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Vignana Jyothi Nagar, Pragathi Nagar, Nizampet (S.O), Hyderabad TS 500 090 India

Laboratory Course Project on

E-BOOK MANAGEMENT SYSTEM

Submitted in partial fulfillment of the requirement for the award of degree

BACHELOR OF TECHNOLOGY

In

CSE (ARTIFICIAL INTELLIGENCE & MACHINE LEARNING)

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CERTIFICATE

This is to certify that the project titled "E-Book Management System**"** is being submitted, by **Devvrat Yadav (21071A6683)** in partial fulfillment of the requirement for the award of the degree of **Bachelor of Technology**, to the Centre for Presencing and Design Thinking at the **Vallurupalli Nageswara Rao Vignana Jyothi Institute of Engineering and Technology** is a record of *bonafide* work carried out by them under our pedagogy. The results embodied in this thesis have not been submitted to any other University or Institute for the award of any degree.

<div align="right">

Dr. Sitanath Biswas
Assistant Professor

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    Internal Examiners   **External Examiners**

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E-BOOK MANAGEMENT SYSTEM

AIM: To create web application for E-Book Management process

(I) PROBLEM STATEMENT:

      E-Book Management System provides the user a process which is well organized in online buying and selling of books which is quite structured. This system is inspired from different e- book applications, for example Amazon Kindle, kopykitab , junkybooks, z-lib.org, etc.The E-Book Management System is completely online based platform, which mainly deals with the process of interaction between the buyer and the seller, buyer who visits the site will use the search bar to look for the desired book, the search engine mainly focuses on the database process and is used to search the book for the buyer using the book name, author name, edition, publication details in the site. Once the user finds the desired book there will be a payment option for renting/buying and option for pdf file. Then he should login with his username and password, and then payment through atm debit or credit card applicable.

MODULE 1 : SEARCH

MODULE 2 : DOWNLOAD

MODULE 3 : PAYMENT

MODULE 4 : LOGIN PAGE

Has three options,

The User Login – already registered user can log into the application.
Register – New user can provide the necessary details to register in the application
The Admin Login – Administrator needs to provide login details to enter into the application to manage it.

MODULE 5 : REGISTER

Username – The visitor is asked to provide a unique username containing alphanumeric characters at the time of registration that will be used to login into the system.
Name – Name is should be provided
E-mail – It is also provided at the time of registration and is used for login and to send updates to the user.
Password – The user has to create a unique and strong password.
Confirm password – the password is then again entered to confirm it.
Phone Number – The user also has to provide their phone number to send updates to the user.
Captcha – the captcha is used to confirm whether the user is a bot or a human.

MODULE 6 : VERIFICATION

The user has to login with a username and password to confirm themselves.
When the user Buys/Rents a book, the user is asked for the payment which is then verified.

(II) SOFTWARE REQUIREMENT SPECIFICATION

1.0 INTRODUCTION

E-book is an virtual/digitalized version of a printed book that is either free or paid and can be read on an electronic device. The E-book process is well organized buying, renting and selling of books.

1.1 PURPOSE

Searching books in a classical way is a complex procedure as we need to visit many libraries and bookstores just to get a single book whereas the e-book management system provides a hassle free one click solution. It is an interface between the user and the librarian. This system is fast and efficient as the number of users for book banks is increasing every year so an automated system becomes essential to meet the demand.

1.2 SCOPE

When a book is bought the user is given the full access to personalize (sticky notes or highlighting) the book. Generally, a book can be borrowed by one person at a time whereas the e book management system provides a single book to many users simultaneously.
Standing in queues to borrow a single book kills a lot of time, on the other hand the e book system saves time.
Using this system reduces the workload of a librarian or authority who is concerned with issuing a book. It also reduces the backpack load of the students.
The system provides the user with the updated versions of the books as soon as they are released.

1.3 DEFINITIONS,ACRONYMS AND ABBREVIATIONS

Administrator/Admin

Refers to the one who has the authority to manage the entire book system.

E-book manager

One who oversees the entirety of books and magazines.

User

One who desires to obtain the books and magazines.

Visitor

The one who visits wishing to obtain the book or magazines.

HTML

Markup Language used for creating web pages.

CSS

Cascading Style Sheets

J2EE

 Java 2 Enterprise Edition is a programming platform and it is the part of the java platform for developing and running distributed java applications.

HTTP

HyperText Transfer Protocol

TCP/IP

 Transmission Control Protocol/Internet Protocol is the communication protocol used to connect hosts on the Internet.

EBMS

E-Book Management System

1.4 REFERENCES

- VNR VJIET Library
- vidyarthiplus.com
- Amazon Kindle
- kopykitab.com
- StackOverFlow

1.5 TECHNOLOGIES TO BE USED

- HTML
- CSS
- JAVASCRIPT
- JAVA
- Oracle
- MySql

1.6 TOOLS TO BE USED

- Eclipse IDE (Integrated Development Environment)
- Rational Rose tool (for developing UML Patterns)
- Visual Studio Code

1.7 OVERVIEW

The process starts with the existing customer logging in or a new user registering themselves by giving their required details. Next the user starts searching for the desired book, if it's free the buyer directly downloads it. Else they have to pay to rent or buy the book .Usually renting a book is for a particular time period. After the completion of the time period the user has two options that are renting it again or buying the same book, at the same time the user is also suggested some similar books.

2.0 OVERALL DESCRIPTION

2.1 PRODUCT PERSPECTIVE:

The E-Book Management System acts as an interface between the user and the 'e-book manager'. This system tries to make an interaction as simple as possible and at the same time not risk the security of data stored in it. This minimizes the time duration in which the user receives the books or magazines.

2.2 SOFTWARE INTERFACE:

Front End Client

The Student and Librarian online interface is built using JSP and HTML. The Librarians local interface is built using Java.

Web Server

Apache Tomcat application server (Oracle Corporation).

Back End

MySql

2.3 HARDWARE INTERFACE:

The server is directly connected to the client systems. The client systems have access to the database in the server.

2.4 SYSTEM FUNCTIONS:

- Secure Registration information of the Students.
- Librarians can generate reports from the information and are the only authorized personnel to add the eligible application information to the database.
- SMS and Mail updates to the applicants by the administrator.

2.5 USER CHARACTERISTICS:

User

They are the one who desire to obtain the books and put forward the information to the database.

Visitor

They are the people who visit the E-book system.

Administrator

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

2.6 CONSTRAINTS

This process has various issues in the basics of maintenance of databases and updating in sites, and virus problems in pdf books, so we have many issues in this process.
Sometimes the payments doesn't get through to the application due network issues
The user should have access to a computer and internet.

2.7 ASSUMPTION AND DEPENDENCIES

- The user should have a basic knowledge of working on a computer and English language.
- The user may be required to scan the documents and send.
- The user must have an user id i.e an account to access the e-books.
- Internet connection is a must.
- Proper browser must be installed and used.
- The user must know the exact book details (Name of the book, Author's name, Publications).

(III) UML DIAGRAMS

3.1 USECASE DIAGRAM

A use case diagram is used to represent the dynamic behavior of a system. It encapsulates the system's functionality by incorporating use cases, actors, and their relationships. It models the tasks, services, and functions required by a system/subsystem of an application. It depicts the high-level functionality of a system and also tells how the user handles a system.

The E-book use cases in our system are:
1. Login
2. Register
3. Search book
4. Download
5. Payment
6. Update

ACTORS INVOLVED:

1. Registered User
2. Visitor
3. Administrator
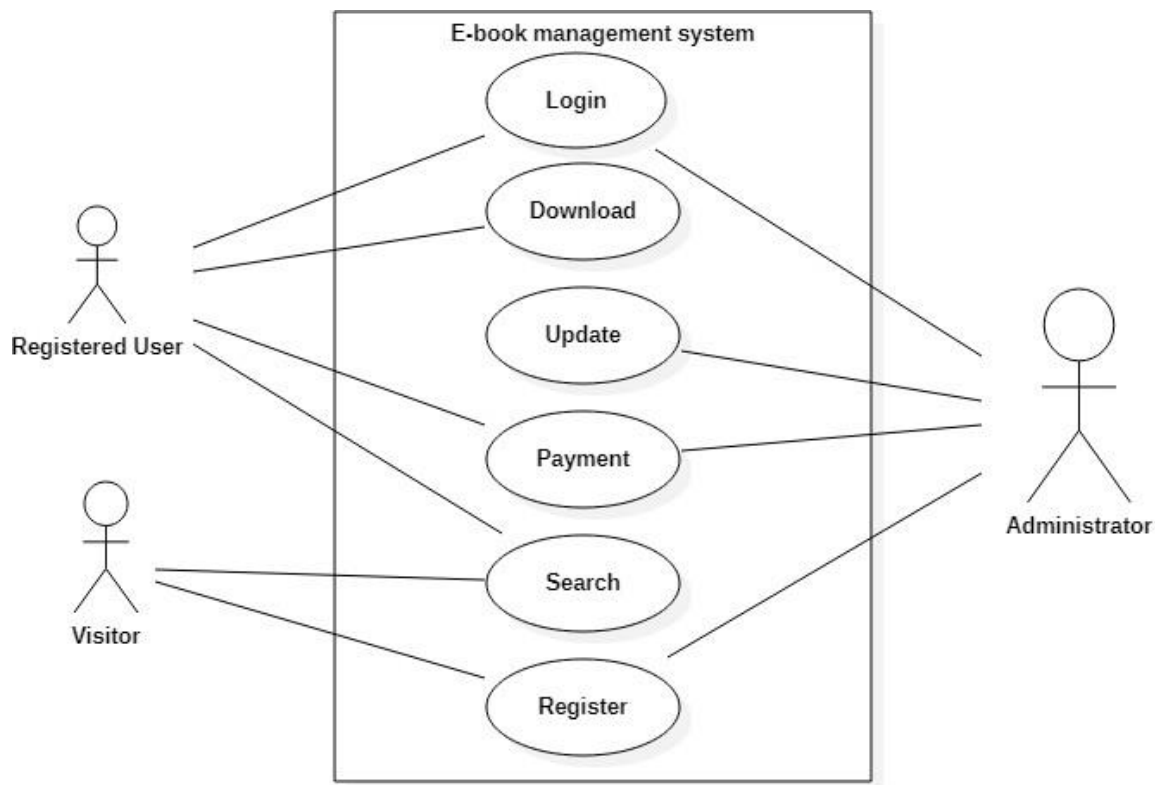
USE CASE DIAGRAM

3.2 SEQUENCE DIAGRAM

The sequence diagram represents the flow of messages in the system and is also termed as an event diagram. It helps in envisioning several dynamic scenarios. It portrays the communication between any two lifelines as a time-ordered sequence of events, such that these lifelines took part at the run time. In UML, the lifeline is represented by a vertical bar, whereas the message flow is represented by a vertical dotted line that extends across the bottom of the page. It incorporates the iterations as well as branching.

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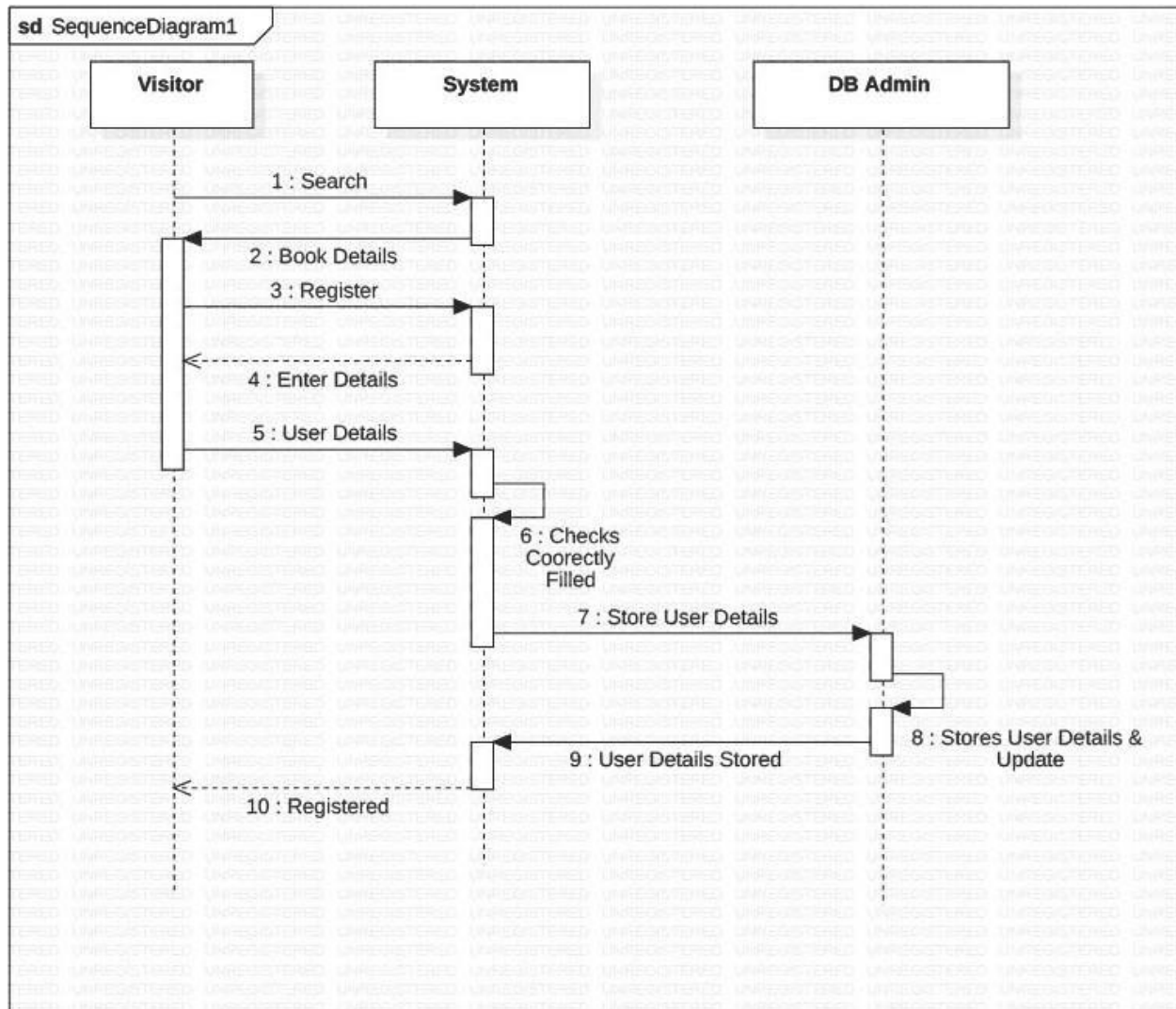
SEQUENCE DIAGRAM (Visitor)
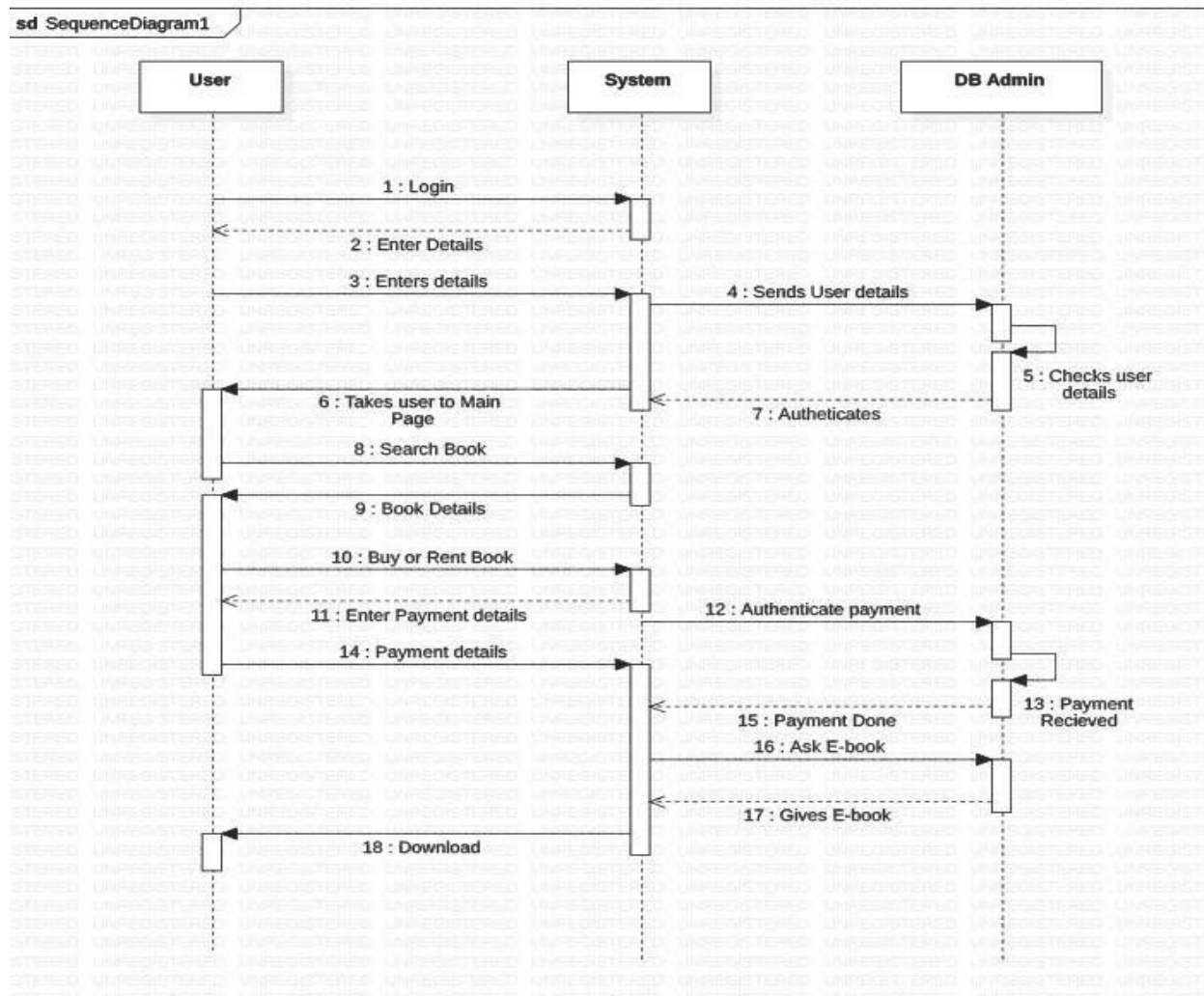
SEQUENCE DIAGRAM (Registered User)

3.3 ACTIVITY DIAGRAM

n UML, the activity diagram is used to demonstrate the flow of control within the system rather than the implementation. It models the concurrent and sequential activities.

The activity diagram helps in envisioning the workflow from one activity to another. It put emphasis on the condition of flow and the order in which it occurs. The flow can be sequential, branched, or concurrent, and to deal with such kinds of flows, the activity diagram has come up with a fork, join, etc.

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Visitor	System	Registered User	Admin

Visitor:
- Visits the page
- Search for e-book
- Provides details and registers

System:
- Displays the details
- Asks to register
- Stores the details
- Displays the details
- Asks to buy or rent
- Asks for payment details
- Verifys the details

Registered User:
- Logins
- Home page
- Seaches for e-book
- Buy the e-book
- Pays the bill
- Downloads the e-book

Admin:
- Creates a new account
- Verifys the account
- verified
- not verified
- Secures the transaction
- Allows access to e-book

ACTIVITY DIAGRAM

3.4 CLASS DIAGRAM

The class diagram depicts a static view of an application. It represents the types of objects residing in the system and the relationships between them. A class consists of its objects, and also it may inherit from other classes. A class diagram is used to visualize, describe, document various different aspects of the system, and also construct executable software code.

Visitor
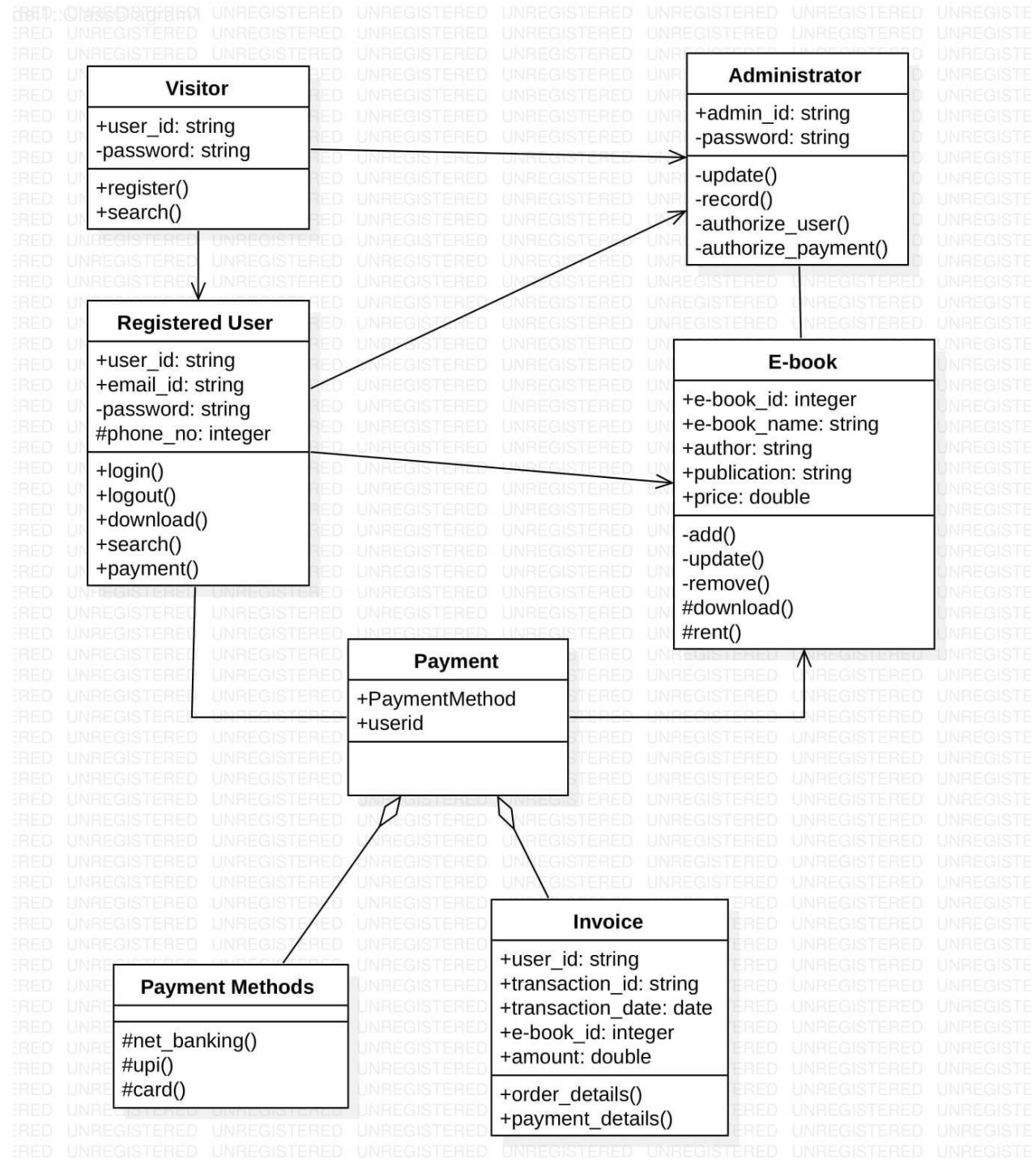+user_id: string
-password: string
+register()
+search()

Administrator
+admin_id: string
-password: string
-update()
-record()
-authorize_user()
-authorize_payment()

Registered User
+user_id: string
+email_id: string
-password: string
#phone_no: integer
+login()
+logout()
+download()
+search()
+payment()

E-book
+e-book_id: integer
+e-book_name: string
+author: string
+publication: string
+price: double
-add()
-update()
-remove()
#download()
#rent()

Payment
+PaymentMethod
+userid

Payment Methods
#net_banking()
#upi()
#card()

Invoice
+user_id: string
+transaction_id: string
+transaction_date: date
+e-book_id: integer
+amount: double
+order_details()
+payment_details()

CLASS DIAGRAM

3.5 COMPONENT DIAGRAM

A component diagram is used to break down a large object-oriented system into the smaller components, so as to make them more manageable. It models the physical view of a system such as executables, files, libraries, etc. that resides within the node. It visualizes the relationships as well as the organization between the components present in the system.
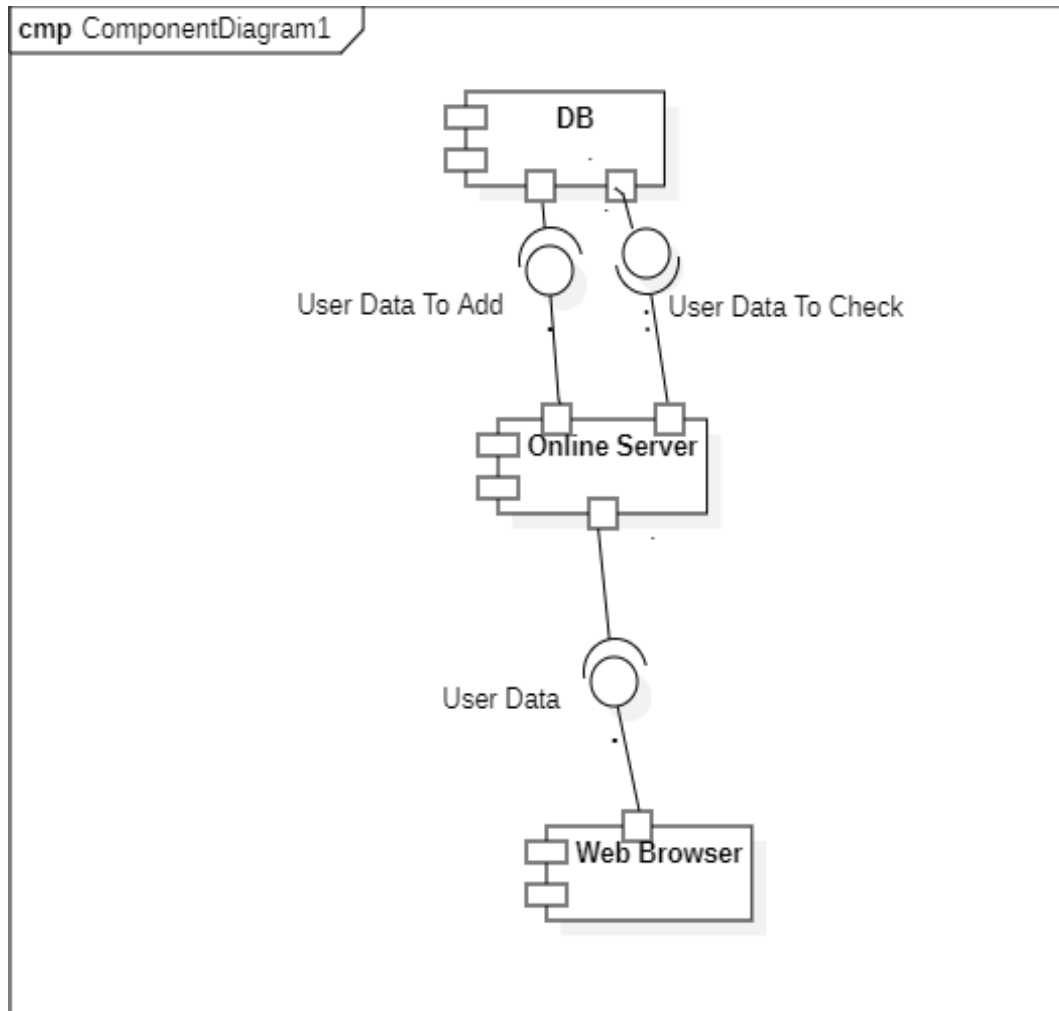
COMPONENT DIAGRAM

3.6 DEPLOYMENT DIAGRAM

The deployment diagram visualizes the physical hardware on which the software will be deployed. It portrays the static deployment view of a system. It involves the nodes and their relationships.

It ascertains how software is deployed on the hardware. It maps the software architecture created in design to the physical system architecture, where the software will be executed as a node. Since it involves many nodes, the relationship is shown by utilizing communication paths.

DEPLOYMENT DIAGRAM

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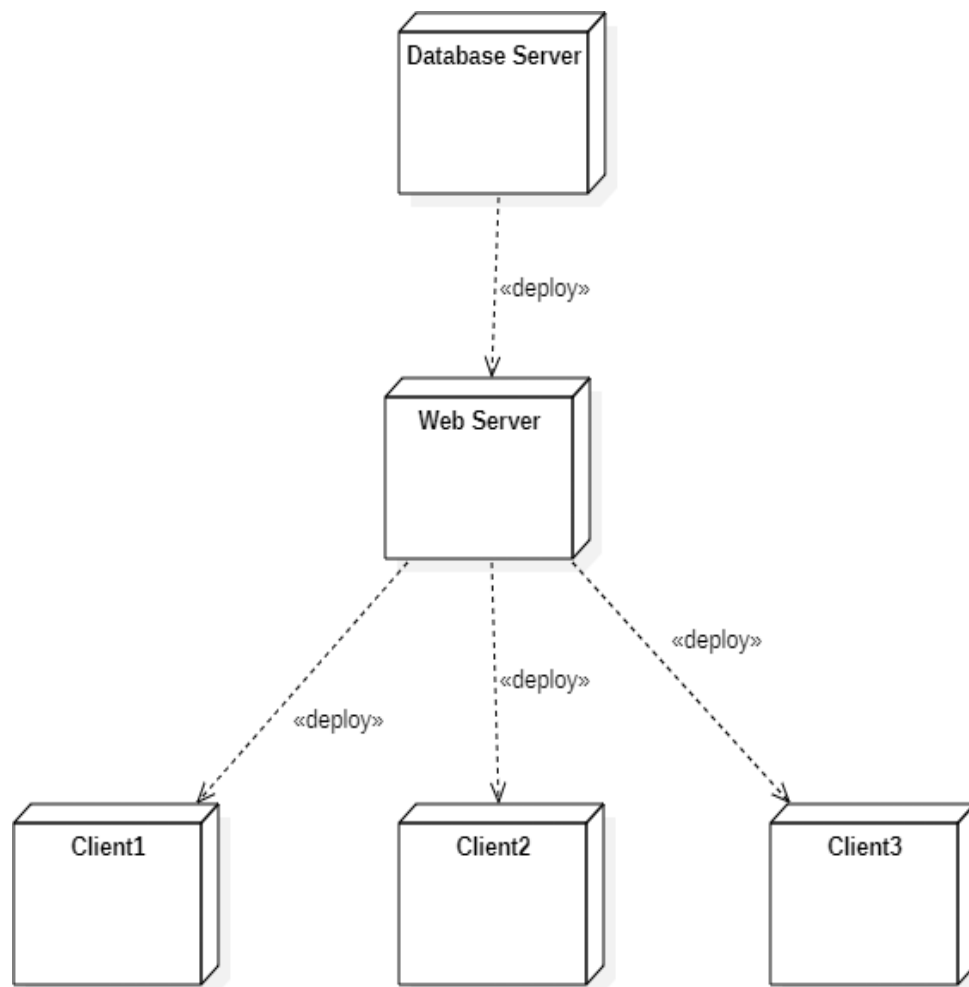
3.7 STATE CHART DIAGRAM

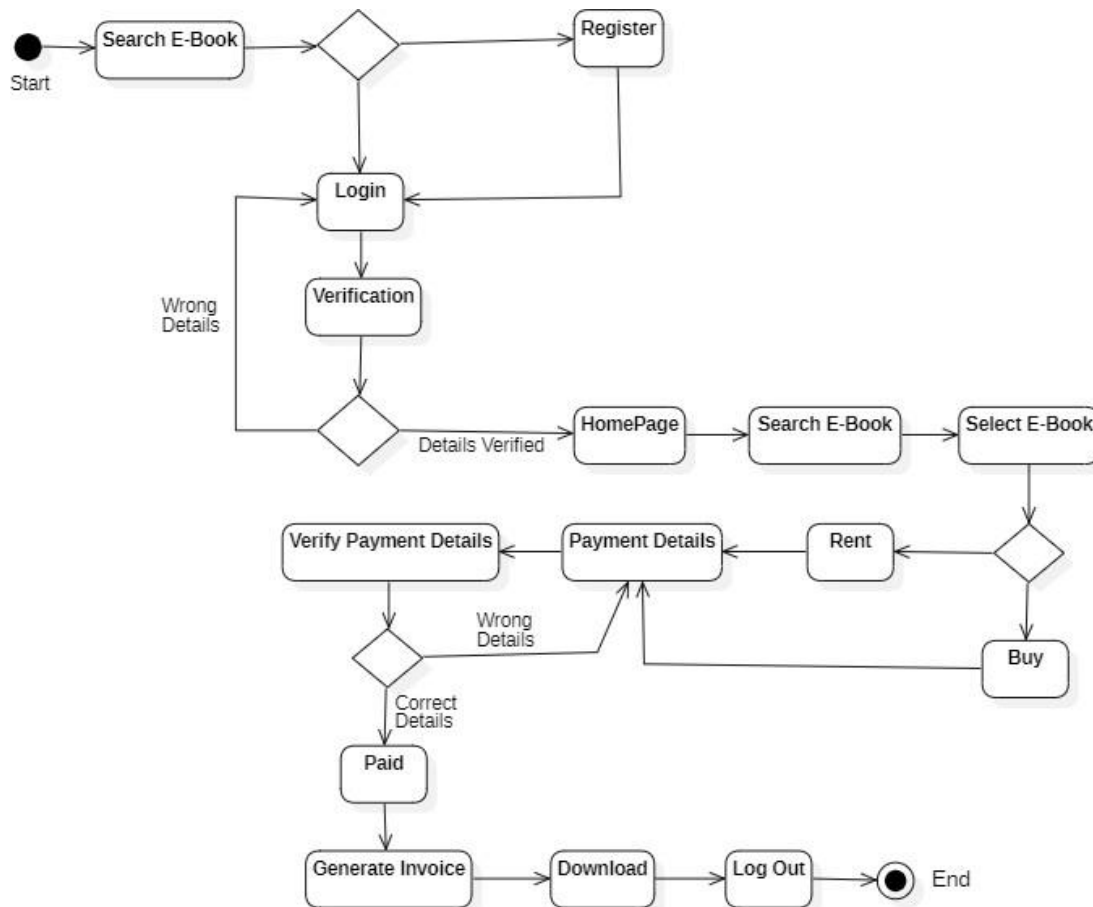The state machine diagram is also called the Statechart or State Transition diagram, which shows the order of states underwent by an object within the system. It captures the software system's behavior. It models the behavior of a class, a subsystem, a package, and a complete system.

STATE CHART DIAGRAM

(IV) OTHER NONFUNCTIONAL REQUIREMENTS

4.1 PERFORMANCE REQUIREMENTS

- The searching and filtering process of the eBook desired by the user should be efficient and quick.
- **Unquantifiable:** Must work faster than product x or must perform at least as well as the previous product.
- **Ambiguous:** The application should load within an adequate time frame.
- **Unrealistic:** The application should load in less than 0.01 seconds at all times.
- **Unverifiable:** Flexible, easy, sufficient, safe, ad hoc, adequate, user-friendly, usable, when required, if required, appropriate, fast, portable, lightweight, small, large, maximize, minimize, robust, quickly, easily, clearly, you get the idea.

4.2   SAFETY REQUIREMENTS

- Digital Millennium Copyright Act "takedown notice": When it is discovered that content from a copyrighted eBook has been illegally posted online, the copyright holder can submit a DMCA takedown notice to the website service provider demanding the content be removed.
- DRM: It is basically a measure to limit the access of third parties to access the file for further copying etc.Kindle, by Amazon, is probably the most popular eBook reader in the present day. Kindle formats, like AZW and mobi, and even a few PDFs are protected by DRM coding. A consequence of this is that a few eBooks in AZW format cannot be opened in other devices.
- Add digital watermarks to your eBooks:It makes it very difficult for someone to take credit for your work when your name is plastered across a document.Digital watermarks are another way to improve security since they cannot be removed or altered, making them a very important tool when fighting copyright infringement on the web. This allows users to legally use the content, while adding security to the content to prevent illegal usage.

4.3   SECURITY REQUIREMENTS

- Users must use a secured browser for a secured transaction so that the payment details of the user do not fall into wrong hands.
- Basic Copyright Protection: By law, only the author, who is the owner of the copyright, has the right to reproduce or distribute the eBook, unless express permission has been granted.
- The eBooks are under the ambit of all the laws and legislations governing intellectual property, and more specifically, literary and digital/electronic works. This includes the **Indian Copyright Act and Information Technology Act**. The creators and producers of eBooks own the exclusive copyrights to their works.
- **Acquire DRM (Digital Rights Management) Software**
  Ensuring that only the right people can view your eBook is crucial, but controlling what they can do with that eBook is just as important. Digital rights management policies allow you to add different settings to control who can access your eBook and what they can do with it. It will protect your eBook from piracy by encrypting its content as well as determining user access permissions and controls. DRM software for eBooks enables you to always have complete control over your content.

(V) TEST CASES

Login Module

Test Case #	Test Case Description	Expected Result
1	Check if the Login Page shows Login Options (User, Admin & Register)	Should display the options
2	Checking Login Page With Valid Username and Password	Should Login
3	Checking Login Page With Valid Username and Invalid Password	Shouldn't Login
4	Checking Login Page With Invalid Username and Valid Password	Shouldn't Login
5	Check Login Page with Invalid Password and Valid Username	Shouldn't Login
6	Check if the user can login by leaving Username and Password field blank	Shouldn't Login
7	Check if the Username TextBox accepts only Email type.	Only Email type should be accepted
8	Check if the Password field displays encrypted characters or not	Password field should display only encrypted characters (*)
9	Check if the Forgot Password Button takes us to a new page(Reset Password page)	Forgot Password takes the user to a new page where they can reset their Password

Registration Module

Test Case #	Test Case Description	Expected Result
1	Check if the Register module shows Email, Phone, & Captcha fields	Should show the field boxes
2	Check if the User gets an OTP	User should get the OTP
3	Check if the User gave a minimum of 8 characters long Password	Password should be 8 characters long
4	Check if the Password and Confirm Password Field have same Info. or not	Password and Confirm Password should be same
3	Check if after Registration of User a Success message is displayed or not	Success message is displayed after Registration
4	Check if after Registration the User is taken to Login Page or not	After Registration the User should be taken to Login page
5	Check if the User data after Registration is updated in DB or not	User data after Registration is updated in DB
6	Check if a Registered User tried to Register again it shows "Already Registered" Message or not	Should show the message
7	Check if the User can Login after Registration	User should be able to Login after Registration

Search Module

Test Case #	Test Case Description	Expected Result
1	Check if the Search Bar of The Main page is working properly or not	The Search bar should show correct results
2	Check if the Home Page Search is working or not	Home Page Search should work
3	Check if the Results displayed on searching are linked to a new page or not	Search results should be linked to a new page
4	Smart search is possible or not	User should experience Smart Searching
5	Check if search shows relevant results or not	Search should show relevant results
6	Check if the search process is fast enough or not	Search process should be fast
7	Check if the User can search using tags or genres, or not	User should be able to search using tags
8	Check if the search is done by the Enter Button or not	Search should be done by Enter Button

Logout Module

Test Case #	Test Case Description	Expected Result
1	Check if the User can open same account simultaneously in the different browsers	User should be able to open multiple accounts simultaneously
2	Check if the Session timeout is working or not	Session timeout should work
3	Check if the User can Logout	User should be able to logout
4	Check if the User is being logged out if same account is opened on different browsers or devices	User should be Logged out if same account is opened in different browsers

Forgot Password Module

Test Case #	Test Case Description	Expected Result
1	Check if the User has options to reset Password using Email, Phone, or Security Question.	The User should have the Options
2	If the Password is being reset using Phone No. Check if the User is getting OTP or not	OTP should be sent

| 3 | If the Password is being reset using Email, Check if the User is getting an email or not | An Email should be sent to the User |
| 4 | Check if after resetting the Password, the Password is being updated in DB or not | The Password should be updated in DB |

Payment Module

Test Case #	Test Case Description	Expected Result
1	Check if the Payment module has different payment options (at least 3)	Payment module should have different payment options
2	Check after entering payment details, it is being verified or not	Entered payment details should be verified
3	Check if the verification module is working for payment module	Verification module should work for payment module
4	Check if the transactions are secured or not	Transactions must be secured

Buying and Renting Module

Test Case #	Test Case Description	Expected Result
1	Check whether the Preview Button is working properly or not	Preview button should work properly
2	After selecting an E-book, check whether it is showing two options (Rent/Buy)	Two options should be displayed(Rent/Buy)
3	Check if the Reviews of the Book are being displayed or not	Reviews of books should be shown
4	Check if the the buttons Rent and Buy are working and taking the User to payment page	Rent and Buy buttons should work and take the User to the payment page
5	Check if the rented E-Book's access is permitted only for the given time period or not	Rented EBooks access should be permitted only for limited time period
6	Check if the User is able to download the EBook after buying or renting it	User should be able to download the EBook after buying or renting
7	Check if the User is shown suggestions after the downloading the EBook	User should be able to download the EBook after buying or renting
8	Navigating through the interface should be easy	User should be able to navigate the interface easily