

## **5.5 Defect Report / Test Log**

- **Objective**

The objective of the Defect Report / Test Log is:

- To systematically record any defects, errors, or deviations encountered during the execution of planned test cases.
- To monitor and track the status of identified defects from discovery through resolution.
- To provide a clear, organized, and traceable record of testing activities, including executed test cases, their outcomes, and corresponding defect details.
- To ensure that all critical and major defects are identified, addressed, and resolved prior to production deployment.

- **Scope**

This section covers the logging and reporting of defects identified during:

- Unit Testing (where applicable)
- Integration Testing
- System Testing
- Acceptance Testing

It applies to all modules and functionalities of the Trimurti-Online Grocery Store project.

- **Defect Report Format**

A Defect Report is maintained for any failed or partially successful test cases.

Defect ID	Test Case ID	Module	Defect Description	Severity	Status	Remarks
DEF-001	TC-PM-002	Payment	Payment verification fails silently during successful payment processing	Critical	Open	Affects course enrollment
DEF-002	TC-UM-010	User Management	Session timeout not properly handled	Critical	Open	Users unexpectedly logged out
DEF-003	TC-CM-006	Course Management	Course deletion leaves orphaned lecture data in database	Major	Open	Data integrity issue
DEF-004	TC-PT-005	Progress Tracking	Progress not syncing correctly across multiple devices	Major	Open	User experience impact
DEF-005	TC-CERT-003	Certificate	Certificate verification system not validating expired certificates	Major	Open	Security concern

- **Defect Severity Levels**

Severity Level	Description
Critical	Application crash, data loss, or security vulnerability. Must be fixed immediately.
Major	A defect that affects core functionalities but has a workaround. Needs to be fixed before release.
Minor	Cosmetic issues or defects with limited operational impact. Can be addressed in future updates.

- **Defect Life Cycle**

1. New – Defect reported by QA tester.
2. Open – Defect validated and assigned to a developer.
3. In Progress – Developer working on resolving the defect.
4. Resolved – Defect fixed and delivered for re-testing.
5. Closed – Defect successfully verified and closed by the tester.
6. Reopened – If the defect persists after being marked as resolved.
7. Deferred – Defect scheduled for future versions (if applicable).

- **Test Log Example**

Module	Total Test Cases	Pass	Fail	Defects Logged	Remarks
User Management	10	8	2	2	2 critical defects logged (Session timeout, Email verification)
Course Management	9	7	2	2	2 major defects logged (Course deletion, Lecture addition)
Payment Module	10	8	2	2	2 critical defects logged (Payment verification, Duplicate payment)
Progress Tracking	10	9	1	1	1 major defect logged (Progress sync)
Certificate Module	9	8	1	1	1 major defect logged (Certificate verification)
Admin Management	7	6	1	1	1 major defect logged (User role update)

- **Deliverables**

The following artifacts will be produced and maintained as part of this section:

- Test Execution Logs
- Defect Report Logs
- Defect Summary Reports
- Test Summary and Closure Report
- Test logs and defect reports are reviewed and approved before final project sign-off.

## CHAPTER 6

# LIMITATIONS OF PROPOSED SYSTEM

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1. **Initial Setup Requires Time and Effort:** Deploying the platform is not instantaneous. It requires time to install dependencies, configure the system, upload content, and assign user roles. In the absence of a dedicated technical team, the setup process may be delayed or require additional support.
2. **No Integrated Test or Quiz Functionality:** The current version focuses on delivering video lectures, notes, and course materials. It lacks built-in features for assessments like quizzes or tests, and does not track student performance. These capabilities would need to be handled through separate tools or future development.
3. **Reliable Internet Connection is Necessary:** As the platform operates entirely online, students must have a stable internet connection to access video lectures or download materials. Users with limited or unstable connectivity may encounter issues, especially when streaming content.
4. **Manual Content Uploading:** Instructors and administrators must upload each file individually. There is no bulk upload or content scheduling system implemented yet, which can be time-consuming for educators managing large volumes of materials.
5. **Lack of Integration with External Systems:** The platform currently functions in isolation and does not integrate with external tools such as Zoom, Google Classroom, or existing college ERP systems. This may be inconvenient for institutions already using such platforms in their academic workflows.
6. **Dependence on Technical Support:** Like any digital system, the platform is susceptible to bugs, downtime, or server issues. Without technical personnel to resolve these promptly, users may experience disruptions or limited access.

## CHAPTER 7

# PROPOSED ENHANCEMENTS

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1. **Integration of Quizzes and Assessments:** Incorporating quizzes, coding tasks, and assessments would enable students to test their understanding within the platform. This would also assist instructors in evaluating learning outcomes and student performance.
2. **Course Enrollment and Access Control:** A structured course enrollment mechanism would allow students to register for specific courses. This would also help instructors manage student groups more effectively and restrict content access based on enrollment.
3. **Interactive Discussion Forums or Q&A Sections:** Introducing community features like discussion boards or Q&A forums would foster collaboration between students and instructors, enhancing engagement and supporting peer learning.
4. **Third-Party Tool Integration:** Future versions could support integrations with platforms like Zoom for live sessions, Google Drive for resource storage, or existing institutional systems for attendance and grading management.
5. **Automated Notifications and Alerts:** Email and in-app notification systems could be implemented to keep users informed about new lectures, assignment deadlines, announcements, or system updates, improving communication and engagement.
6. **Mobile Application Development:** A dedicated mobile app for Android and iOS would allow students to access learning materials from any device, improving accessibility for those who prefer learning on-the-go.

## CHAPTER 8

### CONCLUSION

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The E-learning Platform project has successfully delivered a comprehensive online learning management system built on the MERN stack (MongoDB, Express.js, React.js, Node.js). The platform features six core modules: User Management, Course Management, Payment Processing, Progress Tracking, Certificate Generation, and Admin Management, each designed with robust security measures and user-centric functionality. With a total of 55 test cases executed, the platform achieved an 81.82% pass rate, demonstrating strong reliability across its features. The system implements secure authentication using JWT, role-based access control, and real-time progress tracking, while maintaining a responsive design for multiple devices. While the platform shows promising results, particularly in Progress Tracking (90% pass rate) and Certificate Management (88.89% pass rate), there are areas requiring immediate attention, including payment verification, session timeout handling, and data cleanup processes. The project's architecture is scalable and well-structured, providing a solid foundation for future enhancements such as mobile application development, advanced analytics, and AI-powered course recommendations. With planned improvements in error handling, data validation, and user feedback systems, the platform is well-positioned to deliver an excellent learning experience while maintaining high standards of security and performance.

The implementation of the Razorpay payment gateway integration has streamlined the course purchase process, while the certificate generation system provides verifiable proof of course completion. The role-based access control system effectively manages different user permissions, from students to administrators, ensuring secure access to platform features. The real-time progress tracking feature enables users to monitor their learning journey effectively, with automatic saving of course progress and completion status. The platform's responsive design ensures seamless access across various devices, from desktops to mobile phones, enhancing the overall user experience. The integration of email verification and OTP-based authentication adds an extra layer of security, protecting user accounts and sensitive information. The admin dashboard provides comprehensive tools for course management, user administration, and system monitoring, enabling efficient platform management. The implementation of proper error handling and validation mechanisms across all modules ensures data integrity and system reliability. The platform's modular architecture allows for easy maintenance and future scalability, while the comprehensive testing strategy ensures robust functionality across all features.

## CHAPTER 9

### BIBLIOGRAPHY

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- MDN Web Docs:

Referenced for standard documentation on HTML, CSS, and JavaScript used in the frontend development of the platform.

<https://developer.mozilla.org/>

- MERN Stack Official Documentation:

Used for implementing the full stack architecture of the platform:

<https://www.mongodb.com/mern-stack>

- W3Schools:

Used for quick reference on web development topics including frontend design, forms, and page structure.

<https://www.w3schools.com/>

- GeeksforGeeks:

Helped in understanding backend logic, API handling, and MongoDB integration.

<https://www.geeksforgeeks.org/>

- Stack Overflow:

Used to find solutions to development issues and code-related errors.

<https://stackoverflow.com/>

- YouTube Tutorials:

Various tutorials were referred to for understanding layout design, routing, and form handling in the MERN stack.

(Various authors – MERN stack tutorials)

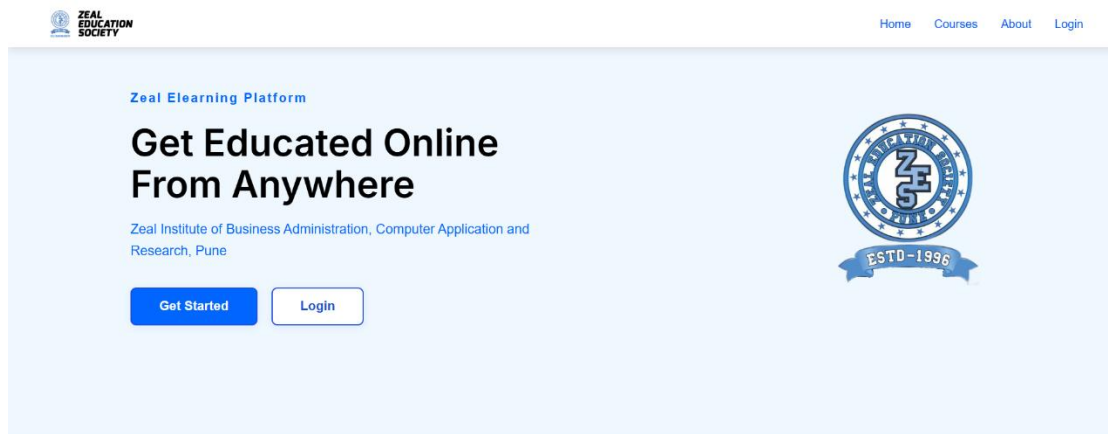


## CHAPTER 10

### USER MANUAL

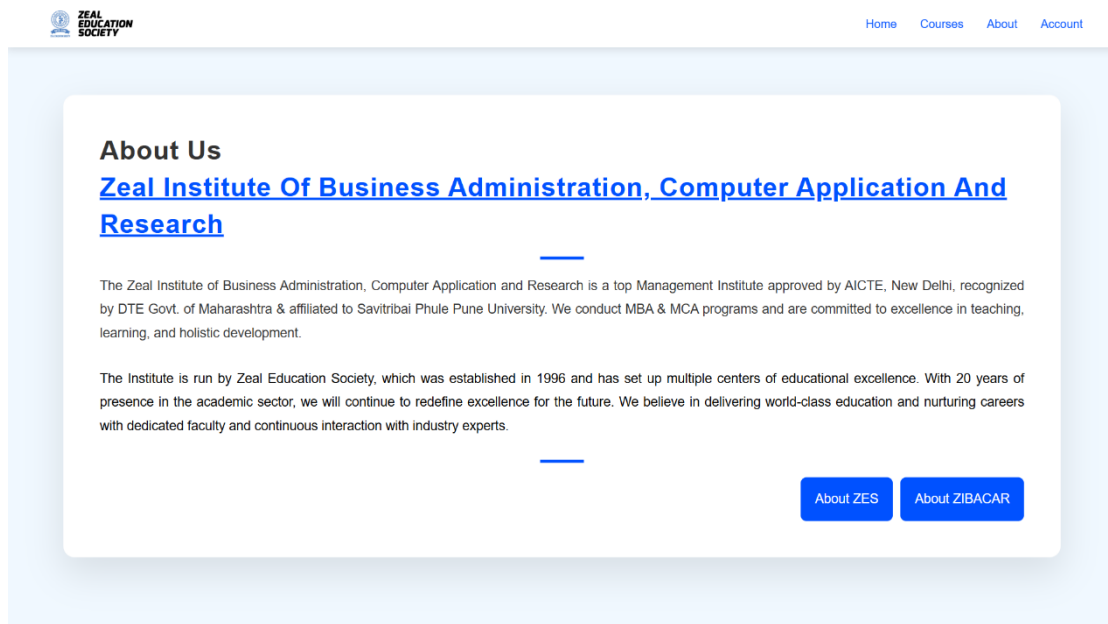
**Screen Name:** Home Page

- **Purpose/Use Case:** Serves as the landing page, introducing the platform and providing navigation to key areas.
- **How to Use:** Browse the introductory content, read about the platform, and use the “Get Started” or “Login” buttons to proceed.
- **What it Facilitates:** First point of contact, easy navigation to registration, login, and course browsing.
- **Validations:** None.



**Screen Name:** About Us

- **Purpose/Use Case:** Provides information about the institution and the platform's mission.
- **How to Use:** Read the content to understand the background and values of the platform and institution.
- **What it Facilitates:** Builds trust and transparency for users.
- **Validations:** None.



**Screen Name:** Registration

- **Purpose/Use Case:** Allows new users to sign up for the platform.
- **How to Use:** Fill in all required fields (Name, Email, Password, Confirm Password, College, Department, Mobile Number, ZPRN, Date of Birth) and click “Register.”
- **What it Facilitates:** Account creation and onboarding.
- **Validations:**
  - Email: Must be valid and unique
  - Password: Minimum 8 characters, includes uppercase, lowercase, number, special character
  - Confirm Password: Must match Password
  - Mobile Number: 10 digits
  - ZPRN: Valid alphanumeric
  - Date of Birth: Valid date
  - All fields required

The screenshot shows the registration interface of the Zeal Education Society. At the top left is the Zeal Education Society logo, and at the top right are navigation links: Home, Courses, About, and Login. The main content is a 'Register' form with the following fields:

Name	Email	Password
Sai Pramod Jawake	sairajjawake2002@gmail.com	Sai@1234

Confirm Password	College	Department
Sai@1234	ZIBACAR	MCA

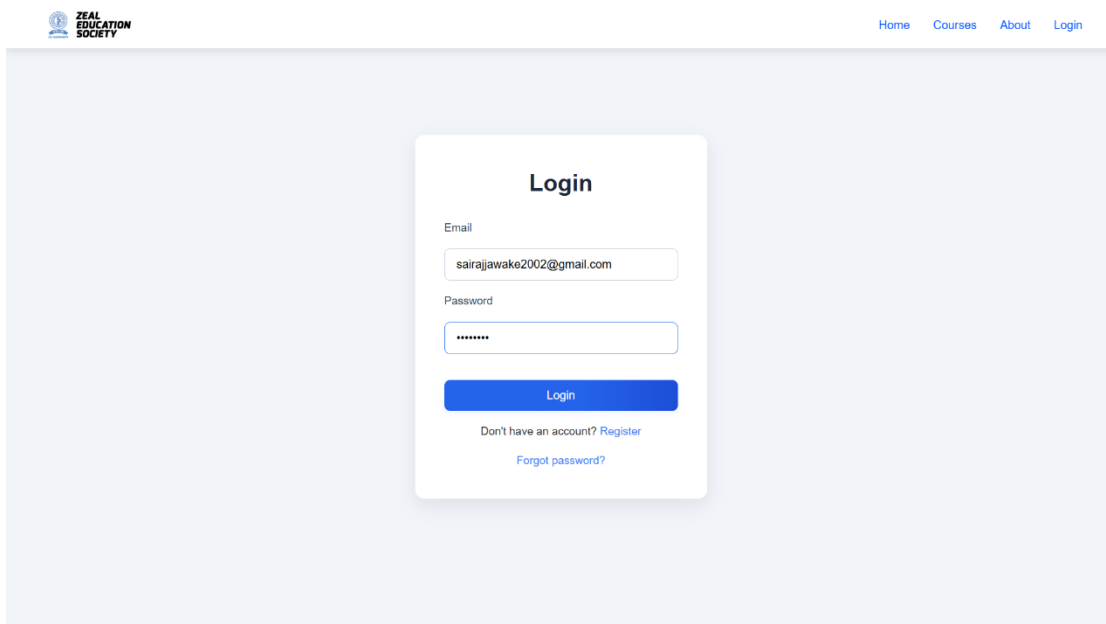
  

Mobile Number	ZPRN	Date of Birth
9623018194	523C10005	27-10-2002

At the bottom of the form is a blue 'Register' button and a link: 'have an account? [Login](#)'.

**Screen Name:** Login

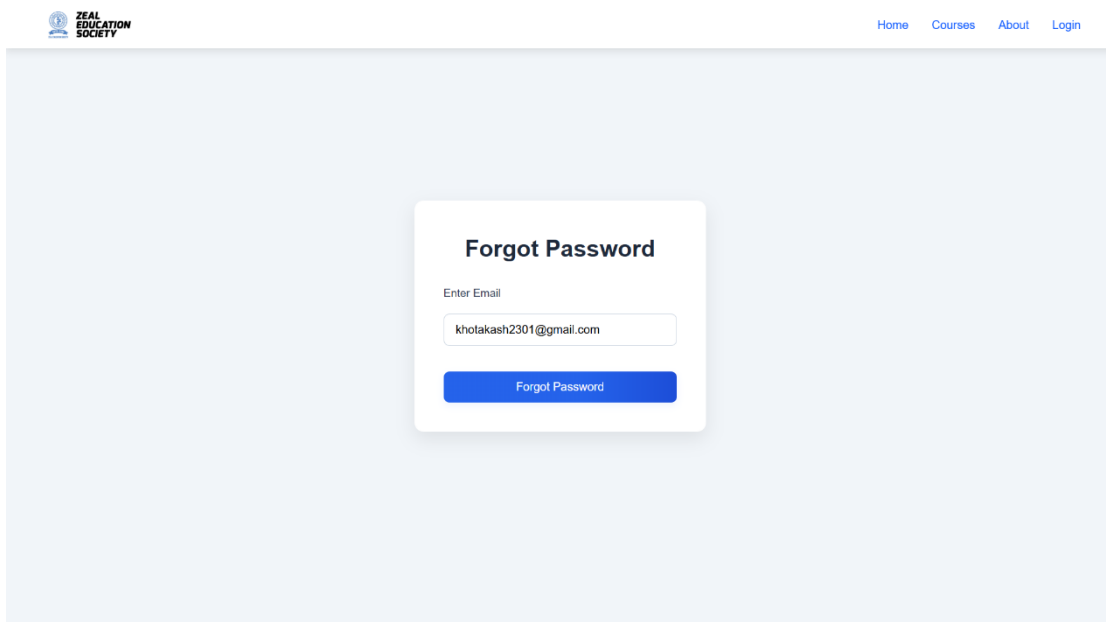
- **Purpose/Use Case:** Allows registered users to access their accounts.
- **How to Use:** Enter your registered email and password, then click “Login.”
- **What it Facilitates:** Secure access to user dashboard and courses.
- **Validations:**
  - Email: Must be registered and in valid format
  - Password: Must match the registered password
  - Both fields required



The screenshot shows the login interface of the Zeal Education Society E-learning Platform. At the top left is the Zeal Education Society logo. At the top right are navigation links: Home, Courses, About, and Login. The main content area features a white login card with a light blue background. The card has a title 'Login' and two input fields: 'Email' (containing 'sairajjawake2002@gmail.com') and 'Password' (masked with '\*\*\*\*\*'). Below the fields is a blue 'Login' button. At the bottom of the card, there are links for 'Don't have an account? Register' and 'Forgot password?'.

**Screen Name:** Forgot Password

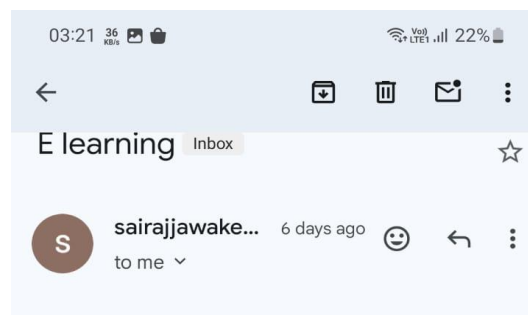
- **Purpose/Use Case:** Enables users to reset their password if forgotten.
- **How to Use:** Enter your registered email and click “Forgot Password” to receive a reset link via email.
- **What it Facilitates:** Password recovery and account security.
- **Validations:** Email: Must be registered and in valid format



The screenshot shows the 'Forgot Password' form on the Zeal Education Society website. The form is centered on a light blue background. It has a title 'Forgot Password' and a label 'Enter Email'. Below the label is a text input field containing the email 'khotakash2301@gmail.com'. At the bottom of the form is a blue button labeled 'Forgot Password'. The website header includes the Zeal Education Society logo on the left and navigation links 'Home', 'Courses', 'About', and 'Login' on the right.

**Screen Name:** OTP Verification

- **Purpose/Use Case:** Verifies user email during registration or password reset.
- **How to Use:** Enter the OTP received via email and submit to complete verification.
- **What it Facilitates:** Secure account activation and password reset.
- **Validations:** OTP: Must be a valid 6-digit code sent to the user's email. Expires after a set time.

**OTP Verification**

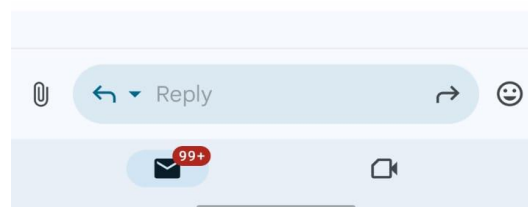
Dear Sai Pramod Jawake,

Your One Time Password (OTP) for verifying  
your account on the college portal is:

**483862**

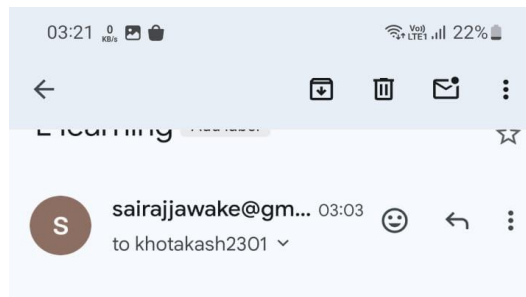
Please use this OTP to complete your  
verification process. This code is valid for a  
limited time and should not be shared with  
anyone.

This is an automated message from Zeal Elearning Platform.  
If you did not request this OTP, please ignore this email.



**Screen Name:** Password Reset

- **Purpose/Use Case:** Allows users to set a new password after requesting a reset.
- **How to Use:** Click the link in your email, enter a new password, confirm it, and submit.
- **What it Facilitates:** Regain access to your account.
- **Validations:**
  - Password: Minimum 8 characters, includes uppercase, lowercase, number, special character
  - Confirm Password: Must match Password
  - Both fields required



## Reset Your Password

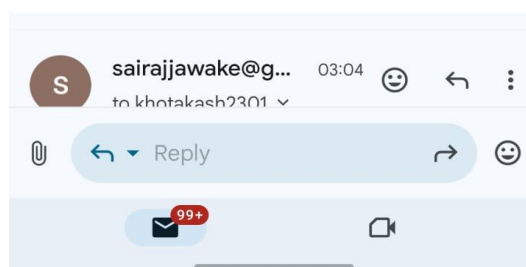
Dear undefined,

We received a request to reset your password.  
Click the button below to set a new one:

[Reset Password](#)

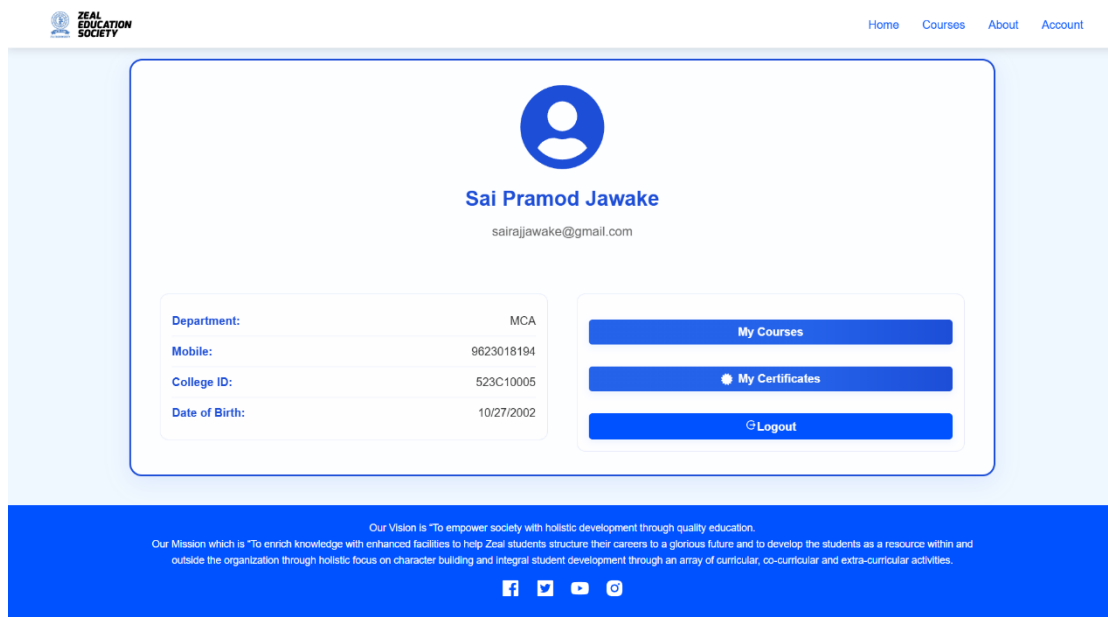
If you did not request this password reset, you  
can safely ignore this email.

This is an automated message from Zeal Elearning Platform.  
Please do not reply to this email.



**Screen Name:** Dashboard (User)

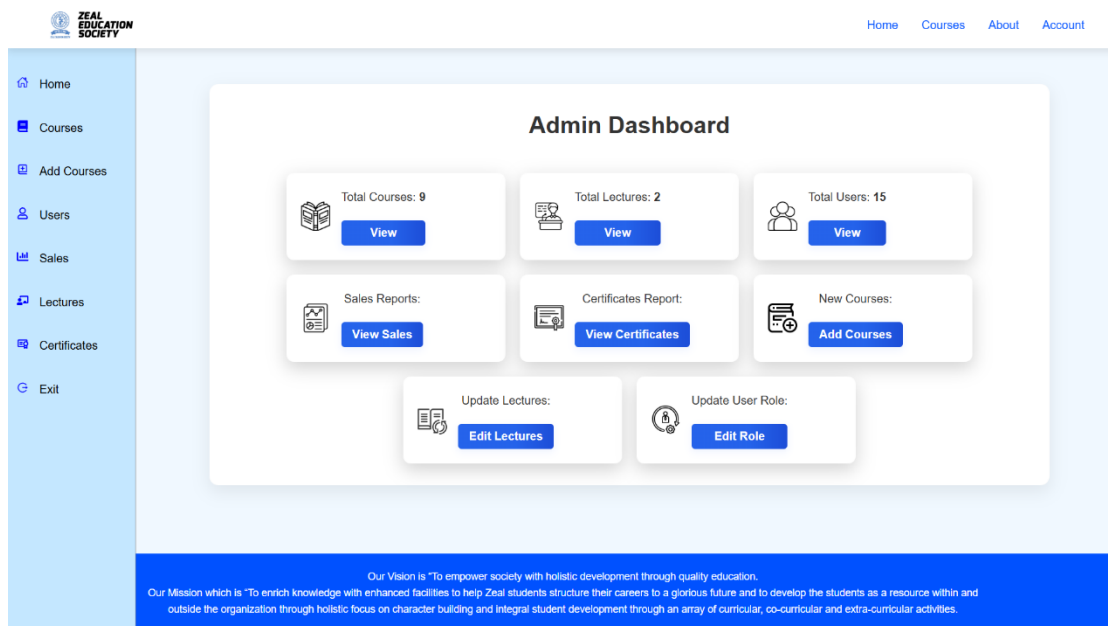
- **Purpose/Use Case:** Central hub for accessing all user functionalities.
- **How to Use:** Use the sidebar or dashboard buttons to navigate to different modules such as courses, certificates, and profile.
- **What it Facilitates:** Quick access to all platform features.
- **Validations:** None.





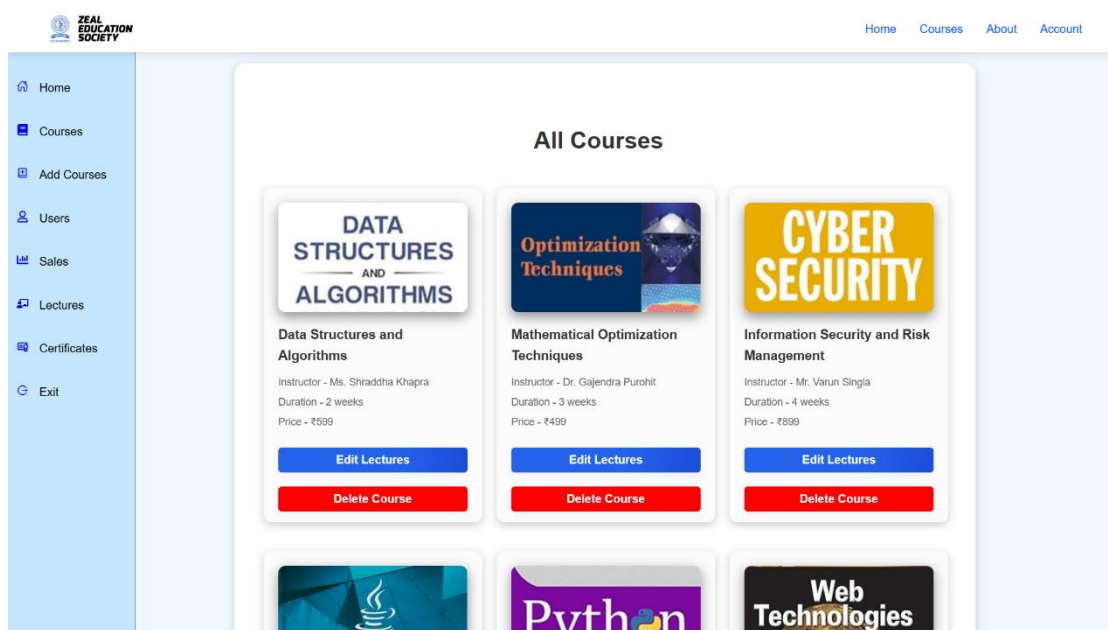
**Screen Name:** Dashboard (Admin)

- **Purpose/Use Case:** Central hub for accessing all admin functionalities.
- **How to Use:** Use dashboard widgets and navigation to manage users, courses, sales, lectures, and certificates.
- **What it Facilitates:** Efficient platform administration.
- **Validations:** None.



**Screen Name:** Course Catalog

- **Purpose/Use Case:** Displays all available courses for browsing and enrollment.
- **How to Use:** Use the search bar or category filters to find courses. Click on a course card for more details.
- **What it Facilitates:** Course discovery and selection.
- **Validations:** None.



**Screen Name:** Course Details

- **Purpose/Use Case:** Shows detailed information about a selected course.
- **How to Use:** Review course syllabus, instructor, price, and duration. Click “Buy Now” to purchase or “Get Started” to enroll (if free).
- **What it Facilitates:** Informed course enrollment.
- **Validations:** None.

Home Courses About Account



## Java Programming and Applications

Instructor: Mr. Sameer Dagale  
Duration: 4 weeks

**Description:**

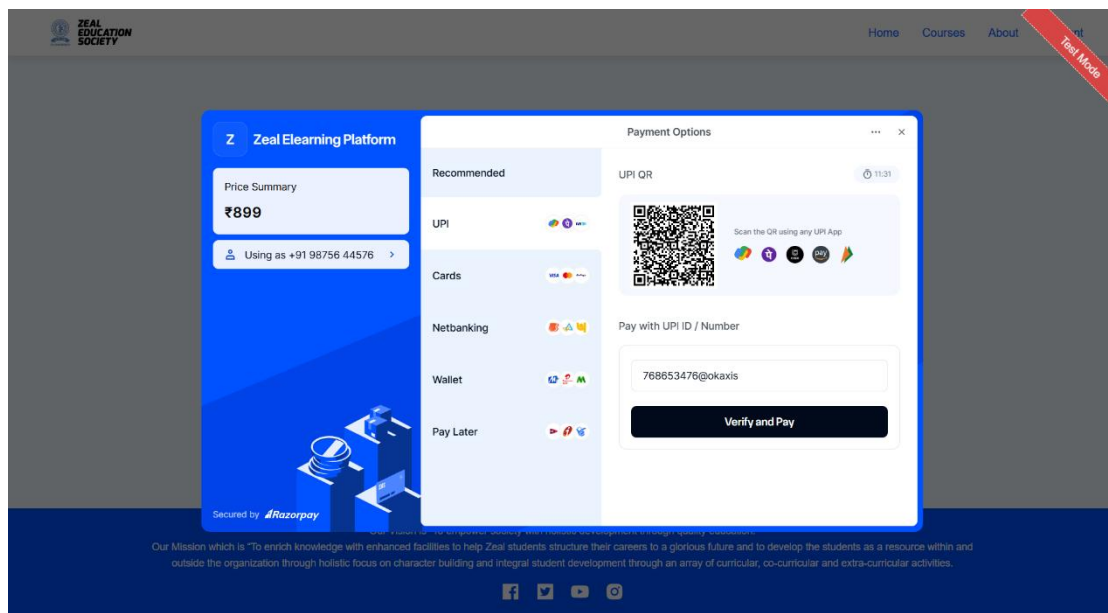
This course provides a comprehensive introduction to Java programming, one of the most widely used and versatile programming languages in the world. Designed for beginners and intermediate learners, it covers the fundamentals of object-oriented programming (OOP) using Java, and gradually progresses to more advanced concepts such as exception handling, file I/O, collections, multithreading, and GUI development.

Let's get started with the course at ₹899

[Buy Now](#)

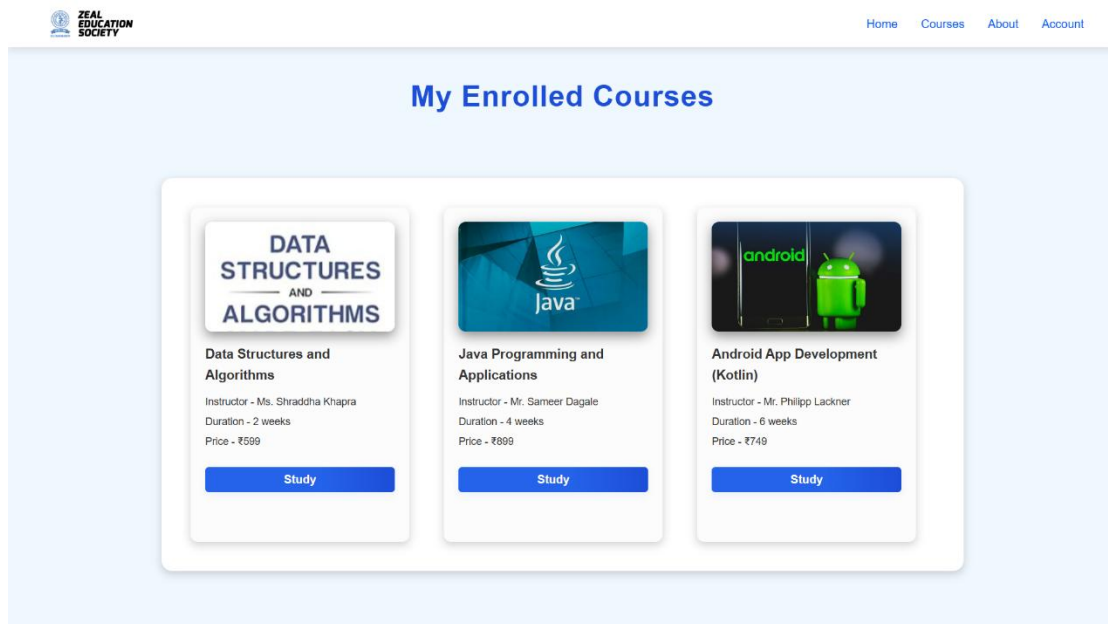
**Screen Name:** Checkout/Payment

- **Purpose/Use Case:** Handles course purchase transactions.
- **How to Use:** Review order summary, select payment method (UPI, Card, Netbanking, Wallet), and complete payment.
- **What it Facilitates:** Secure and convenient payment processing.
- **Validations:**
  - Payment details must be valid and complete
  - Duplicate purchase prevention



**Screen Name: My Courses**

- **Purpose/Use Case:** Lists all courses the user is enrolled in.
- **How to Use:** Click on a course to start or continue learning.
- **What it Facilitates:** Easy access to purchased/enrolled courses.
- **Validations:** None.



**Screen Name:** Course Player

- **Purpose/Use Case:** Delivers video lectures and course content.
- **How to Use:** Play the video, read lecture notes, and mark as complete.
- **What it Facilitates:** Interactive learning and progress tracking.
- **Validations:** None.

**Lecture: Merging With DSA**

The goal is to combine them into a single array that also remains sorted. Since both of the given arrays are already sorted in ascending order, we can use a simple and efficient technique called the two-pointer approach. In this method, we start by placing two pointers at the beginning of both arrays. These pointers help us keep track of the current elements we're comparing in each array. At each step, we compare the elements pointed to by these two pointers. Whichever element is smaller is added to the new merged array, and the pointer of that particular array is moved one step forward. This process continues until we reach the end of one of the arrays.

1. Merging With DSA

Get Certificate

**Screen Name:** Lecture Details

- **Purpose/Use Case:** Displays information about a specific lecture.
- **How to Use:** Read the lecture description and objectives.
- **What it Facilitates:** Deeper understanding of the lecture topic.
- **Validations:** None.

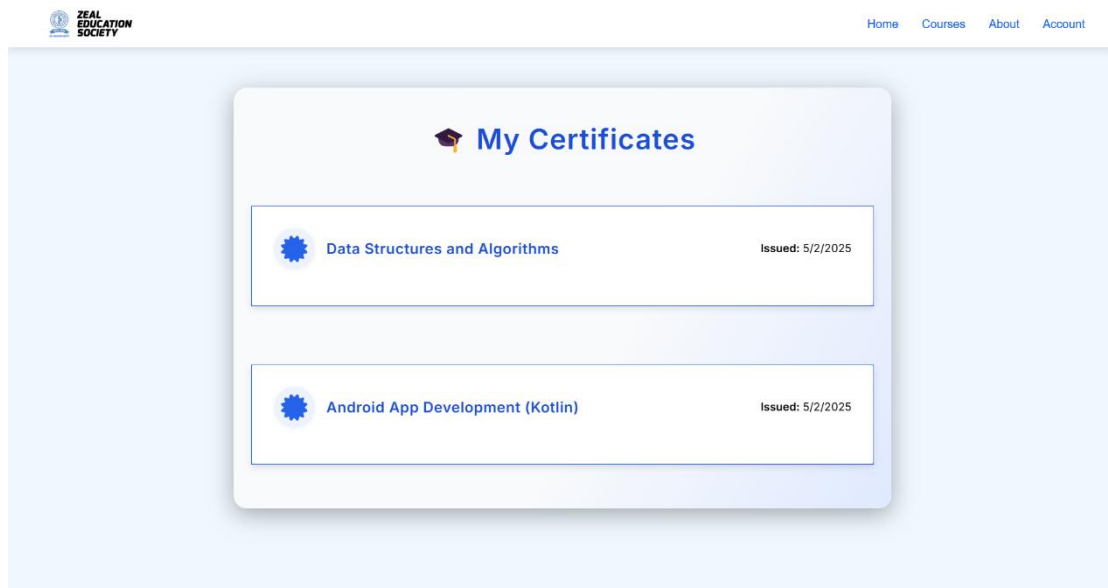
**Lecture: Merging With DSA**

The goal is to combine them into a single array that also remains sorted. Since both of the given arrays are already sorted in ascending order, we can use a simple and efficient technique called the two-pointer approach. In this method, we start by placing two pointers at the beginning of both arrays. These pointers help us keep track of the current elements we're comparing in each array. At each step, we compare the elements pointed to by these two pointers. Whichever element is smaller is added to the new merged array, and the pointer of that particular array is moved one step forward. This process continues until we reach the end of one of the arrays.

[Get Certificate](#)

**Screen Name:** Certificate List

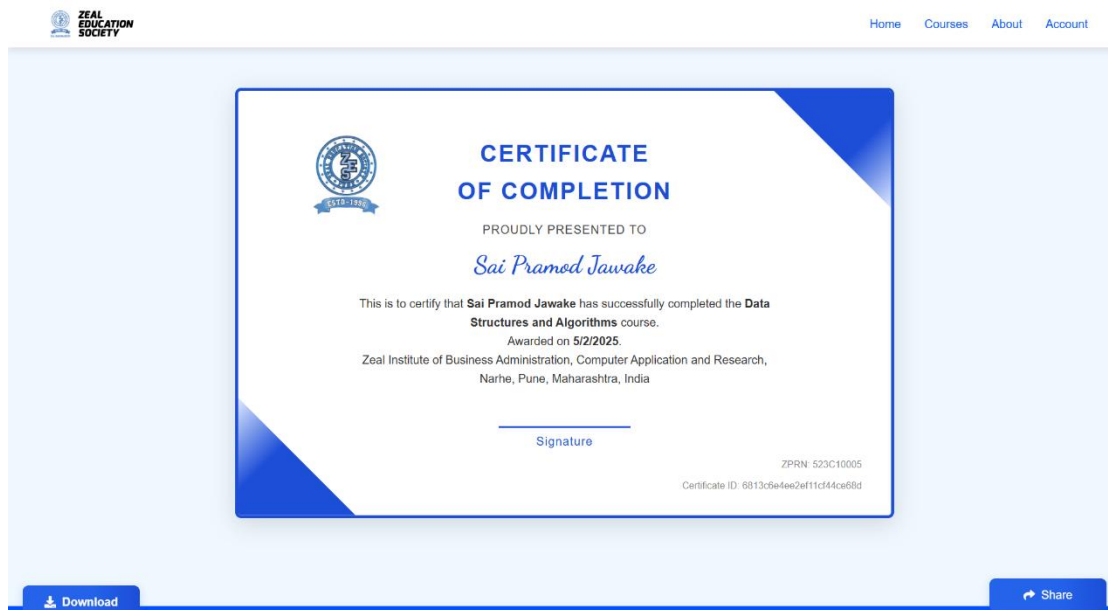
- **Purpose/Use Case:** Shows all certificates earned by the user.
- **How to Use:** Click on a certificate to view, download, or share.
- **What it Facilitates:** Proof of achievement and course completion.
- **Validations:** None.





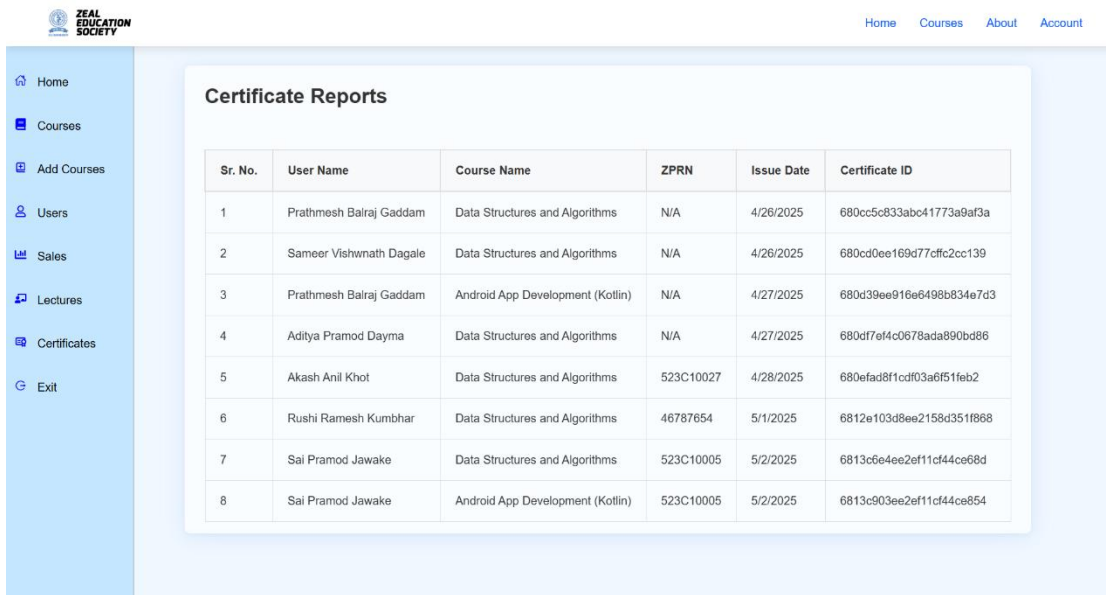
**Screen Name:** Certificate Details

- **Purpose/Use Case:** Displays detailed information about a specific certificate.
- **How to Use:** View certificate details, download as PDF, or share.
- **What it Facilitates:** Verification and sharing of achievements.
- **Validations:** None.



**Screen Name:** Certificate Verification

- **Purpose/Use Case:** Allows users or third parties to verify the authenticity of a certificate.
- **How to Use:** Enter the certificate ID and check the status.
- **What it Facilitates:** Authenticity check and validation.
- **Validations:** Certificate ID must be valid



**ZEAL EDUCATION SOCIETY**

Home Courses About Account

Home Courses Add Courses Users Sales Lectures Certificates Exit

### Certificate Reports

Sr. No.	User Name	Course Name	ZPRN	Issue Date	Certificate ID
1	Prathmesh Balraj Gaddam	Data Structures and Algorithms	N/A	4/26/2025	680cc5c833abc41773a9af3a
2	Sameer Vishwnath Dagale	Data Structures and Algorithms	N/A	4/26/2025	680cd0ee169d77cfc2cc139
3	Prathmesh Balraj Gaddam	Android App Development (Kotlin)	N/A	4/27/2025	680d39ee916e6498b834e7d3
4	Aditya Pramod Dayma	Data Structures and Algorithms	N/A	4/27/2025	680df7ef4c0678ada890bd86
5	Akash Anil Khot	Data Structures and Algorithms	523C10027	4/28/2025	680efad8f1cdf03a6f51feb2
6	Rushi Ramesh Kumbhar	Data Structures and Algorithms	46787654	5/1/2025	6812e103d8ee2158d351f868
7	Sai Pramod Jawake	Data Structures and Algorithms	523C10005	5/2/2025	6813c6e4ee2ef11cf44ce68d
8	Sai Pramod Jawake	Android App Development (Kotlin)	523C10005	5/2/2025	6813c903ee2ef11cf44ce854

**Screen Name:** Admin: Add Course

- **Purpose/Use Case:** Allows admins to create new courses.
- **How to Use:** Fill in course details, upload an image, and save.
- **What it Facilitates:** Expanding course offerings.
- **Validations:**
  - Title, description, category, duration, and price are required
  - Image is optional

**ZEAL EDUCATION SOCIETY**

Home Courses About Account

Home Courses Add Courses Users Sales Lectures Certificates Exit

### Add Course

Title Description

Price Please fill out this field. Created By

Select Category Duration (in Weeks)

Choose File No file chosen

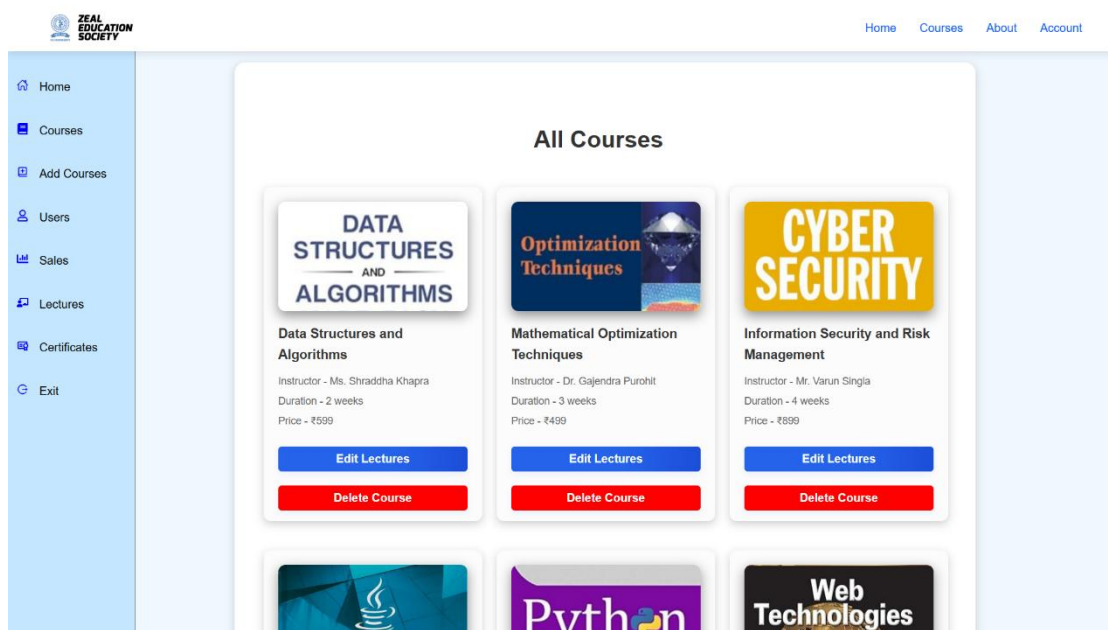
**Add**

Our Vision is "To empower society with holistic development through quality education.  
Our Mission which is "To enrich knowledge with enhanced facilities to help Zeal students structure their careers to a glorious future and to develop the students as a resource within and outside the organization through holistic focus on character building and integral student development through an array of curricular, co-curricular and extra-curricular activities.

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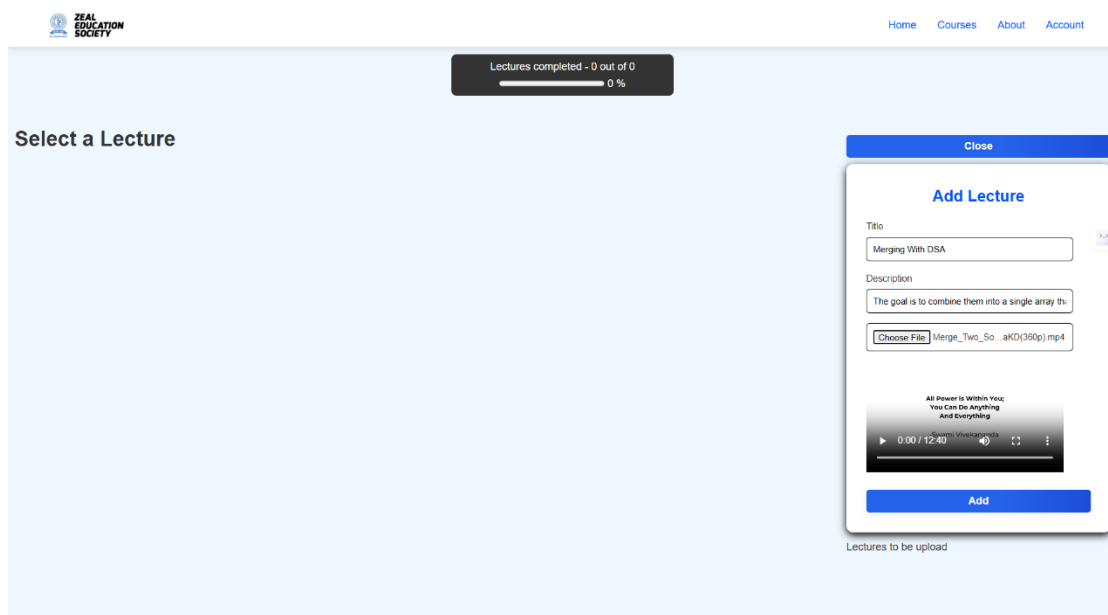
**Screen Name:** Admin: Edit Course

- **Purpose/Use Case:** Allows admins to update existing course information.
- **How to Use:** Edit the desired fields and save changes.
- **What it Facilitates:** Maintaining accurate and up-to-date course information.
- **Validations:** Same as add course



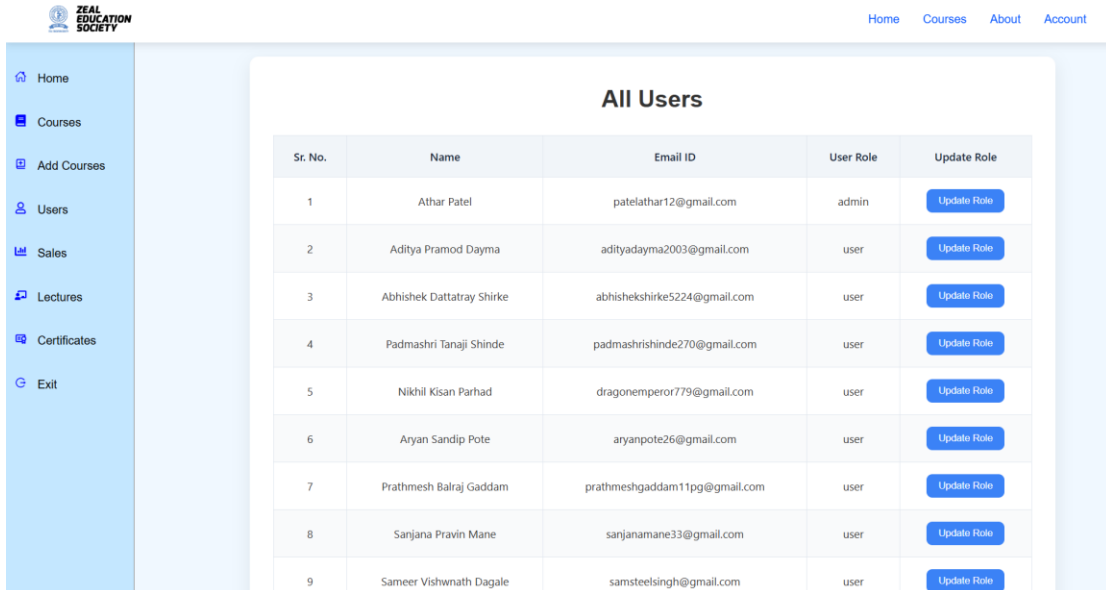
**Screen Name:** Admin: Add Lecture

- **Purpose/Use Case:** Allows admins to add new lectures to a course.
- **How to Use:** Enter lecture title, description, upload video, and save.
- **What it Facilitates:** Content management and course enrichment.
- **Validations:**
  - Title and description required
  - Video required for video lectures



**Screen Name:** Admin: User Management

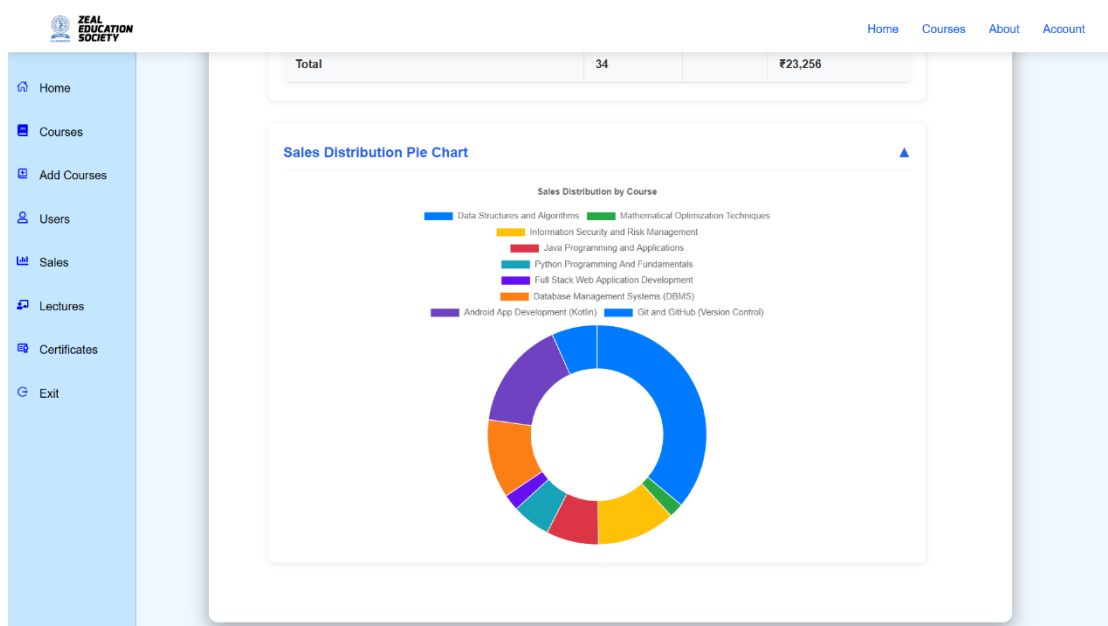
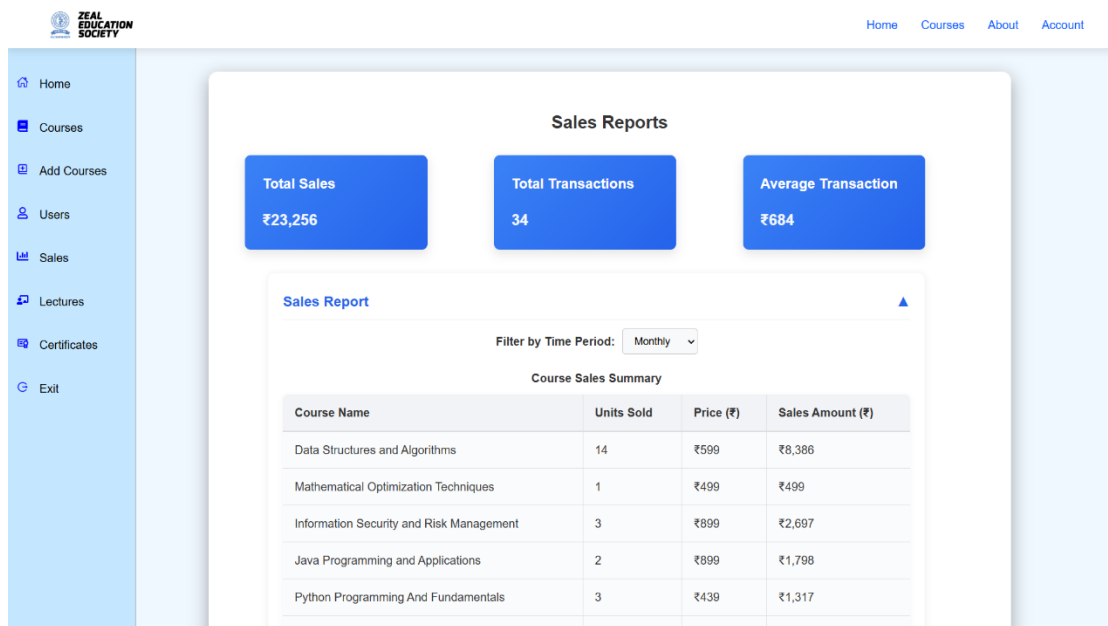
- **Purpose/Use Case:** Allows admins to manage users and their roles.
- **How to Use:** View the user list, update roles, and manage access.
- **What it Facilitates:** Access control and user administration.
- **Validations:** None.



Sr. No.	Name	Email ID	User Role	Update Role
1	Athar Patel	patelathar12@gmail.com	admin	<a href="#">Update Role</a>
2	Aditya Pramod Dayma	adityadayma2003@gmail.com	user	<a href="#">Update Role</a>
3	Abhishek Dattatray Shirke	abhishekshirke5224@gmail.com	user	<a href="#">Update Role</a>
4	Padmashri Tanaji Shinde	padmashrishinde270@gmail.com	user	<a href="#">Update Role</a>
5	Nikhil Kisan Parhad	dragonemperor779@gmail.com	user	<a href="#">Update Role</a>
6	Aryan Sandip Pote	aryanpote26@gmail.com	user	<a href="#">Update Role</a>
7	Prathmesh Balraj Gaddam	prathmeshgaddam11pg@gmail.com	user	<a href="#">Update Role</a>
8	Sanjana Pravin Mane	sanjanamane33@gmail.com	user	<a href="#">Update Role</a>
9	Sameer Vishwnath Dagale	samsteelsingh@gmail.com	user	<a href="#">Update Role</a>

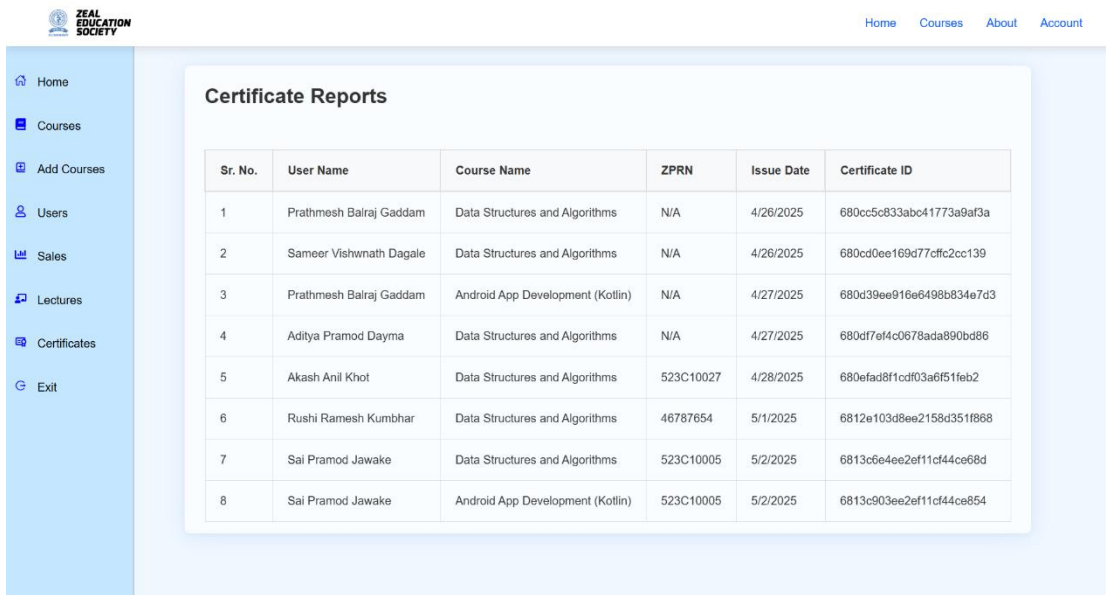
### Screen Name: Admin: Sales/Reports

- **Purpose/Use Case:** Displays sales and analytics data for the platform.
- **How to Use:** View sales charts, transaction history, and analytics reports.
- **What it Facilitates:** Data-driven decision making and performance monitoring.
- **Validations:** None.



**Screen Name: Admin: Certificate Reports**

- **Purpose/Use Case:** Shows issued certificates and their details for admin review.
- **How to Use:** View, search, and filter certificate records.
- **What it Facilitates:** Certificate management and verification.
- **Validations:** None.



**ZEAL EDUCATION SOCIETY**

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### Certificate Reports

Sr. No.	User Name	Course Name	ZPRN	Issue Date	Certificate ID
1	Prathmesh Balraj Gaddam	Data Structures and Algorithms	N/A	4/26/2025	680cc5c833abc41773a9af3a
2	Sameer Vishwnath Dagale	Data Structures and Algorithms	N/A	4/26/2025	680cd0ee169d77cfc2cc139
3	Prathmesh Balraj Gaddam	Android App Development (Kotlin)	N/A	4/27/2025	680d39ee916e6498b834e7d3
4	Aditya Pramod Dayma	Data Structures and Algorithms	N/A	4/27/2025	680df7ef4c0678ada890bd86
5	Akash Anil Khot	Data Structures and Algorithms	523C10027	4/28/2025	680efad8f1cdf03a6f51feb2
6	Rushi Ramesh Kumbhar	Data Structures and Algorithms	46787654	5/1/2025	6812e103d8ee2158d351f868
7	Sai Pramod Jawake	Data Structures and Algorithms	523C10005	5/2/2025	6813c6e4ee2ef11cf44ce68d
8	Sai Pramod Jawake	Android App Development (Kotlin)	523C10005	5/2/2025	6813c903ee2ef11cf44ce854