can interact with applications like Contacts, Phone, Browser and so on.

The objective of the project is to enable students to search the entire library without any hassle. Students can search the required books by inputting Book Title, Author, ISBN, Publisher and Publish Date. This saves the students valuable time spent on searching through the entire rows of various bookshelf's. Moreover, there will be the added gain of no crowding near in the Library especially. The books will be divided into categories to better help students in searching for their desired books. Students just have to scan the Barcode present in their Id card during registration and they can then access the entire library and its online resources. To issue a book, students will just have to scan their Id card to prevent any misuse and collect the book from the library. The profile page of the student will get updated and the student can see the issue date and the due date on it. To return the book, student will just have to cancel the issue and return the book to the library without filling any forms or dates. Students can also access various online libraries, information repository and previous years question papers.

Therefore, the scope of the project is to enable the Librarian, library staff and the Student save the time and hassle to create queues, fill out forms and browse books even when the Student is not physically present in the Library

SYSTEM ANALYSIS

System Analysis is a detailed study of the various operations performed by a system and their relationships within and outside of the system. Here the key question is-what all problems exist in the present system? What must be done to solve the problem? Analysis begins when a user or manager begins a study of the program using existing system. During analysis, data collected on the various files, decision points and transactions handled by the present system. The commonly used tools in the system are Data Flow Diagram, interviews, etc. Training, experience and common sense are required for collection of relevant information needed to develop the system. The success of the system depends largely on how clearly the problem is defined, thoroughly investigated and properly carried out through the choice of solution. A good analysis model should provide not only the mechanisms of problem understanding but also the frame work of the solution. Thus, it should be studied thoroughly by collecting data about the system. Then the proposed system should be analyzed thoroughly in accordance with the needs.

System analysis can be categorized into four parts:

- System planning and initial investigation
- Information Gathering
- Applying analysis tools for structured analysis
- Feasibility study
- Cost/ Benefit analysis.

2.1. PROBLEM DEFINITION

In the existing system all the transaction of books is done manually, so taking more time for a transaction like borrowing a book or returning a book and also for searching of members and books. Another major disadvantage is that of preparing the list of books borrowed and the available books in the library will take more time, currently it is done as a one-day process for verifying all records.

The Student has to manually submit a request book slip to get the book from the library. This wastes a lot of paper. Also the time to search the book takes at least two to three hours. So, after

conducting the feasibility study it was decided to make the manual Library management system to be more accessible.

2.2. PROPOSED SYSTEM

Android is a powerful operating system which was mainly introduced in order to satisfy the market needs. It is an Open Source which runs on a Linux kernel mainly designed for Smart Phones and Tablets. Every Android Operating System uses their own Libraries and also the SQLite Database embedded in them. As the saying "TIME AND TIDE WAITS FOR NONE" this project focuses on the development of mobile application which can be exploited for the Library purpose. Initially Library Management System required more amount of Man Power and consumed more time in order to access the information. This Library Access System Application provides an easy User Interface and which allows viewing their due dates or holding the available books in the library.

The proposed system is an automated Library Access System. Through the application student can register, search books, add books, add student, update information, edit information in quick time. The proposed system has the following advantages:

- User friendly interface
- Fast access to database
- Less error
- Save Time and Paper
- Search facility
- Look and Feel Environment

All the manual difficulties in managing the Library have been rectified by implementing computerization.

2.3. MODULAR DESCRIPTION

Application: The Application the user will use on their smartphone.

Operating System: Android OS for smartphones

Camera: The smartphone's inbuilt camera that will be used to scan the Id card.

Database: The place where the data will be stored to be accessed, modified and inserted.

2.4. ADVANTAGES

Nowadays more and more people are using smartphones every day. It has sort of become a lifeline for people, especially for students. Through this app any student of the library will have the advantage of accessing the library even when they are at home. They can easily get the information whether the required books are available and if they are not they can easily submit a request for the book.

The major advantages are given below:

- 1) The main aim of the application is to make people to easily access their library account in order to check the availability of the books in the library.
- 2) This application in android allows the users and library administrators to access library access system through android Smart phone instead of computers.
- 3) The User can suggest to the Librarian if the desired book is not available in the Library.
- 4) The Computers available in the Library can be replaced with the Android Device such as Tablets, phones that saves capital investment.

REQUIREMENT ANALYSIS

A project needs a number of requirements for it to work. This topic will discuss the different requirements that will be needed for the execution and development of the proposed project.

3.1. FUNCTIONAL REQUIREMENTS

A functional requirement defines a function of a system or its components. A function is described as a set of inputs, the behavior and outputs.

Functional Requirement of this App include:

- The system will enable the user to search books based on various parameters.
- The system will try to provide correct outputs from the database based on the input.
- The system will try to help student in issuing the book.
- The technology behind the system will allow the user to issue and cancel their book whenever required.

3.2. NON FUNCTIONAL REQUIREMENTS

A non-functional requirement is a requirement that specifies criteria that can be used to judge the operation of a system, rather than specific behaviours.

Non-Functional requirements are:

- Compatibility
 - The application should run compatibly with any android version.
 - It should allow the users to register to the application and gives access to them.
- Reliability and Availability
 - The data should be available to the user whenever they want.
 - System should be able to give response on time. Loading time of system should not be too much.
- Performance

- It should allow the registered user to clear doubts of book searching.
- It should allow the users to issue the books they want.
- It should allow the users to submit book request, feedback and post their reviews.
- It should allow the users access to the information repository.

Usability

- Application should be easy to use.
- It should be easy to read, understandable, and attractive.

Maintainability

- The application is often used over a long period, so it should be maintained properly.
- User's Tolerance: The malfunctions or mistakes of Vision-based interaction should be tolerated. When a mistake is made, it should not incur much loss. Users can be asked to repeat some actions, instead of letting the computer make more wrong decisions.

3.3. USER REQUIREMENTS

- The requirements of the user can be that the system should be compatible with a wide array of smartphones regardless of the software used.
- The system should not have any bugs and should be free of viruses.
- The system should not drain the device battery too much.
- The system should not need access to Internet to browse the books.
- The system should be able to read and detect student barcode without minimum errors.
- The system should perform well even in lower end smartphones.

3.4. HARDWARE REQUIREMENTS

- CPU: Intel Dual Core or above.
- Android smartphone.
- Input Device: Pointing device (Mouse), Keyboard.
- 4 GB minimum RAM for Android Studio.
- 40 MB storage for the application.
- Output Device: Colour Monitor, Camera.
- USB cable.

3.5. SOFTWARE REQUIREMENTS

- Microsoft Windows 7/8/8.1/10.
- Web Browser.
- Android OS.
- Android Libraries.
- Android Studio.
- Android SDK Manager.
- Java Development Kit and Java Runtime Environment.
- SQLite Database.
- Sqliteman DB Browser.

FEASIBILITY STUDY

The main purpose of feasibility analysis is to check the economic viability of the proposed system. The result of the feasibility study will indicate whether to proceed with the proposed system or not. If the results of the feasibility study are positive, then we can proceed to develop a system otherwise project should not be pursued. Preliminary investigation examines project feasibility; the likelihood the system will be useful to the organization. The main objective of the feasibility study is to test the Technical, Operational and Economical feasibility for adding new modules and debugging old running system. All system is feasible if they are unlimited resources and infinite time. There are aspects in the feasibility study portion of the preliminary investigation:

1. Operational Feasibility
2. Economical Feasibility
3. Technical Feasibility

4.1. OPERATIONAL FEASIBILITY

Operational feasibility study tests the operational scope of the system to be developed. The proposed system must have high operational feasibility.

- In case of any mistakes while using, the user is made aware about the error messages.
- The usability will be high.
- Response time of the application is fast.
- The application is developed with clear and easy to understand navigation that enables users to find information quickly.
- The application itself does major task of the user, the only work for the user is to click on the controls (i.e. click buttons, point camera, input fields etc.)
- Thus, the proposed system is operationally feasible.

4.2 ECONOMICAL FEASIBILITY

The purpose of the economic feasibility assessment is to determine the positive economic benefits that the proposed system will provide.

Proposed system requires development tools and software such as Android studio which are open source, free of cost and available on Internet. For developing proposed system, we need various resources such as computer systems, internet connection, recommended disk space, and memory speed as mention in requirement. By looking at all these expenses and comparing with proposed system, we have many benefits from proposed system such are:

- An existing system is manual, where data may not be available on time. But proposed system will be computerized, so we can overcome all limitations of existing system.
- This system will reduce the paperwork.
- This system will save the time of the people.

So keeping all above mentioned benefits and comparing with various expenditures of resources, we conclude that proposed system is economically feasible.

4.3 TECHNICAL FEASIBILITY

The technical feasibility assessment is focused on gaining an understanding of the present technical resources and their applicability to the expected needs of the proposed system. It is an evaluation of the hardware and software and how it meets the need of the proposed system.

This system will be developed using Java Programming. As we require some time to learn these technologies, all these are easy to learn and can develop system very rapidly. After developing and deploying the system, any user can download it via the Internet.

It is an app based user interface thus it provides an easy access to the users.

Permission to the users would be granted based on their existence in the Student registry specified. Therefore, it provides the technical guarantee of accuracy, reliability and security.

Thus, the proposed system is technically feasible.

PROCESS MODEL

A software process model is a simplified representation of a software process. Each model represents a process from a specific perspective. We have implemented the Incremental development model for our project.

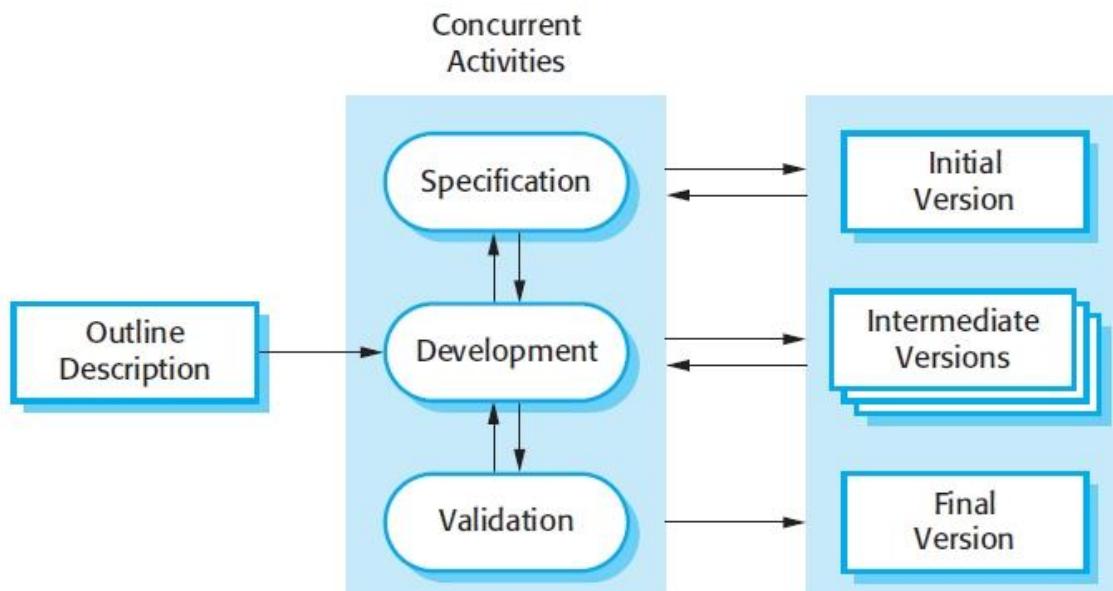
5.1. INCREMENTAL DEVELOPMENT MODEL

Incremental development is based on the idea of developing an initial implementation, exposing this to user feedback, and evolving it through several versions until an acceptable system has been developed.

The activities of a process are not separated but interleaved with feedback involved across those activities.

Each system increment reflects a piece of the functionality that is needed by the customer. Generally, the early increments of the system should include the most important or most urgently required functionality.

This means that the customer can evaluate the system at early stage in the development to see if it delivers what's required. If not, then only the current increment has to be changed and, possibly, new functionality defined for later increments.



The Incremental development model

By developing the software incrementally, it is cheaper and easier to make changes in the software as it is being developed.

Compared to the waterfall model, incremental development has three important benefits:

- The cost of accommodating changing customer requirements is reduced. The amount of analysis and documentation that has to be redone is much less than that's required with waterfall model.
- It's easier to get customer feedback on the work done during development than when the system is fully developed, tested, and delivered.
- More rapid delivery of useful software is possible even if all the functionality hasn't been included. Customers are able to use and gain value from the software earlier than it's possible with the waterfall model.

But, it's not a problem-free ...

- Some organizations have procedures that have evolved over the time, and can't follow informal iterative or agile process. For example, procedures to ensure that the software properly implements external regulations.
- System structure tends to degrades as new increments are added and get corrupted as regular changes are incorporated. Even if time and money spent on refactoring to improve the software, further changes become more difficult and costly.

The Incremental development model is used because:

- The design phase goes much faster, as design are only done on the items in the current release (for example, Release 1.0).
- Coding and Testing go much faster because there are less items to code and test. If major design flaws are found, re-work is much faster since the functional areas have been greatly reduced.
- If the user requirements changes as per reviews, changes can be incorporated in the next iterative release, allowing the application to be much nimbler.

- As the application is implemented, the user can make recommendations for the next iteration due to experiences learned in the past iteration.
- Deliverables are produced early in the software development life cycle in each iteration.
- It is flexible and easy to manage.
- Risk management and Testing is easy.

METHODOLOGY USED

Object-oriented methodology decomposes web application into components. Each component (page, site etc.) is defined in terms of its state and behaviour. This approach maintains support for software reuse, high level abstraction, run-time management and maintenance throughout the development cycle of the web application.

When designing an application, the entire application itself is an “object”. An object can be described as a noun – a person, place or thing. In this case, a website is a thing, obviously.

Furthermore, each separate piece that makes up the design of the site can be their own object also. Take for example something as small as a button. Think of what creates a button. A button may have a border, a border radius, a label, a font size, a colour; the list goes on.

Reason for using Object-oriented method:

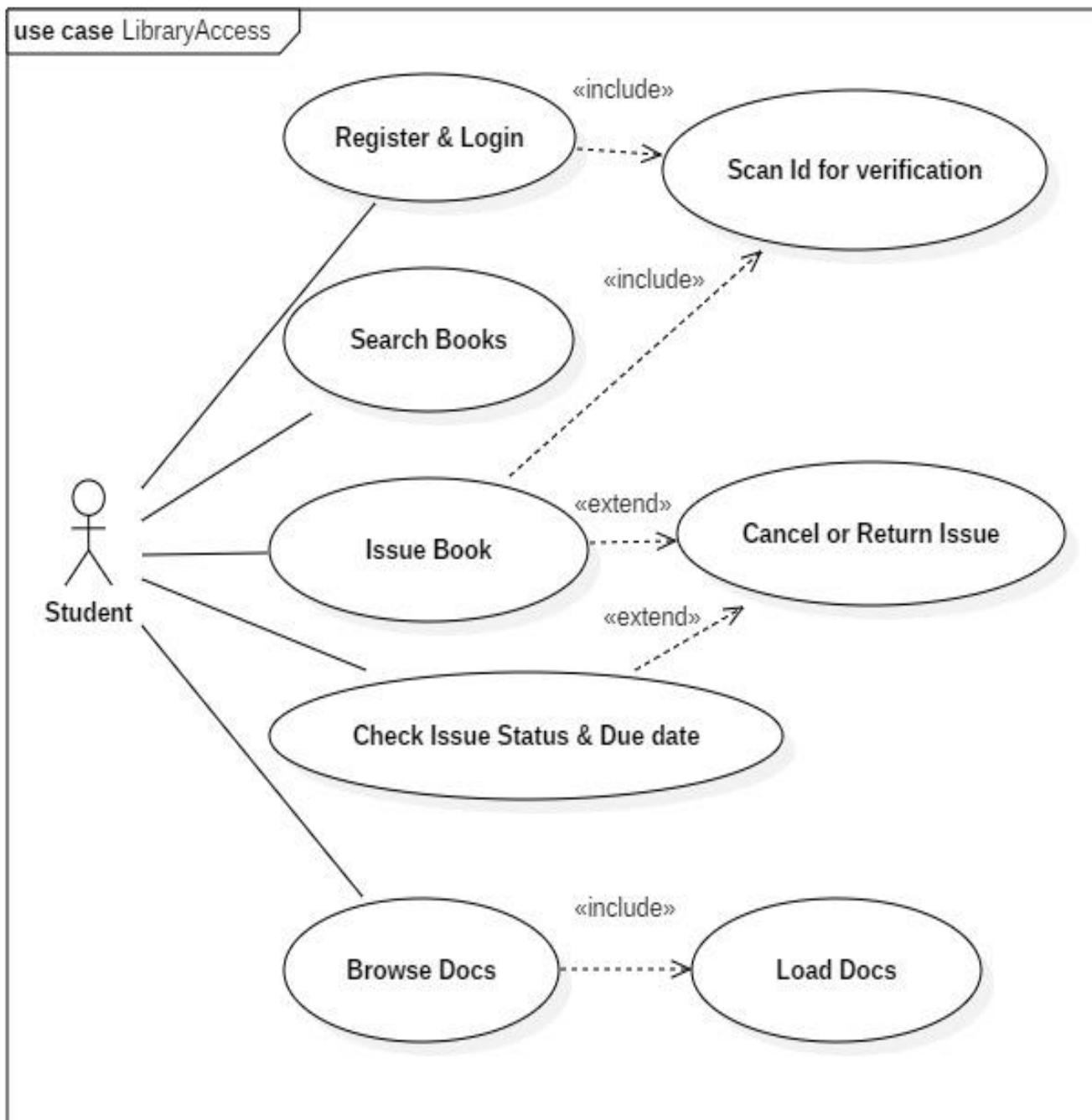
We have used Object oriented method because of following features:

- The components created can be reused later on in other subsystems.
- Scalability and reliability also make it towards object-orientations.
- The requirement specifications are to be done with UML diagrams for front-end and processing which consist of:
 1. Use-Case diagrams
 2. Activity Diagram
 3. Sequence diagram
 4. Class diagram
- An ER-model will help to incorporate the information storage in form of relational tables, in the chosen SQL database.

SYSTEM DESIGN

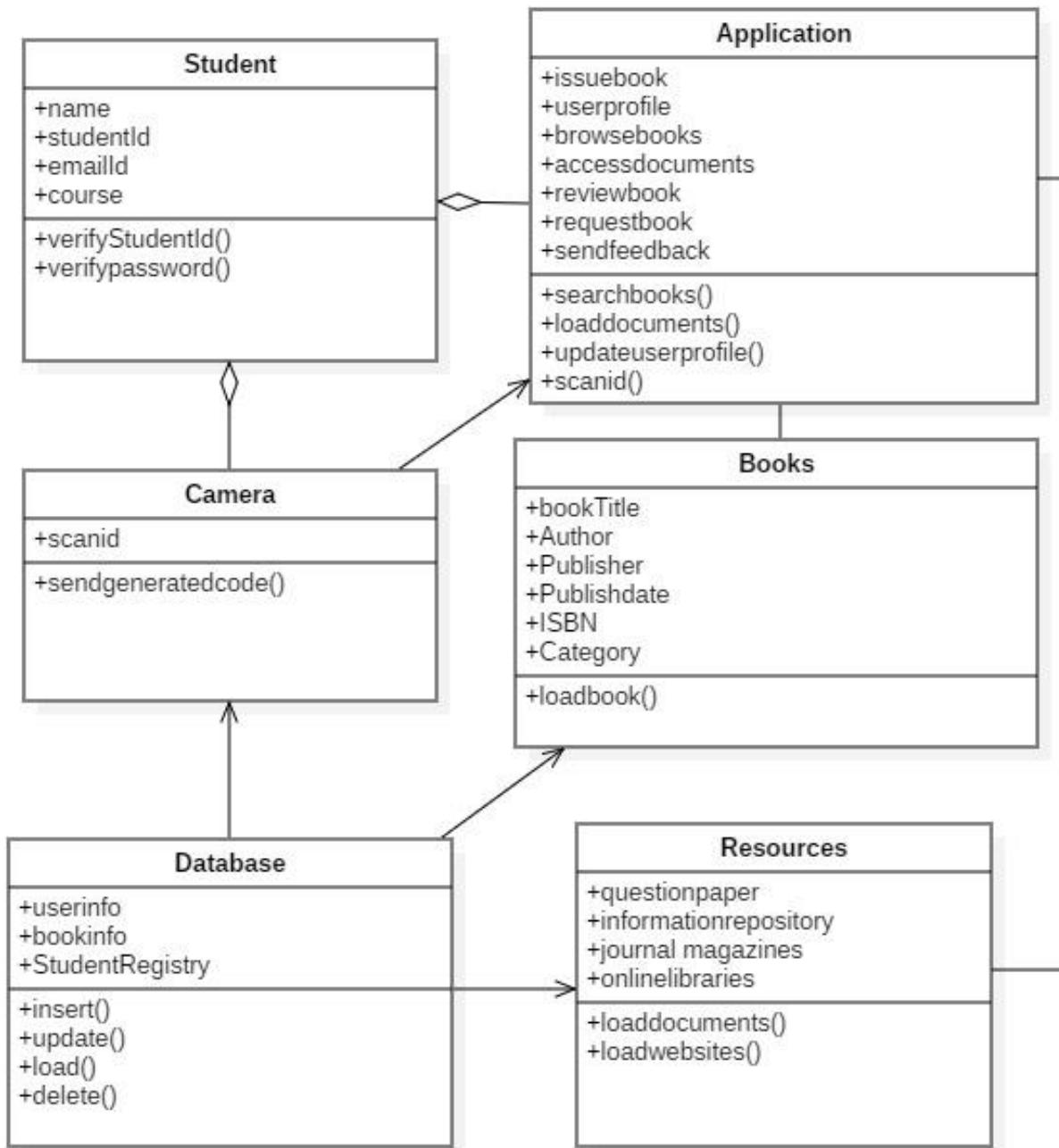
7.1. USE CASE DIAGRAM

Use case diagrams are usually referred to as behaviour **diagrams used** to describe a set of actions (**use cases**) that some system or systems (subject) should or can perform in collaboration with one or more external users of the system (actors).



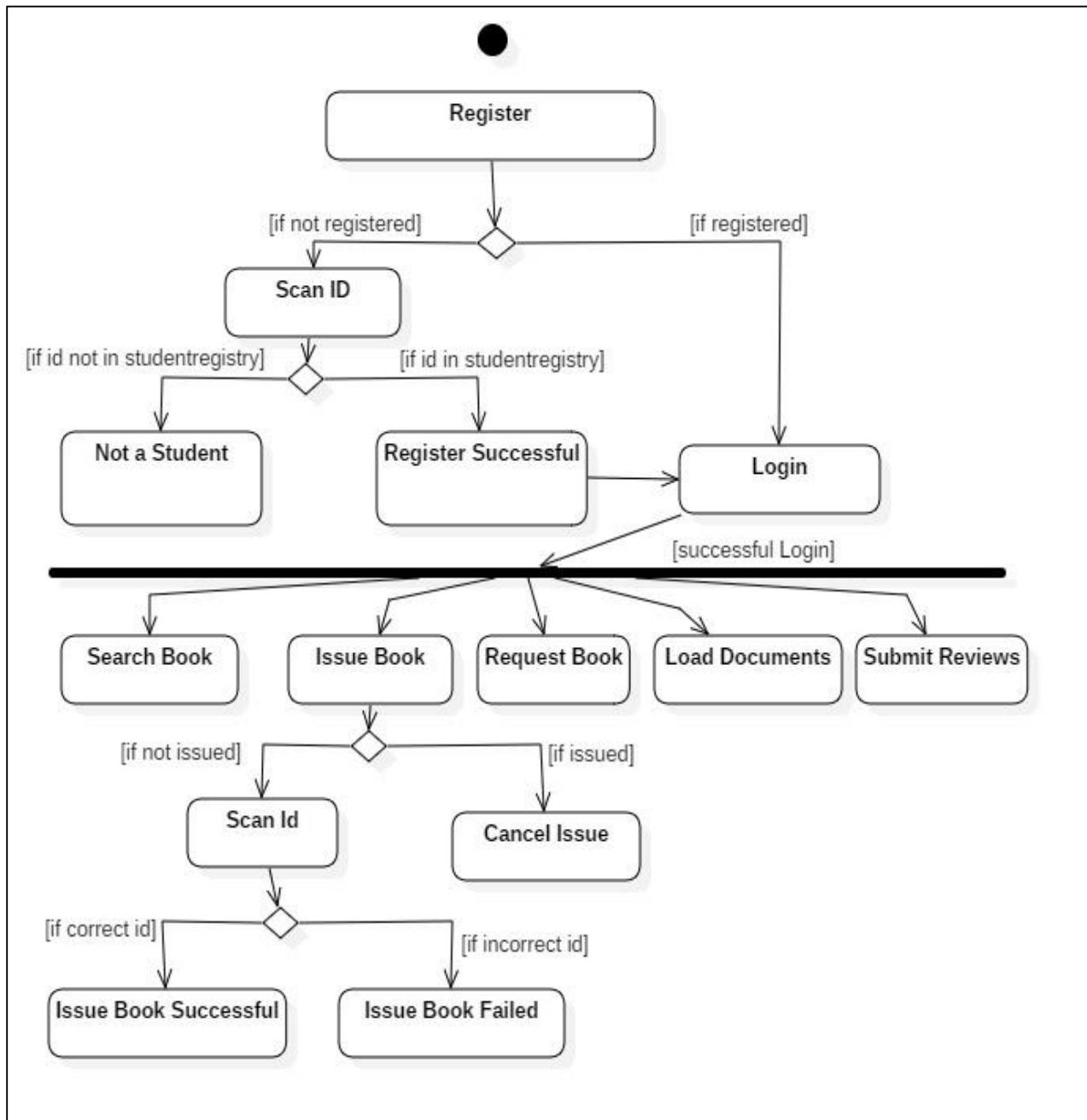
7.2. CLASS DIAGRAM

A **class diagram** is an illustration of the relationships and source code dependencies among **classes** in the Unified Modelling Language (UML). In this context, a **class** defines the methods and variables in an object, which is a specific entity in a program or the unit of code representing that entity.



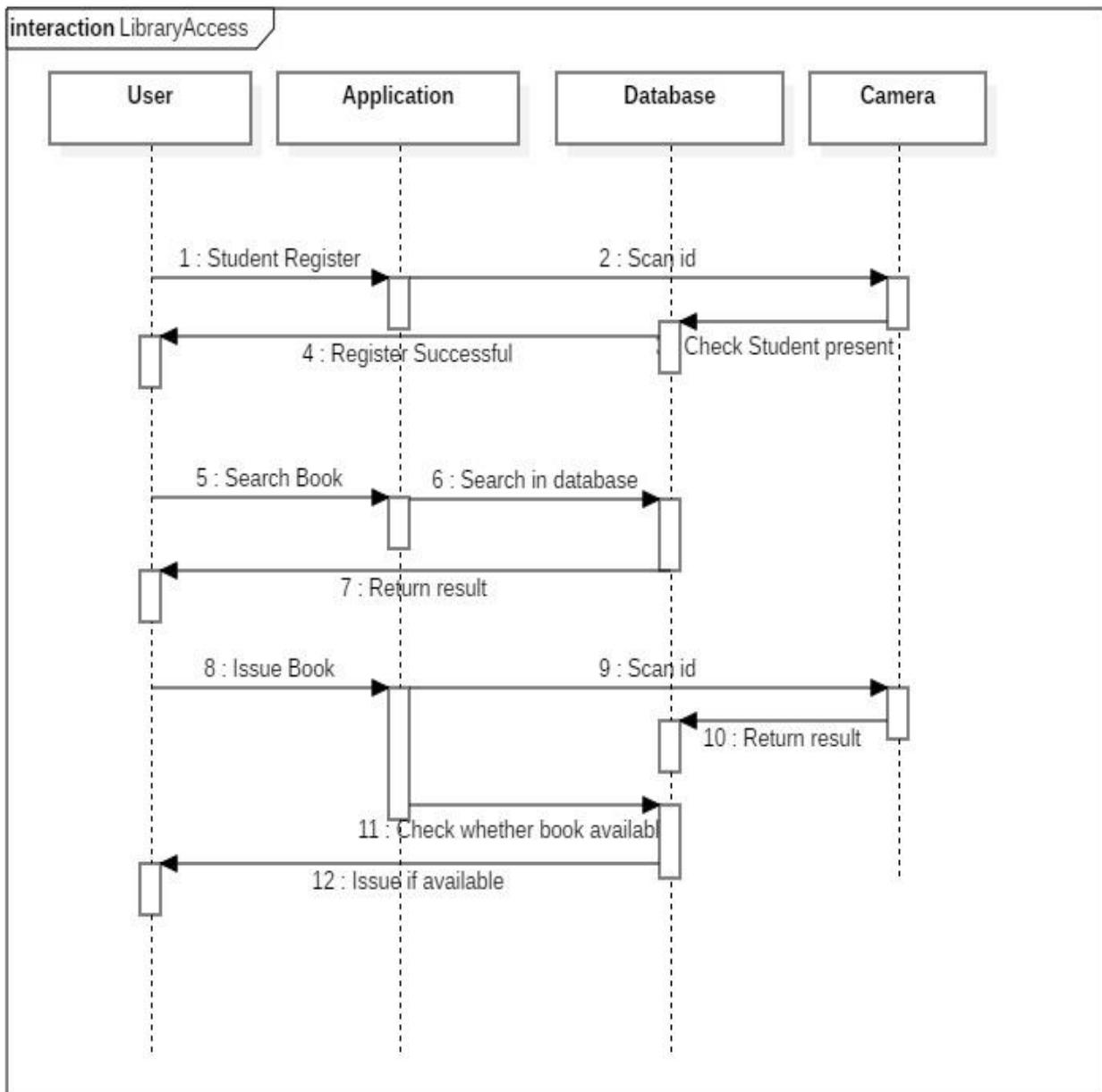
7.3. ACTIVITY DIAGRAM

Activity diagram is another important **diagram** in UML to describe the dynamic aspects of the system. **Activity diagram** is basically a flowchart to represent the flow from one **activity** to another **activity**. The **activity** can be described as an operation of the system. The control flow is drawn from one operation to another.



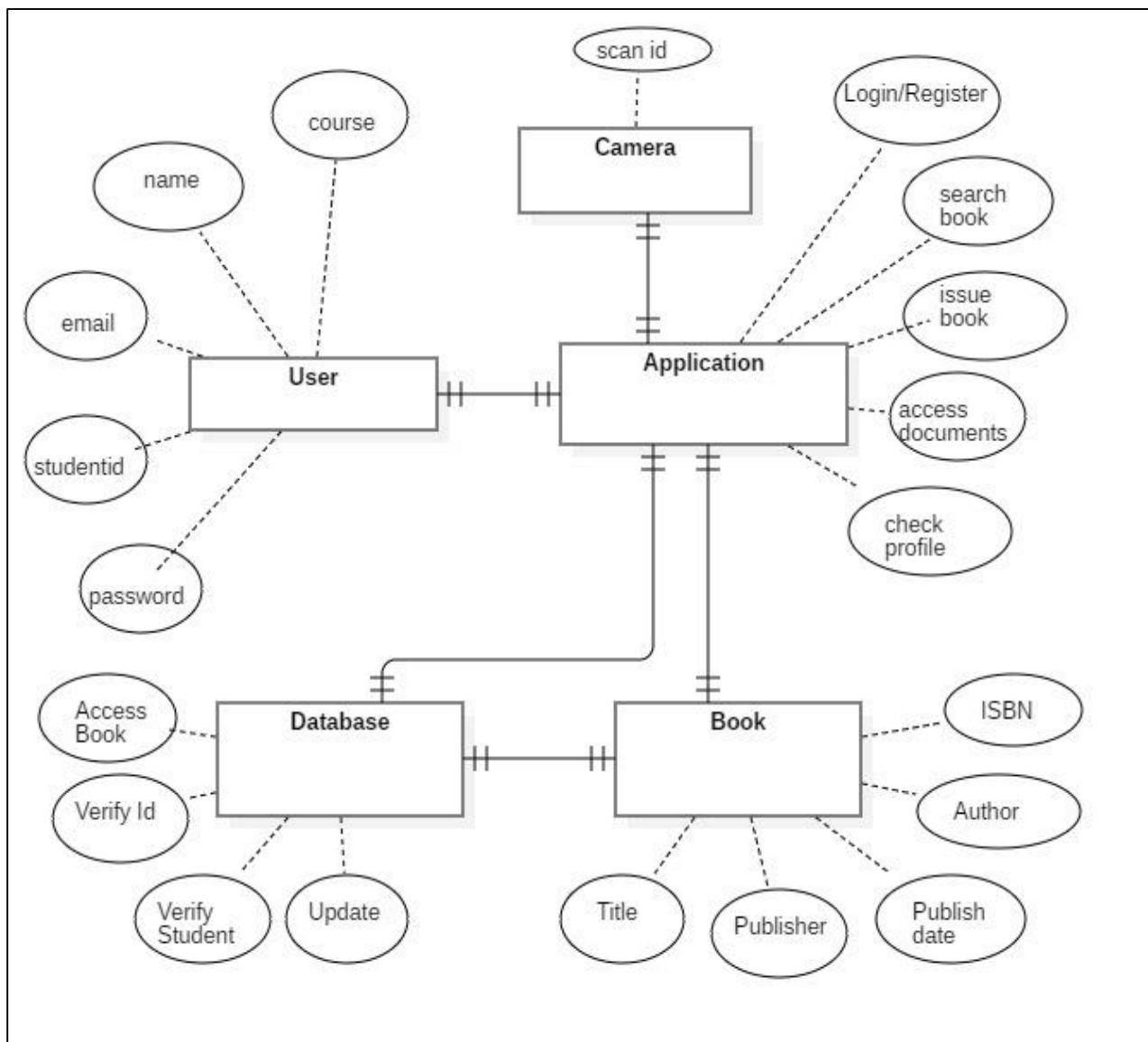
7.4. SEQUENCE DIAGRAM

Sequence diagrams are sometimes called event diagrams or event scenarios. A **sequence diagram** shows, as parallel vertical lines (lifelines), different processes or objects that live simultaneously, and, as horizontal arrows, the messages exchanged between them, in the order in which they occur.



7.5. ENTITY RELATIONSHIP DIAGRAM

An **entity–relationship model** describes interrelated things of interest in a specific domain of knowledge. A basic **ER model** is composed of entity types and specifies relationships that can exist between instances of those entity types.



GANTT CHART

A Gantt Chart is a visual representation of tasks over time that is incredibly useful for planning projects of almost any size and complexity. With a Gantt Chart you can quickly see:

- The project's start and finish dates
- Each individual project task and who is responsible for them
- When tasks start and finish and how long they should take
- How tasks group together, overlap and depend on each other
- The project's progress and whether you're keeping up with the schedule

In other words, a Gantt Chart can be used by anyone who is running or just wants to keep track of a project. Not only are Gantt Charts great for keeping track of your tasks. But seeing everything in a visual manner like this has some other major benefits.

First, a Gantt Chart **promotes detailed planning**. Simply listing your tasks forces you to break them down into the smallest pieces to see their dependencies (the basis of task management!) Also, by including start and finish dates, it forces you to imagine the project all the way to completion, rather than get stuck in the messy middle.

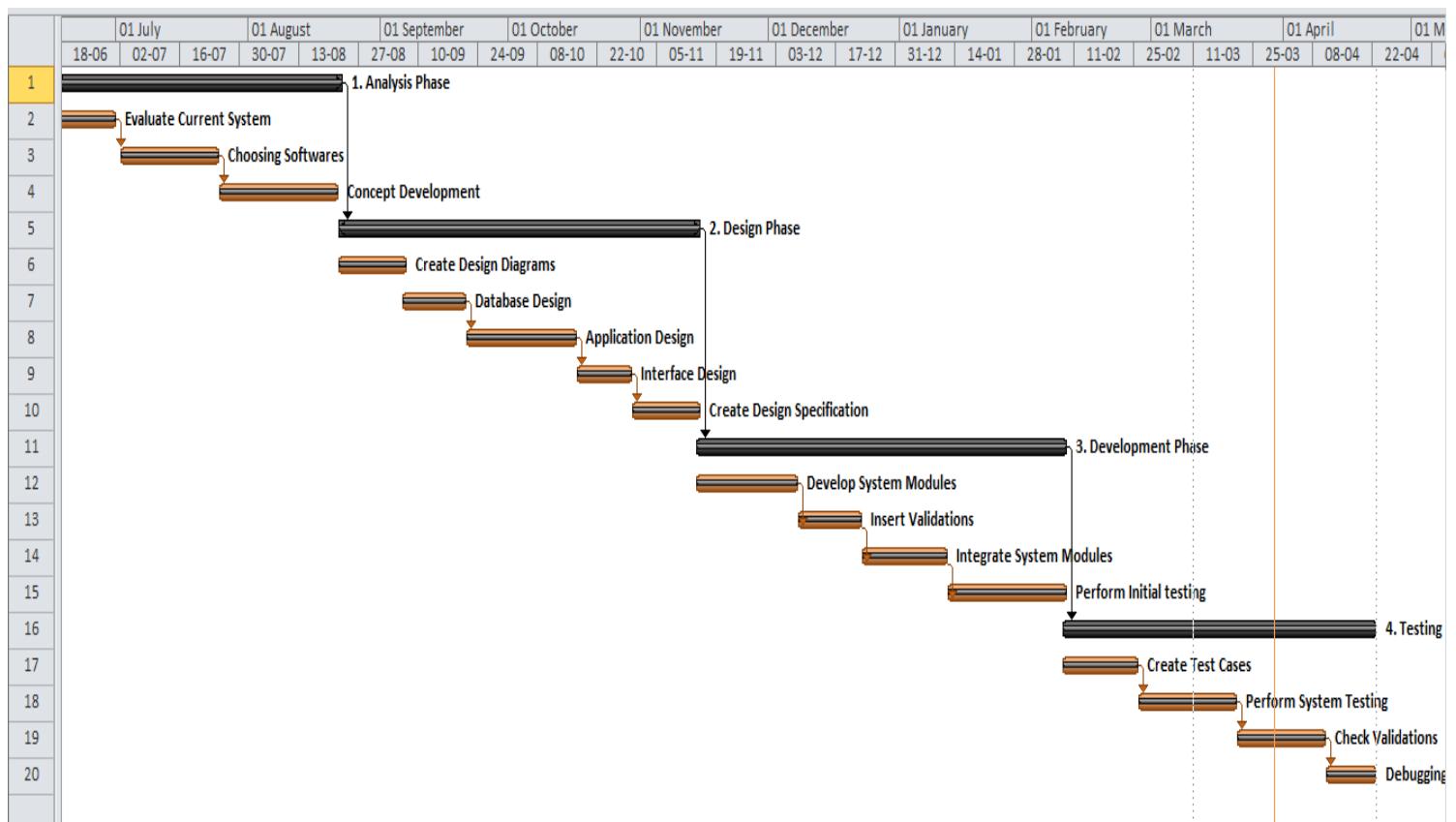
Next, Gantt Charts **show potential risks and resource overload**. With timelines clearly planned, you can quickly see where expectations might be high and you'll need more resources (either time, people, or money).

Lastly, Gantt Charts are easy to read, which makes them great tools for **improving project communication**. Everyone understands a basic bar chart, which helps bring added clarity and motivation for hitting deadlines.

When you see a Gantt Chart, it will be broken down into two halves:

- **On the left side:** is each individual task with related information about what's expected, who's responsible, and what (if any) dependencies they have.
- **On the right side:** is a visual representation of those tasks across a calendar, which lets you see how long everything should take, the sequence of tasks, and their progress.

Gantt chart Timeline



Gantt Chart

DATA DICTIONARY

TABLE STUDENT

Field name	Data type	Length	Constraints	Description
KEY_ID	Integer	-	Primary Key Auto increment	SR No.
KEY_SID	Integer	11	Not Null	Student ID
KEY_NAME	Text	-	Not Null	Student Name
KEY_COURSE	Text	-	Not Null	Student Course
KEY_IMAGE	Blob	-	Not Null	Student Photo

TABLE REGISTER USER

Field name	Data type	Length	Constraints	Description
KEY_ID	Integer	-	Primary Key Auto increment	SR No.
KEY_SID	Integer	11	Not Null	Student ID
KEY_EMAIL	Text	-	Not Null	Email ID
KEY_PASSWORD	Text	-	Not Null	Password
KEY_PASSHINT	Text	-	Not Null	Password Hint

TABLE BOOKS

Field name	Data type	Constraints	Description
Id	Integer	Primary key Auto increment	SR No.
Book_name	Text	Not Null	Name of Book
Book_cover	Blob	Not Null	Cover of book

Publisher	Text	Not Null	Book Publisher
Publish_date	Text	Not Null	Date of Publishing
ISBN	Integer	Not Null	ISBN number
Author	Text	Not Null	Book Author
Category	Text	Not Null	Book Category
Sub_category	Text	-	Book Sub Category
Description	Text	-	Book Description
Issue_status	Text	Not Null	Available/Unavailable

TABLE ISSUE

Field name	Data type	Constraints	Description
ID	Integer	Primary Key Auto increment	SR No.
SID	Integer	Not Null	Student Id
BOOK_TITLE	Text	Not Null	Book Name
AUTHOR	Text	Not Null	Book Author
ISSUE_DATE	Text	Not Null	Issue Date
DUE_DATE	Text	Not Null	Due date
RETURN_DATE	Text	Not Null	Return date
BOOKMARK	Text	-	Book title

LAYOUT DESIGN

10.1 SCREENSHOTS

Splash Screen/Load Screen



Register Activity

0.98 K/s 50% 12:59:08



SCAN ID CARD

Email

Student ID

Password

>Password Hint

REGISTER

[Back to Login](#)

1.06 K/s 89% 11:44:42



SCAN ID CARD

Email

maryjames@xyz.com

Student ID

45207160010

Password

.....

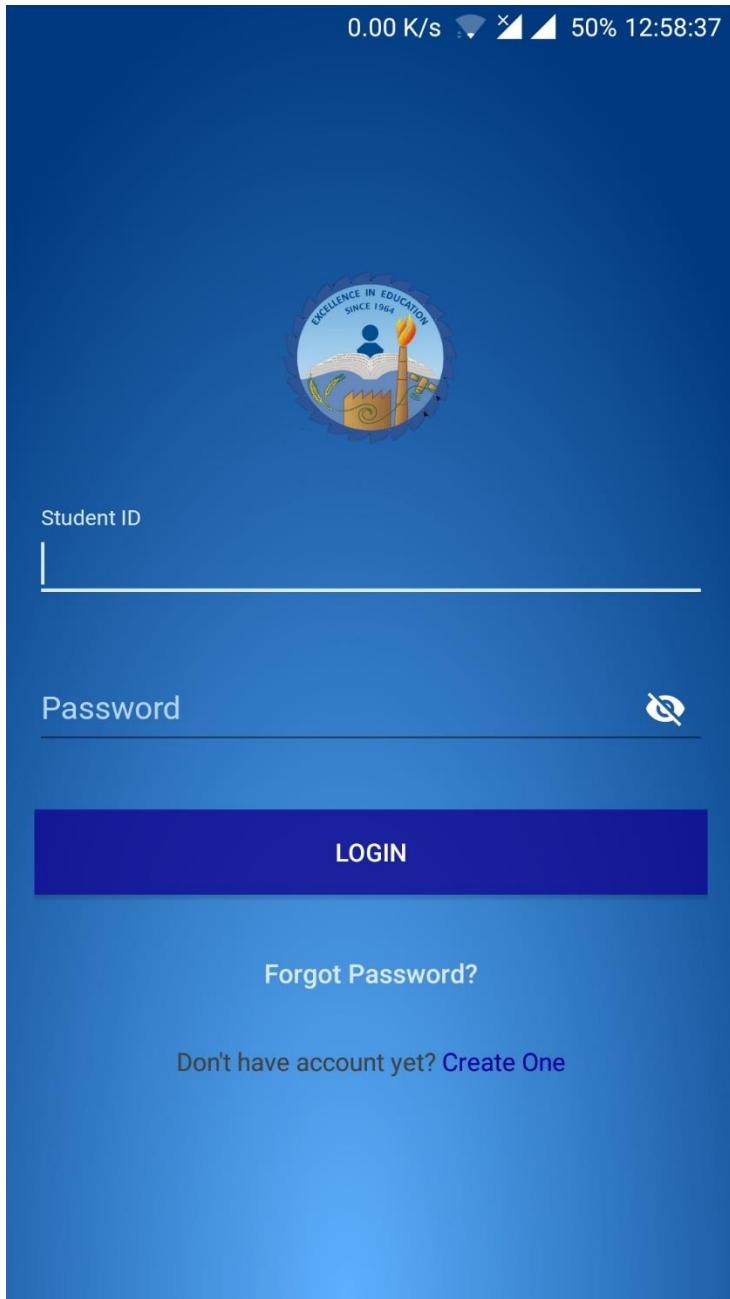
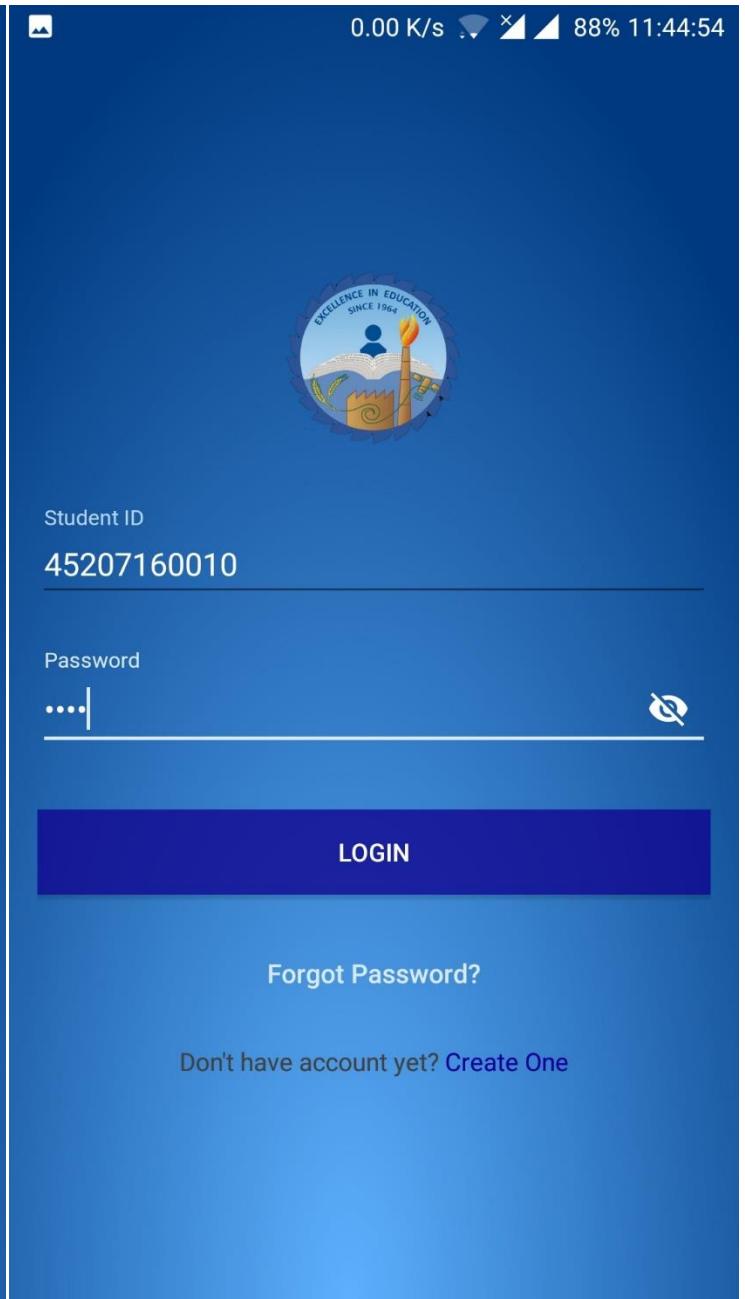
>Password Hint

1234

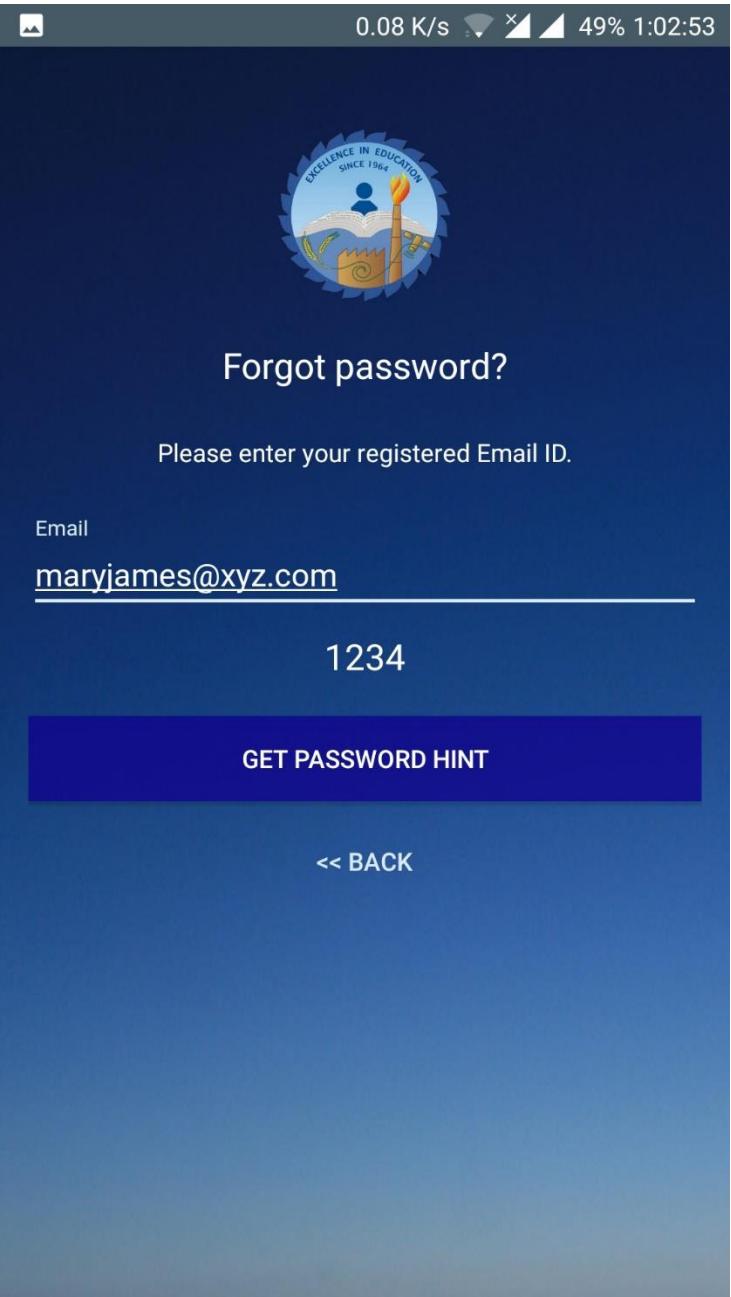
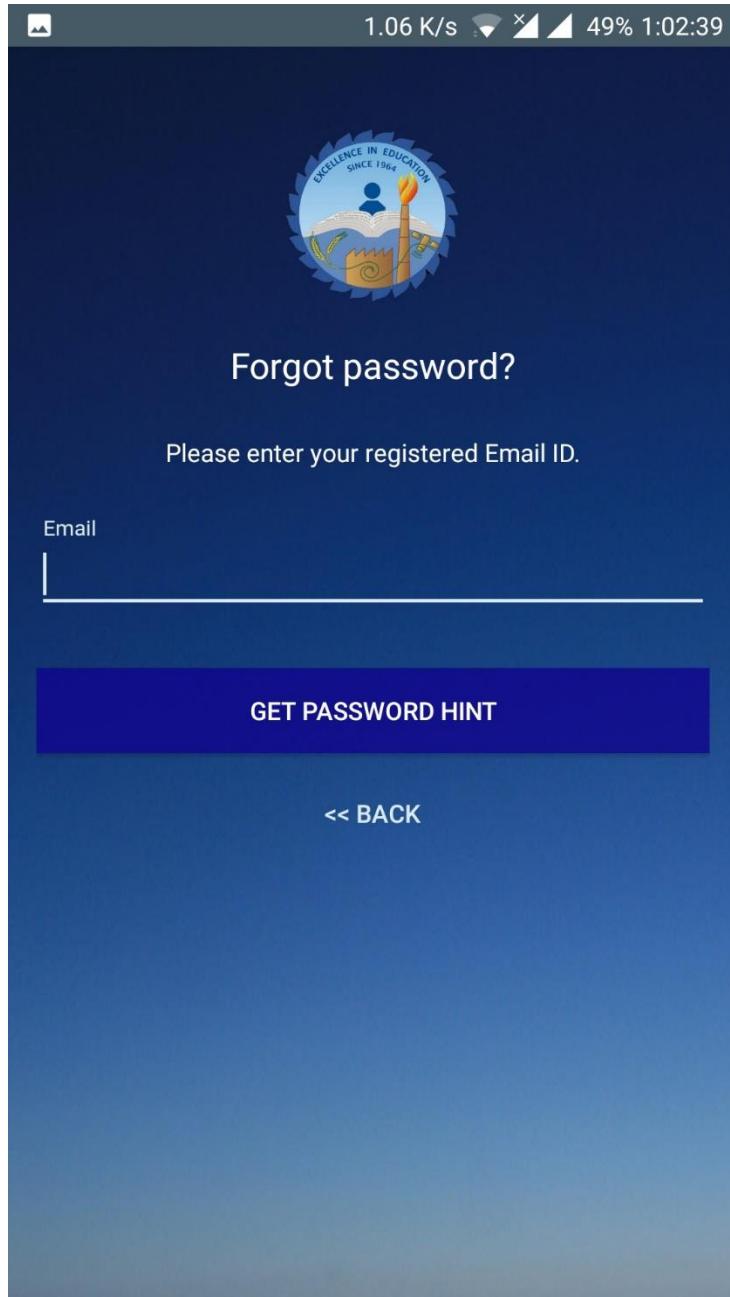
REGISTER

[Back to Login](#)

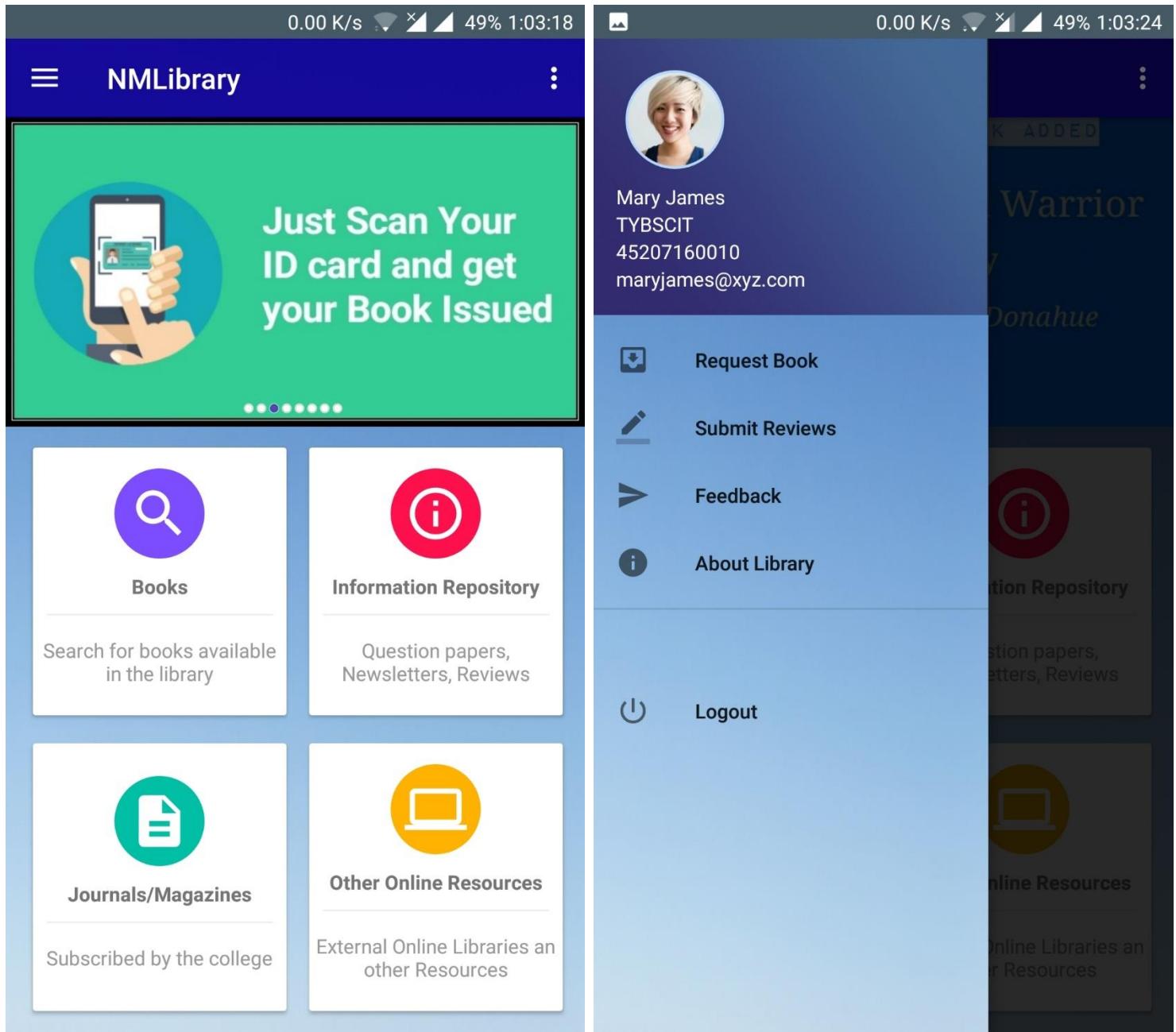
Login Activity

 <p>0.00 K/s 50% 12:58:37</p> <p>Student ID <input type="text"/></p> <p>Password <input type="password"/> </p> <p>LOGIN</p> <p>Forgot Password?</p> <p>Don't have account yet? Create One</p>	 <p>0.00 K/s 88% 11:44:54</p> <p>Student ID 45207160010</p> <p>Password <input type="password"/> </p> <p>LOGIN</p> <p>Forgot Password?</p> <p>Don't have account yet? Create One</p>
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Forget Password Activity



Dashboard and Navigation drawer



Book Activity

The image displays two screenshots of a mobile application interface, likely for a digital library or bookstore.

Screenshot 1 (Left): This screen shows a grid of four categories:

- Novels:** Represented by a purple icon with white squares and labeled "Novels".
- Competitive Exam:** Represented by a red circle with a white bookmark icon and labeled "Competitive Exam".
- Textbooks:** Represented by a teal circle with a white "L" shaped icon and labeled "Textbooks".
- Reference Books:** Represented by a yellow circle with a white "E" shaped icon and labeled "Reference Books".

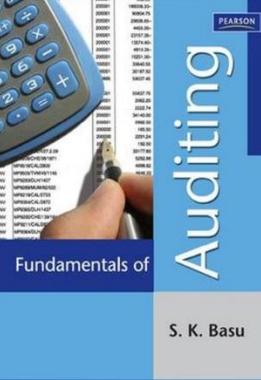
Screenshot 2 (Right): This screen shows a list of books with their covers and details:

- To Kill a Mockingbird:** by Harper Lee, Available. Cover shows a tree and a bird.
- Harry Potter and the Philosopher's Stone:** by J.K. Rowling, Available. Cover shows Harry Potter and friends.
- ANNE FRANK: The Diary of a Young Girl:** by Anne Frank, Available. Cover shows black and white photos of Anne Frank.
- Pride and Prejudice:** by Jane Austen, Available. Cover shows characters from the novel.
- 1984:** by ANTOINE DE SAINT-EXUPÉRY, Available. Cover shows the title in large white letters.
- The Little Prince:** by ANTOINE DE SAINT-EXUPÉRY, Available. Cover shows the Little Prince character.

Display Book and Scanner Page Activity

0.00 K/s 43% 1:20:07

Book Details



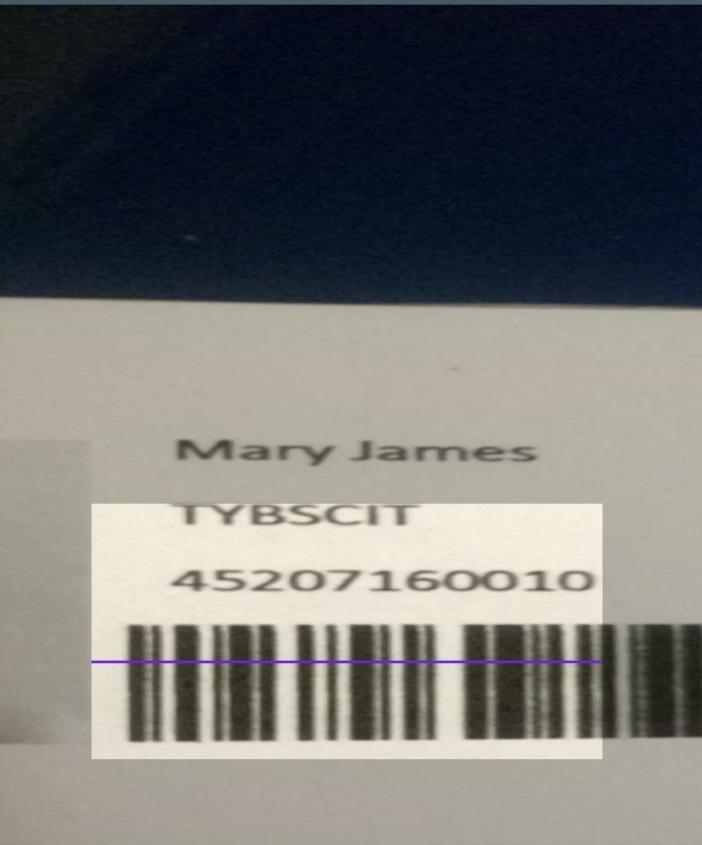
Fundamentals of Auditing
By S. K. Basu
Publisher: Pearson India
Publish Date: 01/07/2015
ISBN: 9789332501379

Auditing is a multi-dimensional subject. The scope of auditing is not only restricted to financial audit under the Companies Act, but has also been extended to cost accounting aspects, managerial policies, operational efficiencies and system applications and audit under Computer Information System environment. It also covers social implications of business organizations and environmental issues. Fundamentals of Auditing covers all these aspects and also describes the modern tools and techniques of auditing. It explains the principles of auditing in a simple and lucid language. Even a layman interested in knowing the basics of auditing will be able to use this book.

Book Available

SCAN ID CARD TO ISSUE BOOK

0.00 K/s 50% 12:59:30



Profile Activity/Issued Book Activity

0.00 K/s 42% 1:22:17

Mary James

TYBSCIT

BOOK ISSUED YES

BOOKS RETURNED 4

Student ID
45207160010

Email ID
maryjames@xyz.com

Current Issue
Fundamentals of Auditing , By S. K. Basu

Issued On
10-03-2019

Return Before
20-03-2019

0.00 K/s 42% 1:22:21

Books

Auditing

Fundamentals of Auditing

S. K. Basu

Unavailable

Books Returned Activity and About Activity

The Diary of a Young Girl
By : Anne Frank
Issue Date : 10-03-2019
Return Date : 10-03-2019

Core Java
By : Majithia Ravi
Issue Date : 10-03-2019
Return Date : 10-03-2019

Pride and Prejudice
By : Jane Austen
Issue Date : 10-03-2019
Return Date : 10-03-2019

The Complete Reference Manual For CMAT 2019
By : SK Sinha, S Satyanarayan, Col. JS Rana
Issue Date : 10-03-2019
Return Date : 10-03-2019

About Library

Objective Of Library

To acquire, update, maintain and provide a qualitative and quantitative collection of books, periodicals and other instructional material of electronic resources to support the academic programme and educational objectives of the college.

To include in collection various fields of knowledge as well as of career and character building.

To provide quality services to faculty and students for achieving their curricular as well as co-curricular goals, with the help of technology, but not as a substitute for personal service.

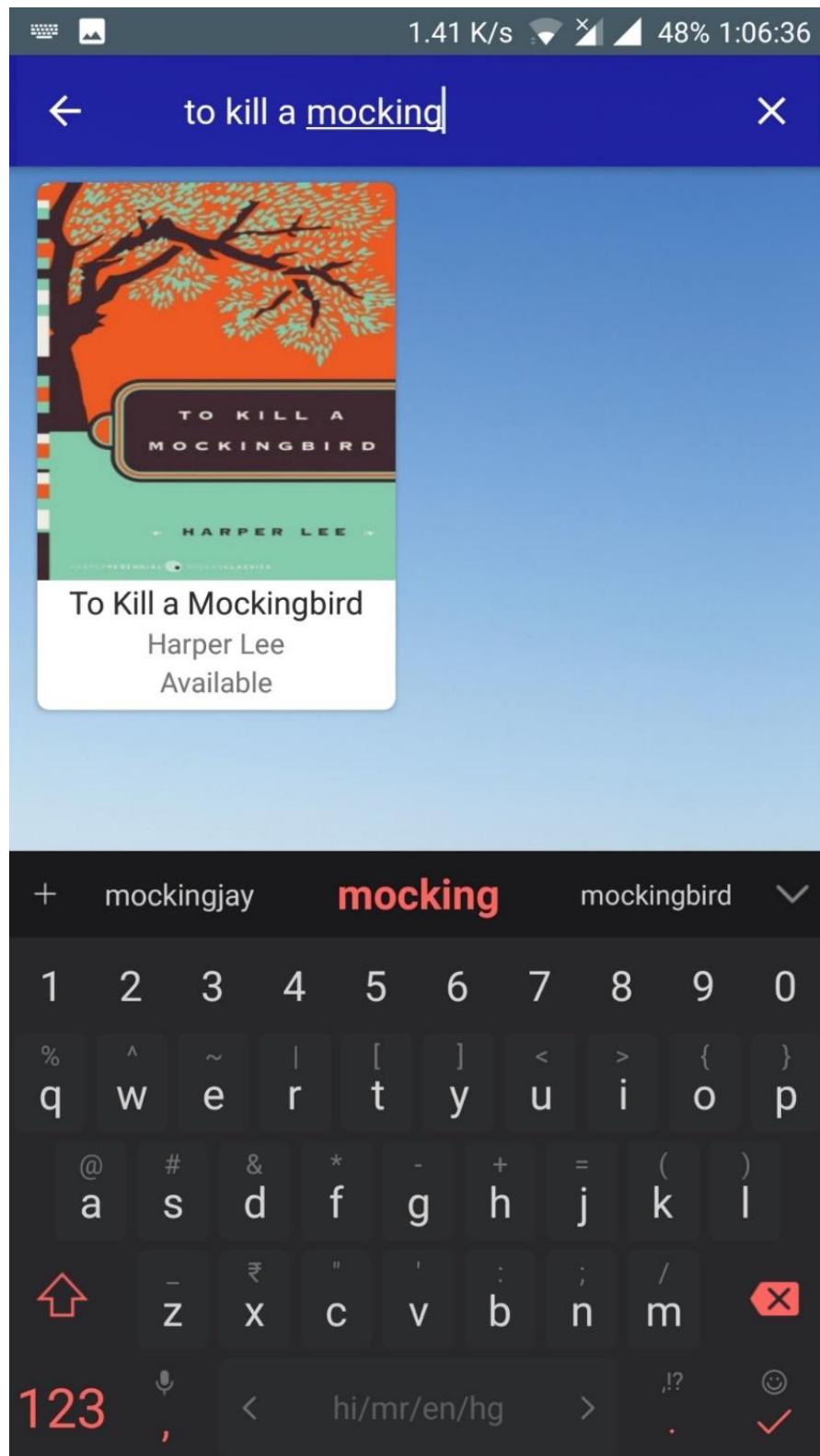
To inculcate reading habit among students and to encourage collaborative efforts among library staff and students to maximum utilization of library resources

Details about the I.J Patel Library

Year of establishment – 1964

Working Hours: Monday to Saturday – 7.00 a.m. to 7.00 p.m.

Book Search by Title, Author, ISBN no., Publisher and Publish Date



Journal/Magazine list Activity and Information Repository Activity

0.11 K/s 100% 12:28:17

Journals and Magazines Subscribed by the college

List of Journals/Magazines

Sr.No	Name of Journal	Periodicity	National/ International	Journal/ Magazine
1	Applied Economics (IUP Journal)	Q (4)	National	Journal
2	Applied Finance	Q	National	Journal
3	Arthashastra: Indian Journal of Economics and Research	M	National	Journal
4	BCAJ- The Bombay Chartered Accountant Journal	M(12)	National	Journal
5	Bhavan's Journal	M(12)	National	Journal
6	Brand Management	...	National	Journal
7	Business India	FN (52)	National	Magazine
8	Business Strategy	...	National	Journal
9	Business Today	FN	National	Magazine
10	Business World (3 Years)	FN (78)	National	Magazine
11	Career 360	M	National	Magazine
12	Case Folio	Q(4)	National	Journal
13	Chartered Secretary	M(12)	National	Journal
14	Chhatrath	M(12)	National	Journal
15	Chitralekha (Gujarati)	W (52)	National	Magazine
16	Chitralekha (Marathi)	W (52)	National	Magazine
17	Civil Society	M	National	Journal
18	Competition Success Review	M	National	Magazine
19	Competition Success Review - G.K.	M	National	Magazine
20	Corporate Citizen	F-N(24)	National	Journal
21	Corporate Governance	Q	National	Journal
22	Digit	M (12)	National	Magazine
23	Discover India	M(12)	National	Magazine
24	Down to Earth (13324)	FN(72)	National	Journal
25	Economics & Political Weekly	W (52)	National	Journal
26	Effective Executive	Q	National	Journal
27	Entire Research	Q (4)	National	Journal
28	Entrepreneurship Development	...	National	Journal
29	Express Travel World	M(12)	National	Magazine
30	Fortune	FN	National	Magazine
31	Frontline	FN	National	Magazine
32	Gyan Samhita Research Journal	BI-A (2)	National	Journal
33	Harvard Business Review	M(24)	International	Journal
34	Health & Nutrition	M(12)	National	Magazine
35	India Green File	M (12)	National	Journal
36	India Today	W	National	Magazine
37	Indian journal of commerce	...	National	Journal
38	Indian Journal of Finance	M(12)	National	Journal
39	Indian Journal of Labour Economics	Q	National	Journal

0.22 K/s 49% 1:03:47

Information Repository

-  Question Papers
-  Book Reviews
-  Bibliographies
-  Journal Articles
-  Newsletters

Question Paper Activity

0.04 K/s 49% 1:03:49

Question Papers

☰

BCOM BFM BMS BAF BSCIT

FYBCOM

FYBCOM SEM II APRIL 2018

FYBCOM SEM I NOV 2017

SYBCOM

SYBCOM SEM IV APRIL 2018

SYBCOM SEM III NOV 2017

TYBCOM

TYBCOM SEM VI APRIL 2018

TYBCOM SEM VI APRIL 2017

*FYBCOM - Sem II - April 2018 - Examination
Foundation Course - II - 12/4/18 12 APR 2018*

VT-Exam: April-17-1 QP Code : 04018
SEMESTER II - EXAM FOUNDATION COURSE - [Total Marks : 75]
(2 ½ Hours)

N.B.: (1) All questions are compulsory.
(2) Figures to the right indicate full marks.

1. (a) Choose the right alternative (any eight) : 8
(i) Elimination of the government control over economic activities is known as
(Liberalization, Privatization, Globalization)
(ii) The Ministry of environment and forest has created information system called
(EIS, GIS, GPS)
(iii) The only important motive of all companies is to maximise their profit.
(Private, Public, Co-operative)
(iv) Human Rights are derived from the principle of Law.
(Government, Natural, Judicial)
(v) Indian constitution has incorporated fundamental Rights.
(8, 7, 6)
(vi) is recognised as the international document of Human Rights.
(UDHR, American Declaration, French Declaration)
(vii) Meat-eating animals are called as
(Herbivorous, Carnivorous, Omnivorous)
(viii) factor is related to Physical, Mental or emotional disturbance.
(Stress, aggression, conflict)
(ix) is one of the causes of aggression.
(Migration, Communism, Urbanisation)
(x) Maslow's theory is related to
(Self Actualization, Stress, Aggression)

(b) State whether the following statements are true or false (any seven) : 7
(i) Levitt introduced the concept of globalization.
(ii) IT has made communication simple and less expensive.
(iii) Freedom of speech and expression may also include defamation.
(iv) John Locke was recognized as the father of modern international Law.
(v) Natural environment provides renewable sources of energy.
(vi) Sustainable development has three components : environment, society and economy.
(vii) Basic human values help to improve standard of living in a society.
(viii) Regionalism is the only cause of aggression and violence.
(ix) Individual factors are the only causes of stress.
(x) Causes of stress are not the same for every individual.

[TURN OVER]

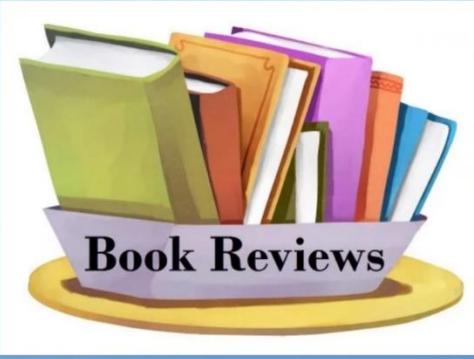
VT-Exam: April-17-2 QP Code : 04018
2
2. What is meant by Globalization ? Explain the impact of Globalization on Indian economy. 15
OR
Explain the impact of Globalization on Agriculture.

3. Explain the meaning and characteristics of Human Rights. 15
OR

Book Review Activity

0.60 K/s 48% 1:05:09

Book Reviews



Click below to see the Reviews from the month of...

- APRIL 2019
- MARCH 2019
- FEBRUARY 2019
- JANUARY 2019
- DECEMBER 2018
- NOVEMBER 2018
- OCTOBER 2018

21.5 K/s 48% 1:05:17

BK-10.pdf

BOOK REVIEW READING LIST FOR THE WEEK

1. One Indian Girl
Author- Chetan Bhagat

I read the book One Indian Girl Written by Chetan Bhagat. It tells the story of Radhika Maheta a simple Indian girl who is always good in academic but she was not like other girl or typical girly type like her sister. She completed her study and done top in all academic she has done MBA from IIM and was working in Goldman Sachs an Investment Bank. This Book shows a different opinion of simple Indian girl compare to another one. The Opinion about her is she make a lots of money she has gave opinion on everything and she has 2 boyfriend one in New York and another was partner of Goldman Sachs. She has different perspective of life then other girl. She wanted to be career women same time she wanted to be a girl who can be good with family too.

REVIEWED BY
JIGISA

Acc. No. : SR 44186

2. Successful Time Management
Author- Atkinson Frank

This Book helps a lot in clearing the state of mind regarding time management analysis. It will help me a lot in the preparation of exams. The topics covered like time management basics, its relations with life, studies, overall, importance, etc. helped me in changing my mind regarding time efficiency. I would recommend this book to my college friends and others. Hence, I would also be keen to read the other books of this author other than this. It was a pleasure reading this book and I am grateful to the author.

Class No. & Acc. No. : 658.4093 ATK/Suc BM 2056

REVIEWED BY
SUDERSHAN CHANDAK

Opening in Google Drive.

3. Who Moved Your Cheese
Author- Dr. Spencer Jhonson

Who Moved Your Cheese is a command able work by Dr. Spencer Jhonson Where the Writer embarks an amazing journey to deal with change in your work and in your life. This book comes with a very short and sweet story of how we deal with CHANGE and

Bibliography Activity



The screenshot shows a mobile application interface with a dark header bar at the top. The header displays "0.00 K/s" and battery level "48% 1:05:30". Below the header, the title "Corporate Social R..." is centered in white text. To the left of the title is a back arrow icon, and to the right are icons for message, search, and more. In the top right corner of the header, there is a small gray box containing the text "1/2". The main content area displays a table titled "CORPORATE SOCIAL RESPONSIBILITY". The table has four columns: Sr.No., Author, Title, and Class No. & Acc.No. The table contains 12 rows of data.

Sr.No.	Author	Title	Class No. & Acc.No.
1	Sharma, J.P.	Corporate governance: Business ethics & CSR	174.4 NU3820, SR38871
2	Blowfield, Michael.	Corporate responsibility: A critical introduction	NU3615
3	Gopalakrishna, C.	Corporate social responsibility in India	658.1145 Gop NU1253
4	Kumar, Manoj.	Corporate Social Responsibility	6658.408 BM2138
5	Rodriques,M.V.	Business Ethics and Corporate Social Responsibility	174.4 NU3855
6	Patil, V.T.	Corporate Social Responsibility and human rights.	658.408 PAT NU1689
7	Pai & Pillai.	Business Ethics & Corporate Social Responsibility	174.4 CO273
8	Crane, Andrew	The Oxford handbook of Corporate Social Responsibility	658.408 BM1665
9	Kotler, Philip.	Corporate Social Responsibility	658 BM958
10	Reddy, Sumati (ed).	Corporate Social Responsibility: Concepts and cases Vol. I	658 Red SR29655
11	Baxi, C.	Corporate Social Responsibility: Concepts & cases the Indian experience	658.(54) Bax SR31324, SR31417
12	Karve, Sunil (ed.)	Corporate Social Responsibility	658.408 KAR / Cor SR37998

Opening in Google Drive.

13 Epstein, Marc & Hanson, Kirk. The accountable corporation: Corporate Social Responsibility, Vol. 2 174.4 EPS/Acc SR42509

Journal Article Activity

20.8 K/s 48% 1:05:34

Journal Articles

JOURNAL ARTICLES INDEX

2014

2013

2012

2011

2010

2009

0.12 K/s 48% 1:05:40

← Articles 2014.pdf

1-2/125

Arthashastra: Indian Journal Of Economics & Research					
Sr.No	Author	Title	Magazine & Journal Name	Vol. & Issue No & Date	Page No.
1	Swami Madhubala	Macroeconomics Impact Analysis of SHGs in the Urban Milieu	Arthashastra: Indian Journal of Economics & Research	Vol.3 & No.1(Jan-Feb)2014	4
2	Bhilar, Gurinder Jit Singh & Mohan, Harinder	Agricultural and Natural Resource Economics Extent of Socioeconomic Crisis in Punjab Causes and Policy Options	Arthashastra: Indian Journal of Economics & Research	Vol.3 & No.1(Jan-Feb)2014	15
3	Krishna, V.S. Rama & Ramana, T.V.	Agricultural and Natural Resource Economics - Patterns of Cultivation and Crop Productivity Changes in the Delta Region of Andhra Pradesh	Arthashastra: Indian Journal of Economics & Research	Vol.3 & No.1(Jan-Feb)2014	23
4	Patel, Chintu M. & Shyani, R.L. etc	Labour And Demographic Economics: Dynamics of Labour Supply and its Absorption in Gujarat Agriculture	Arthashastra: Indian Journal of Economics & Research	Vol.3 & No.1(Jan-Feb)2014	31
5	Bordoloi, Ritmoni	Health, Education, and Welfare Economics Formulation and Implementation of Government Policies and their Implications on the Poor	Arthashastra: Indian Journal of Economics & Research	Vol.3 & No.1(Jan-Feb)2014	40
6	Murthy I. Krishna	Business Economics: Economic Benefits of Agricultural Tourism: Appraisal and Prospects	Arthashastra: Indian Journal of Economics & Research	Vol.3 & No.2(Mar-Apr)2014	4
7	Anushuya, Narwal, Karam Pal	Public Policy Economics: The Existing Commodity Sales Tax System and the Proposed Indian GST: An Analysis Using Microeconomics	Arthashastra: Indian Journal of Economics & Research	Vol.3 & No.2(Mar-Apr)2014	12
8	Kumar, Satinder	Industrial Economics The Existing Commodity Sales Tax System and the Proposed Indian GST: An Analysis Using Microeconomics	Arthashastra: Indian Journal of Economics & Research	Vol.3 & No.2(Mar-Apr)2014	20
9	Shah Ketan K.	Microeconomics A Note on the Correct Diagrammatic Presentation of the Case of Perfectly Elastic Demand and Supply	Arthashastra: Indian Journal of Economics & Research	Vol.3 & No.2(Mar-Apr)2014	32
10	Sharma, Preeti & Nagach, Sangita	Labour And Demographic Economics: Women's Literacy Rate, Sex Ratio, and Women Work Participation in Punjab-A Granger Causality Analysis	Arthashastra: Indian Journal of Economics & Research	Vol.3 & No.2(May-Jun)2014	37
11	Sharma, Neeraj & Mohan, Harinder	Nature, Extent and Pattern of Rural Non-Farm Employment in India	Arthashastra: Indian Journal of Economics & Research	Vol.3 & No.3(May-Jun)2014	7
12	Kumar, Naresh	Indian Gems and Jewellery Exports: A Cluster-Wise Analysis	Arthashastra: Indian Journal of Economics & Research	Vol.3 & No.3(May-Jun)2014	19
13	Rani, Shweta	Small Scale Industrialisation in Haryana and Himachal Pradesh: A Production Function Approach	Arthashastra: Indian Journal of Economics & Research	Vol.3 & No.3(May-Jun)2014	27
14	Dhar, Zulan	Foreign Direct Investment in Bangladesh: Policy, Incentives and Trends	Arthashastra: Indian Journal of Economics & Research	Vol.3 & No.3(May-Jun)2014	39
15	Bamunthu, Kanshul & Ashagabah, Kanshulendran	Behaviour of Investors in the Stock Market: Does Age Matter?	Arthashastra: Indian Journal of Economics & Research	Vol.3 & No.4(July-Aug)2014	7
16	Madan, Pratibha	Foreign Direct Investment: Governance and Infrastructure-A Study Across Indian States	Arthashastra: Indian Journal of Economics & Research	Vol.3 & No.4(July-Aug)2014	17
17	Chettri, Ishpal & Raju, G.Raghavender	Financial Sector Development and Economic Growth in an Open Economy Framework: India's Experience	Arthashastra: Indian Journal of Economics & Research	Vol.3 & No.4(July-Aug)2014	32
18	Goel, Nisha & Goel, Mukesh	Trade Liberalization and its Impact on the Indian Textile Industry: Export Performance vis-à-vis Other Competing Countries	Arthashastra: Indian Journal of Economics & Research	Vol.3 & No.4(July-Aug)2014	41
19	Rao, G. Gangadhara	Agricultural & Natural Resource Economics: MNREGA and Changes in Rural Employment Trends, Wage Structure, and Rural-Urban Migration	Arthashastra: Indian Journal of Economics & Research	Vol.3 & No.5(July-Aug)2014	7
20	Jana, Sojti & Adhikary, Manikali	Industrial Transformation and Employment During Economic Reforms in India	Arthashastra: Indian Journal of Economics & Research	Vol.3 & No.5(July-Aug)2014	20
21	Prasad, Ayush	Agricultural and Natural Resource Economics: Financial and Organizational Restructuring of Agricultural Production in Labour & Demographic Economics: Growth and Structural Transformation of the Labour Force - Are we Heading in the Right Direction?	Arthashastra: Indian Journal of Economics & Research	Vol.3 & No.5(July-Aug)2014	31
22	Agrawal, Anjali	Generalized Family of Multi- Step Utility Functions for Adoption in UNDP's Human Development Index	Arthashastra: Indian Journal of Economics & Research	Vol.3 & No.5(July-Aug)2014	43
23	Chaturvedi, Atit & Tiwari, Neeraj etc.	Health, Education, and Welfare Economics: A Review of the Rural Health care System in Gujarat	Arthashastra: Indian Journal of Economics & Research	Vol.3 & No.6(Nov-Dec)2014	7
24	Kumar, Jayant & Bhattacharya, Hitesh	Urban-Rural and Regional Economics: Financial Inclusion and Sustainability Issues of Institutional and Micro-finance Services in Rural Areas	Arthashastra: Indian Journal of Economics & Research	Vol.3 & No.6(Nov-Dec)2014	20
25	Sharma, Purna Prasad	Arthashastra: Indian Journal of Economics & Research	Vol.3 & No.6(Nov-Dec)2014	32	
26	Paul, Anamika & Jana, Seema Kumar	In the Interest of the Poor: Micro-finance Services in Rural Areas	Arthashastra: Indian Journal of Economics & Research	Vol.3 & No.6(Nov-Dec)2014	43

Opening in Google Drive.

Sr.No.	Author	Title	Magazine & Journal Name	Vol. & Issue No & Date	Page No.

Newsletters Activity

0.37 K/s 48% 1:05:44

≡ Newsletters ⋮

JANUARY 2019

DECEMBER 2018

NOVEMBER 2018

OCTOBER 2018

SEPTEMBER 2018

AUGUST 2018

JULY 2018

JUNE 2018

MAY 2018

3.37 K/s 48% 1:05:50

← Library Newsletter... ⋮

LIBRARY XPRESS | Issue 48

Shri Vile Parle Kelvani Mandal's
NARSEE MONJEE
College of Commerce and Economics

LIBRARY XPRESS

Cherishing the Memories of Old College Premises
Vaishali Dawar, Librarian

As the year 2018 comes to an end, the college premises is going under redevelopment. Hence, we are temporarily shifting to new place with better facilities along with new technology.

NM is getting it's *attire*
Dr. Kedar Bhide

Attire is a new building, big classrooms, smart boards and huge corridor.

It is a **corridor** of new opportunities to explore, adjust, learn and accept the **change**.

Change is inevitable and constant phenomenon of life. It embraces new things and shades old one.

Old premises of NM, which I remembered was having canteen ahead. It was always bustled with idli, meduvada and students.

Students' noise had made canteen and classrooms equally vibrant.

Vibrant environment at NM made my memories vivid. Still I remembered classrooms at computer lab, old library and terrace.

Terrace was the place, where we had yoga session for our staff.

Now staff has changed, so many retired and so many joined. New faces became familiar and old faces became invisible.

But there is a strong and **Invisible** connection which staff, students have enjoyed with NM.

NM's old structure will disappear soon but it's memories will always beat in our hearts and appear in the minds forever.

Thank you NM old premises for making this journey memorable.

Opening in Google Drive.

This is a small poem that I have written on our Junior College Life at the old NM premises! A small down memory lane...

That afternoon when I first entered this room, *Nothing seemed to bloom*

I am incredibly thankful for the wonderful moments which Nm old building has given me to cherish. It was a great experience being here...those proxies, events, *experiences* **impressions**

Online Resources Activity

The image shows two side-by-side screenshots of mobile applications. The left screenshot is for 'Online Resources' and the right is for 'BRITISH COUNCIL India'. Both screens show a top navigation bar with icons for signal strength, battery level (48%), and time (1:06:00 and 1:06:11). The 'Online Resources' screen has a blue header with three horizontal lines and the text 'Online Resources'. It features a graphic of a computer monitor displaying books on shelves and the text 'ONLINE RESOURCES'. Below this, under 'BRITISH COUNCIL LIBRARY', is a button labeled 'British Council Library'. Further down are sections for 'ELECTRONIC THESES, DISSERTATIONS, SYNOPSIS', 'Union Catalogue of Thesis', 'NDLTD', 'Shodhganga', and 'Lecture Fox'. At the bottom is a section for 'UNIVERSITY GRANTS COMMISSION' with the text '(Ministry of Human Resource Development, India)' and a button for 'Swayam (MOOCs Courses)'. The right screenshot is for 'BRITISH COUNCIL India'. It has a dark grey header with the British Council logo and the text 'India'. Below this are 'Menu' and 'Library' buttons. The main content area features a large orange banner with the text 'British Council's Digital Lib...', '4000+ e-newspapers and e-magazines', and images of a YouTube play button, a newspaper, and a magazine cover for 'VOGUE'. Below the banner is the text 'Welcome to the British Council's library in India' and a paragraph about the library's offerings.

0.09 K/s 48% 1:06:00

212 K/s 48% 1:06:11

Online Resources

ONLINE RESOURCES

BRITISH COUNCIL LIBRARY

British Council Library

ELECTRONIC THESES, DISSERTATIONS, SYNOPSIS

Union Catalogue of Thesis

NDLTD

Shodhganga

Lecture Fox

UNIVERSITY GRANTS COMMISSION
(Ministry of Human Resource Development, India)

Swayam (MOOCs Courses)

BRITISH COUNCIL India

Menu

Library

British Council's Digital Lib...

4000+ e-newspapers and e-magazines

VOGUE

Welcome to the British Council's library in India

Our library brings you the very best of British content, from inspirational live events at our centres to online features celebrating UK culture.

Request Book Activity

Submit Request

**Is our Library missing a
good book?**



Use this form to make a book suggestion!

Book Title

Author Name

SUBMIT

Submit Review Activity

Submit Review



BOOK REVIEWS

Here's your chance to tell us how you liked a book. Submit a review here!

Book Title

Author Name

Write your review...

SUBMIT

0.12 K/s 75% 11:23:12

← ⏪ ⏴ ⏵ ⏹ ↻

QUESTIONS RESPONSES 1

Book Name

1 response

Pride and Prejudice

Author

1 response

Jane Austen

Your Review

1 response

Nice Book, highly recommended for English literature lovers

Feedback Activity

0.18 K/s 77% 11:18:03

Submit Feedback

Email Id

khankhulood99@gmail.com
gameover310399@gmail.com

Write your feedback...

SUBMIT

Successfully Posted

0.00 K/s 75% 11:24:14

← ⏪ ⏩ ⋮ ⚡

QUESTIONS RESPONSES 1

Email
maryjames@xyz.com

Student ID
1 response
45207160010

Write your Feedback
1 response
Nice App, easy to understand, would love for more novels to be added

TESTING

11.1 TESTING

Application testing refers to the testing of the overall software application behavior or both front end and back end functionalities along with load testing. It involves a set of activities through manual or automation or both scripts which aim to unveil errors in the software application. It covers the entire end to end functional testing of a software application. Such type of testing helps the team to evaluate and enhance the software quality and at the same time, it reduces the software development and testing costs to the organization.

Application testing can be thought as a bundle of tests which covers front-end testing or GUI testing, back-end testing or database testing, load testing, etc.

Like our traditional waterfall model, application testing involves the following phases of the testing lifecycle. These phases are as follows.

1. **Test Design:** It involves designing the test plans based on the application requirements.
2. **Test Development:** It involves the development of manual test cases as well as automated test scripts.
3. **Test Execution:** It involves execution of functional tests for validation of application requirements.
4. **Application Tuning:** It involves execution of load tests and tuning application performance.

Application testing can be categorized into the following three segments.

1. **Web Application Testing:** Web application testing involves the testing of dynamic or static websites. There are many types of testing which can be done as a part of web application testing depending on the testing need. Such testing types involve functional testing, performance testing, cross-browser testing, load testing, GUI testing, stress testing, regression testing, compliance testing, beta testing, user acceptance testing (UAT), exploratory testing, smoke testing, compatibility testing, and Multilanguage support testing.
2. **Desktop Application Testing:** Desktop application testing involves testing of desktop applications such as MS Office, Skype, etc. There are many types of testing which can be done as a part of desktop application testing depending on the testing need. Such testing types involve functional testing, UI testing, usability testing, performance testing, operating system compatibility testing, performance testing, and security testing.
3. **Mobile Application Testing:** Mobile Application testing involves testing of mobile applications such as Gmail mobile app, Skype mobile app, banking mobile app, etc.

There are many types of testing which can be done as a part of mobile application testing depending on the testing need. Such testing types involve functional testing, performance testing, regression testing, security testing, UI testing, and rule-based

The following could be the best practices in order to perform the Application testing.

- **Identify types of testing required:** Depending on the software application type, we should be clear about the type of testing we should be conducted in order to make sure that ample testing has been conducted that meets the required software quality expectation.
- **Functional specification definition:** Before we could start testing or writing test cases, we should be very sure about the required functionalities to be tested for any software application. We should be able to identify all of the required functionalities from SRS document and use case document.
- **Test Cases Review:** We should be getting our test cases reviewed with the required team or peers in order to make sure that we have 100% test coverage.
- **Defining Entry and Exit Criteria:** We should be clear about the extent of testing or test cases to be executed. Therefore, it is necessary to define clearly the entry and exit criteria before testing could be started and completed.
- **Automated test execution:** We should identify the test scenarios or functionalities which could be automated through the testing. This will save our time in executing such test cases over and over.

11.2 METHODS OF TESTING

The following are the different types of testing methodologies which can be used to ensure the required level of testing depending on the application type.

- **Functional Testing or Black box testing:** In functional testing methodology for any type of software application, the output result is matched with the expected result for the given set of inputs. In this type of testing since the tester has no knowledge of the code, therefore, it is known as Black Box testing. Black box testing is often used for functional testing, non-functional testing, and regression testing. Black box testing can further follow the testing strategies such as equivalence class approach, boundary value approach, decision table approach, and state transition tables approach.
- **White box testing or unit testing:** In white box testing, the tester has the knowledge of the code. Such kind of testing is often done by the developers immediately after they complete coding for any application module. White box testing can further follow the testing strategies such as code coverage analysis, path coverage, dead code analysis, code duplication analysis, infinite loop analysis, etc.

- **Grey box testing:** The term grey box testing refers to the mix kind of testing between black box testing and white box testing. Here, the tester can adopt the mixed strategies involving both black boxes as well as white box testing strategies.

11.3 TEST CASES

1) Test Case for User login

Test Case No.	Steps	Inputs	Expected Output	Actual Output	Pass/Fail
1	Fill the fields and click login button	User enter wrong Student Id and password	Display Error message, Not Registered	Display Error message, Not Registered	Pass
2	Fill the fields and click login button	User enter wrong Student Id and right password	Display Error message, Not Registered	Display Error message, Not Registered	Pass
3	Fill the fields and click login button	User enter right Student Id and wrong password	Display Error message, Incorrect password	Display Error message, Incorrect password	Pass
4	Fill the fields and click login button	User enter Student Id but not password	Display Error message, Invalid Password	Display Error message, Invalid Password	Pass
5	Fill the fields and click login button	User enter password but not Student Id	Display Error message, Invalid Student Id	Display Error message, Invalid Student Id	Pass
6	Fill the fields and click login button	User doesn't enter Student Id or password	Display Error message, Invalid Student Id and Password	Display Error message, Invalid Student Id and Password	Pass
7	Fill the fields and click login button	User enter correct Student Id and Password	Successfully Logged in!	Successfully Logged in!	Pass

2) Test case for Registration

Test Case No.	Steps	Inputs	Expected Output	Actual Output	Pass/Fail
1	Scan Id card, Fill the details and click Register button	User have to scan the Id card and fill all fields	Registration Successful	Registration Successful	Pass
2	Scan Id card, Fill the details and click Register Button	User scanned wrong Id card and filled the fields	Display Error message, Wrong Id scanned	Display Error message, Wrong Id scanned	Pass
3	Scan Id card, Fill the details and click Register Button	User scanned correct Id but filled nonexistent Student Id	Display Error message, User doesn't exist	Display Error message, User doesn't exist	Pass
4	Scan Id card, Fill the details and click Register Button	User scanned correct Id but used same Email Id	Display Error message, Email Id already exists	Display Error message, Email Id already exists	Pass
5	Scan Id card, Fill the details and click Register Button	User left out on or more field	Display error message for the particular field, Invalid	Display error message for the particular field, Invalid	Pass
6	Scan Id card, Fill the details and click Register Button	User left out all fields	Display Error message, Invalid fields	Display Error message, Invalid fields	Pass

3) Test case for Book Issue

Test Case No.	Test Case Name	Steps	Inputs	Expected Output	Actual Output	Pass/Fail
1	Book Issue	Scan Id card and click Issue Book button	Scanned wrong Id	Display Error message, Please Scan correct Id	Display Error message, Please Scan correct Id	Pass
2	Book Issue	Scan Id card and click Issue Book button	Scanned correct Id, but book already Issued	Display Error message, Please return book	Display Error message, Please return book	Pass
3	Book Issue	Scan Id card and click Issue Book button	Scanned correct Id	Issued Successfully	Issued Successfully	Pass
4	Cancel Issue	Click Cancel Issue Button	-	Cancelled Issue	Cancelled Issue	Pass

4) Test case for Submit Book Request

Test Case No.	Steps	Inputs	Expected Output	Actual Output	Pass/Fail
1	Fill all Fields and click Submit button	User has to enter all fields	Successfully Posted	Successfully Posted	Pass
2	Fill all Fields and click Submit button	If user did fill any field	Display Error message, Try Again	Display Error message, Try Again	Pass
3	Fill all Fields And click Submit button	If user filled all fields but no Internet	Display Error message, Error while Posting Data	Display Error message, Error while Posting Data	Pass

5) Test case for Submit Book Review

Test Case No.	Steps	Inputs	Expected Output	Actual Output	Pass/Fail
1	Fill all Fields and click Submit button	User has to enter all fields	Successfully Posted	Successfully Posted	Pass
2	Fill all Fields and click Submit button	If user did fill any field	Display Error message, Try Again	Display Error message, Try Again	Pass
3	Fill all Fields And click Submit button	If user filled all fields but no Internet	Display Error message, Error while Posting Data	Display Error message, Error while Posting Data	Pass

6) Test case for Feedback Form

Test Case No.	Steps	Inputs	Expected Output	Actual Output	Pass/Fail
1	Fill all Fields and click Submit button	User has to enter all fields	Successfully Posted	Successfully Posted	Pass
2	Fill all Fields and click Submit button	If user did fill any field	Display Error message, Try Again	Display Error message, Try Again	Pass
3	Fill all Fields And click Submit button	If user filled all fields but no Internet	Display Error message, Error while Posting Data	Display Error message, Error while Posting Data	Pass

COST ESTIMATION

12.1 COST ESTIMATION MODEL

Cost estimation can be defined as the approximate judgement of the costs for a project. Cost estimation will never be an exact science because there are too many variables involved in the calculation for a cost estimate, such as human, technical, environmental, and political.

Furthermore, any process that involves a significant human factor can never be exact because humans are far too complex to be entirely predictable. Furthermore, software development for any fair-sized project will inevitably include a number of tasks that have complexities that are difficult to judge because of the complexity of software systems.

Cost estimation is usually measured in terms of effort. The most common metric used is person months or years (or man months or years). The effort is the amount of time for one person to work for a certain period of time. It is important that the specific characteristics of the development environment are taking into account when comparing the effort of two or more projects because no two development environments are the same. A clear example of differences in development environments are the amount of time people work in different countries; the typical workweek in North America is 40 hours per week, while in Europe the typical workweek is 35 hours per week. Thus, when comparing a project from North America with a project from Europe, a conversion factor would have to be used to all for an accurate comparison. Different variables can be used for cost estimation, which leads to a difficulty when comparing projects if standard models or tools are not used. For example, a cost estimate can include factors from management, development (e.g., training, quality assurance), and other areas specific to an organization.

The main objectives of Cost Estimation are listed as follows:

- (1) Cost estimation enables the manufacturer to fix the selling price of a product well in advance of actual production.
- (2) Cost estimation indicates to the manufacturer whether the contemplated programme of production and distribution will be economical or not.
- (3) To determine whether the product and its parts can be manufactured economically in the plant itself or to be purchased from outside.
- (4) To determine the most economical, material, tooling method to manufacture the product.
- (5) To prepare production budget.
- (6) To standardize the performance in order to control costs involved.
- (7) To evaluate alternative product designs.
- (8) To determine the standard cost of the product which represents the best estimate that can be made of i.e. what should be the cost of material, labor and overhead etc. after eliminating the inefficiencies and waste.

The important functions of estimation are as follows:

- (i) To work out material cost after taking into consideration various allowances given for different manufacturing operations.
- (ii) To work out labor cost after considering labor time involved with the help of prevailing wage rates.
- (iii) To determine the cost of tooling's, equipment and accessories etc. to be procured from outside.
- (iv) To determine different overhead charges including packing transportation, marketing and selling etc.
- (v) To determine the selling price of the product after considering profit to be realized,
- (vi) To perform lime and motion study.
- (vii) Help to get in touch with modern methods of manufacturing and equipment used.
- (viii) To maintain the previous records of estimates in a systematic manner for future reference.
- (ix) Helps to keep contact with other departments regarding quality of input materials and products along with methods of manufacture.
- (x) To work out most economical procedure for the design and manufacture of products.
- (xi) To help in product design modification.

11.2 COCOMO MODEL

The Development Mode:

There are several modes of software development. These different software development modes have cost-estimating relationships which are similar in form, but which yield significantly different cost estimates for software products of the same size. In the COCOMO Model, one of the most important factors contributing to a project's duration and cost is the Development mode. Every project is considered to be developed in one of three modes:

1. Organic Mode.
2. Semidetached Mode
3. Embedded Mode

To estimate the effort and development time, COCOMO use the same equations but with different coefficients (a , b , c , d in the effort and schedule equations) for each development mode. Therefore, before using the COCOMO model we must be able to recognize the development mode of our project.

1. Organic Mode:

In the organic mode the project is developed in a familiar, stable environment and the product is similar to previously developed products. The product is relatively small, and requires little innovation. Most people connected with the project have extensive experience in working with related systems within the organization and therefore can usefully contribute to the project in its early stages, without generating a great deal of project communication overhead.

2. Semidetached Mode:

In this mode project's characteristics are intermediate between Organic and Embedded.

"Intermediate" may mean either of two things:

- i. An intermediate level of project characteristics.
- ii. A mixture of the organic and embedded mode characteristics.

3. Embedded Mode:

In this development mode Project is characterized by tight, inflexible constraints and interface requirements. The product must operate within a strongly coupled complex of hardware, software, regulations, and operational procedures.

Basic Model:

The basic COCOMO equations take the form

$$\text{Effort Applied (E)} = a_b(\text{KLOC})^{b_b} \text{ [person-months]}$$

$$\text{Development Time (D)} = c_b(\text{Effort Applied})^{d_b} \text{ [months]}$$

$$\text{People Required (P)} = \text{Effort Applied} / \text{Development time} \text{ [count]}$$

where, KLOC is the estimated number of delivered lines (express in thousands) of code for project. The coefficient a_b , b_b , c_b and d_b are given in the following table:

Software Project	a_b	b_b	c_b	d_b
Organic	2.4	1.05	2.5	0.38
Semidetached	3.0	1.12	2.5	0.35
Embedded	3.6	1.20	2.5	0.32

COCOMO model for Library Access Application:

The Library Access Application has average complexity and fair flexibility. Thus it is classified as organic project.

- i. Effort = $2.4 * (\text{size})^{1.05}$ PM
- ii. Time for development = $2.5 * (\text{effort})^{0.38}$ Months

Where,

Effort = Number of staff months (PM)

Size = Number of lines of code to complete product

Time = total months

The Project Code = 12560 LOC = 12 KLOC (Where 1 KLOC = 1000 LOC)

Project has 12.0 KLOC

$$\text{a. Effort} = 2.4 * 12.0^{1.05}$$

$$= 32.61 \text{ SM}$$

$$\text{b. Time} = 2.5 * 32.61^{0.38}$$

$$= 9.5 \text{ Months (Development Time)}$$

Cost Per Month = 5000/-

Total Cost = 9.5 * 5000

$$= \text{Rs. } 47500/-$$

SYSTEM MAINTAINANCE

SYSTEM MAINTAINANCE

The maintenance of the project is at ease because of the bundle of the features it accumulates in it. The project is identified by the merits of the system offered to the user. The merits of this projects are as follows:

- i. It's a mobile-enabled project.
- ii. This project offers user to enter the data through simple and interactive forms. This is very helpful for the users to enter the desired information through so much simplicity.
- iii. The user is mainly more concerned about the validity of the data, whatever they are entering. There are validations of data, so that the user cannot enter the invalid data.
- iv. The information provided to the user is needed to be reliable. The content of the application should be easy for students to understand.
- v. The user is concerned about the data which is more explainable. "A good picture talks more", so the book views provided are more interactive. User is provided the option of opening and reading the description of the book.
- vi. User is provided the option of cancelling the books online by clicking on the desired button.
- vii. The reviews posted from users' needs to be posted successfully. And the requests and feedback asked by the users are answered in very less time.
- viii. From every part of the project the user is provided with the buttons and views so that user can go from one option of the project to other as per the requirement. This is bound to be simple and very friendly as per the user is concerned. That is, we can say that the project is user friendly which is one of the primary concerns of any good project.
- ix. Data storage and retrieval will become faster and easier to maintain because data is stored in a systematic manner and in a single database.
- x. Easier and faster data transfer through latest technology associated with the computer and communication.

Through these features it will increase the efficiency, accuracy and transparency.

FUTURE ENHANCEMENTS

15.1 DRAWBACKS

- 1) Library Administrator should manually update the Details of the Books.
- 2) Only the Android Users can use the Library Access Application.
- 3) The database used is not hosted through an online server, it stores data locally.
- 4) The size of the app is large because of local storage.
- 5) Students can only issue one book at a time.

15.2 FUTURE SCOPE

It is not possible to develop a system that makes all the requirements of the user. User requirements keep changing as the system is being used. Some of the future enhancements that can be done to this system are:

- 1) As the technology emerges, it is possible to upgrade the system and can be adaptable to desired environment.
- 2) Based on the future security issues, security can be improved using emerging technologies.
- 3) Sub admin module can be added.
- 4) Online Databases can be made using Google Firebase and MySQL so that every faculty and student can access the database from their respective android devices.
- 5) Further Filter section and Advanced Search section can be made for the better management of book records.
- 6) Features such as User Verification, Book issue, Book return, Google Signup, Facebook Sign up, etc.
- 7) Token generation feature can be implemented so that user can submit the token to the library and instantly receive the book saving time and increasing efficiency in managing records.
- 8) Notification system can be used to notify user for due date.

CONCLUSION

The library Management System has been computed successfully and was also tested successfully by taking “test cases”. It is user friendly, and has required options, which can be utilized by the user to perform the desired operations.

In this paper we have presented a Library Access System Application, developed for Android using SQLite Database. The main aim of the application is to make people to easily access their library account in order to check the availability of the books in the library. The Library Access System Application saves users estimable time by making complete procedure online. The problem of data storage is solved by storing them in popular open source SQLite database.

The software is developed using XML coding as front end and Java coding as back end in Windows environment.

The goals that are achieved by the software are:

- Optimum utilization of resources.
- Efficient management of records.
- Simplification of the operations.
- Less processing time and getting required information.
- User friendly.
- Portable and flexible for further enhancement.

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