

SECURE RAPID PAPER DELIVERY

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Abstract: *The paper introduces the implementation of Secure Rapid Paper Delivery Web App. Examination question paper generation has been critical task for universities, institutes, examination authorities and Question paper leakage is a biggest problem faced by universities. This System is designed in such a way that the question papers are generated couple of minutes before the start actual exams and secure delivery to exam centers to overcome from serious matter like paper leakage. The SRPD web app can be used for educational institutions such as schools, colleges, and universities.*

Keywords: *Efficiency, Quality Control, Performance Monitoring, Continuous Improvement.*

1. INTRODUCTION

I. SRPD

The SRPD system offers numerous benefits to educational institutions. It streamlines the process of exam paper creation and delivery, reducing the time and effort required to manage this critical aspect of assessments. The system enhances security by providing a controlled environment for paper creation, storage, and delivery, minimizing the risk of unauthorized access or leakage. Additionally, the SRPD system ensures adherence to schedules, enabling institutes to deliver exam papers promptly and efficiently.

By embracing the SRPD system, educational institutions can optimize their resources and focus on their core mission of providing quality education. The system streamlines the collaboration between the Paper Setter and Moderator, promoting a continuous feedback loop that improves the quality and accuracy of exam papers. Moreover, the seamless integration of the SRPD system with existing educational platforms and learning management systems facilitates a smooth and intuitive user experience for all stakeholders. The Secure Rapid Paper Delivery (SRPD) system represents a transformative solution for institutes seeking to optimize their exam paper creation and delivery processes. By leveraging the expertise of the Paper Setter, Moderator, and Admin, educational institutions can streamline their operations, enhance security, and ensure timely and efficient delivery of exam papers. Embracing SRPD empowers institutes to prioritize education while entrusting the intricate aspects of exam paper management to a reliable and technologically advanced system. The SRPD system revolutionizes the process of exam paper delivery, contributing to the advancement of education in the digital age.

II. EXISTING SYSTEM

In the existing system teachers manually need to go and apply for set the paper. Then Moderator will select the teachers to set the paper from applied candidates. Then selected candidates can set the paper according to paper format and submit to the moderator.

III. PROPOSED SYSTEM

At the core of the SRPD system are three essential roles that collectively contribute to the efficient functioning of the platform. Firstly, the Paper Setter takes on the responsibility of crafting question papers for specific subjects. Their expertise and in-depth knowledge enable them to design comprehensive and well-structured exams that accurately assess students' comprehension and mastery of the subject matter.

Working alongside the Paper Setter, the Moderator assumes the crucial role of reviewing and moderating the question papers. Their expertise ensures that the papers align with the curriculum, maintain an appropriate difficulty level, and adhere to the institution's guidelines. The Moderator provides valuable feedback and suggestions to the Paper Setter, fostering a continuous improvement process and ensuring the overall quality of the exam papers.

Supporting the entire SRPD system is the Admin, who oversees the overall operations of the platform. The Admin manages user accounts, tracks the progress of paper setting and moderation, and ensures the seamless functioning of the system. With their expertise in system management and operations, the Admin plays a vital role in maintaining the integrity and security of the SRPD system.

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IV. TECHNOLOGY

- **HTML**

HTML, short for HyperText Markup Language, is the fundamental building block of the World Wide Web. It is a markup language that structures and presents content on web pages. HTML uses tags to define elements such as headings, paragraphs, links, images, and more, enabling the creation of structured and visually appealing web pages. With HTML, web developers can specify the layout, formatting, and organization of content, while also incorporating multimedia elements and interactivity. HTML serves as the backbone of web development, providing the structure and framework that allows browsers to interpret and display web content to users across different devices and platforms

- **CSS3**

Cascading Style Sheets³, is the latest version of the CSS language used in web development. It enhances the visual presentation and styling of HTML elements on web pages. With CSS³, developers can apply a wide range of effects, such as gradients, shadows, transitions, and animations, to create visually appealing and engaging user interfaces. It also introduces new layout options, like flexible box and grid layouts, enabling more advanced and responsive designs. CSS³ provides greater control over typography, allowing for custom fonts, text effects, and improved readability. It works in conjunction with HTML to separate content from presentation, making it easier to maintain and update the visual aspects of a website.

- **JavaScript**

JavaScript is a lightweight, cross- platform, and interpreted compiled programming language, which is also known as the scripting language for webpages. It is well known for the development of web pages, many non- browser environments also use it. JavaScript can be used for Client- side developments as well as Server-side developments. JavaScript is both imperative and declarative type of language. JavaScript contains a standard library of objects, like Array, Date, and Math, and a core set of language elements like operators, control structures, and statements.

Technology Used – MERN

The MERN stack is a popular web development technology stack used for building fullstack web applications. It consists of four main components: MongoDB, Express.js, React.js, and Node.js. Each component serves a specific purpose and works together to enable efficient and scalable web application development.

Overview of each component in the MERN stack:

MongoDB

MongoDB is a NoSQL document database that stores data in a flexible, JSON-like format called BSON (Binary JSON). It provides scalability, high performance, and a flexible data model, making it suitable for handling large volumes of structured and unstructured data. MongoDB allows developers to store and retrieve data for their applications efficiently.

Express.js

Express.js is a lightweight web application framework for Node.js. It simplifies the process of building web applications and APIs by providing a robust set of features and tools. Express.js handles routing, middleware, and HTTP request/response handling, making it easier to define routes, handle requests, and manage application flow.

React.js

React.js is a JavaScript library for building user interfaces. It allows developers to create reusable UI components that efficiently update and render when data changes. React.js follows a component-based architecture, enabling the development of complex user interfaces with a modular and maintainable approach. It also offers virtual DOM (Document Object Model) manipulation, enhancing performance and responsiveness.

Node.js

Node.js is a server-side JavaScript runtime environment. It allows developers to execute JavaScript code on the server, enabling server-side application development. Node.js provides an event-driven, non-blocking I/O model that allows for scalable and efficient network applications. It is widely used for building fast and scalable web servers, APIs, and real-time applications.

2. Literature Review

2.1 SRPD

The concept of Secure Rapid Paper Delivery (SRPD) has gained attention in the literature as a solution for improving the efficiency, security, and timeliness of exam paper creation and delivery processes. The Secure Rapid Paper Delivery (SRPD) system, comprising a proficient team of Paper Setters, Moderators, and an efficient Admin, provides institutes with a secure and rapid means of creating exam papers and delivering them on schedule, significantly enhancing the overall examination process.

The SRPD system relies on an efficient Admin who oversees the overall operations of the system. They manage user accounts, track the progress of paper setting and moderation, and ensure the smooth functioning of the platform. The Admin's responsibilities include maintaining security, facilitating communication between stakeholders, and ensuring timely delivery.

To maintain the highest standards of quality and fairness, Moderators play a crucial role in the SRPD system. They review and moderate the question papers created by the Paper Setters, ensuring that the papers meet the required standards. Moderators provide valuable feedback, enhancing the overall quality of the papers.

The SRPD system engages experienced Paper Setters who are responsible for crafting subject-specific question papers. With their expertise, they ensure that the exam papers accurately assess students' knowledge, align with the curriculum, and adhere to institutional guidelines.

2.2 Benefits of SRPD

- 1) **Efficiency and Time Savings:** SRPD systems streamline the entire exam paper creation and delivery process, eliminating manual and time-consuming tasks. Automation and digitalization of processes such as paper setting, moderation, and delivery reduce administrative burdens, saving time and allowing institutions to allocate resources more effectively.
- 2) **Enhanced Security:** SRPD systems prioritize the security and confidentiality of exam papers. Robust security measures, including encryption, access controls, and real-time tracking, ensure that sensitive information is protected against unauthorized access, tampering, and leaks. This promotes the integrity of exams and ensures a fair evaluation process.
- 3) **Standardization and Quality Control:** SRPD systems introduce standardized procedures for exam paper creation and moderation. Collaboration between paper setters and moderators, along with iterative feedback loops, enhances the quality control process. This leads to well-structured and comprehensive exams that align closely with curriculum goals, ensuring accurate assessment and fair evaluation.
- 4) **Timely and Reliable Delivery:** SRPD systems leverage technology to provide realtime tracking and monitoring of paper delivery. This minimizes errors, delays, and disruptions, enabling institutions to adhere to scheduled examination dates. Timely and reliable delivery ensures that exams can be conducted smoothly and without interruptions.
- 5) **Cost-Effectiveness:** SRPD systems can offer cost savings in the long run. By reducing the need for physical paper, printing, and manual distribution, institutions can save on material and operational expenses. Additionally, the increased efficiency of processes reduces labor costs associated with manual administrative tasks.
- 5) **Improved User Experience:** SRPD systems enhance the user experience for all stakeholders involved. User-friendly interfaces, easy accessibility, and efficient

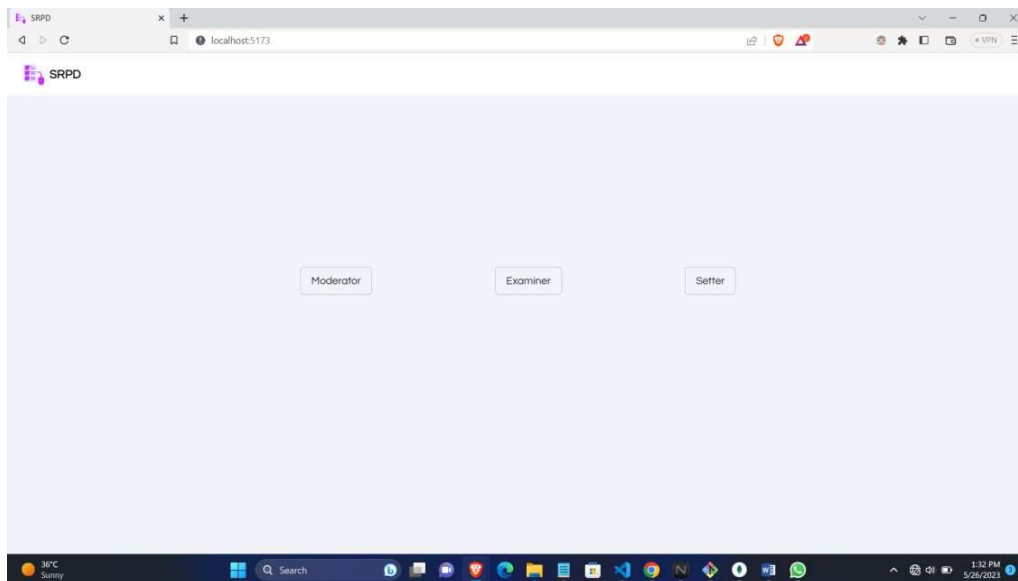
workflows improve engagement and productivity. Paper setters, moderators, administrators, and students benefit from a streamlined and user-centric platform, resulting in a more positive experience throughout the exam paper creation and delivery process.

- 6) **Environmental Sustainability:** SRPD systems contribute to environmental sustainability by reducing paper usage. The shift towards digital processes decreases the ecological footprint associated with paper production and waste. This aligns with the global efforts towards sustainable practices and demonstrates institutional commitment to environmental responsibility.

3. Implementation

1. Log in and registration page

Firstly, users are required to apply for their respective roles by filling out a registration form. The registration form must be completed with mandatory details such as name, email address, phone number, as well as additional information like subjects and experience. Once the registration process is finished, the application undergoes verification. Higher authorities, such as the moderator for paper setters or a super admin for moderators, carry out the verification process. Once a user is selected for their desired role the login credential will be provided on their mail.



Select the role.

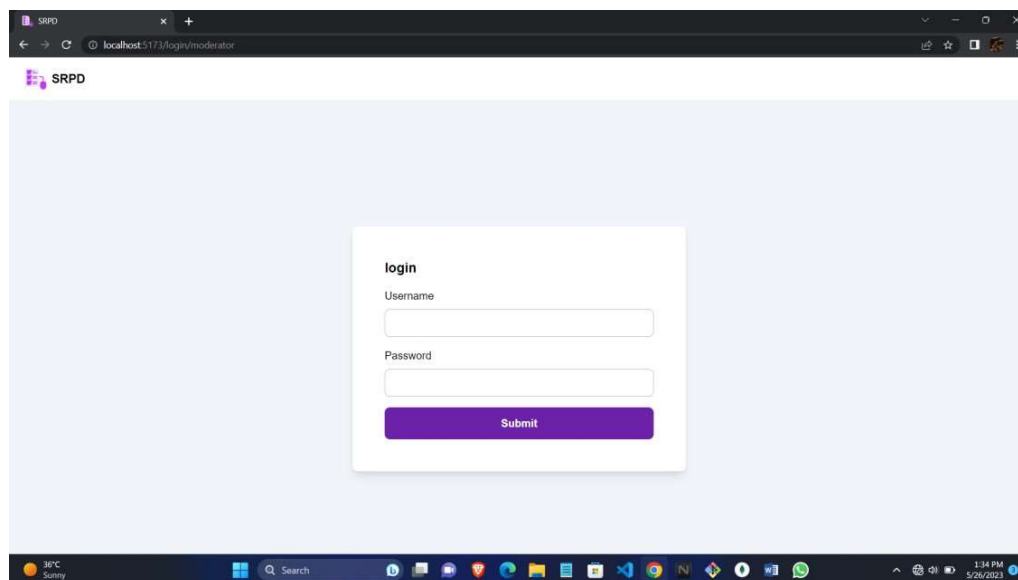


Fig: Login page

First name:	<input type="text"/>	Last Name:	<input type="text"/>
Email:	<input type="text"/>	Phone:	<input type="text"/>
Subject:	<input type="text" value="--Select subject--"/>	Qualification:	<input type="text"/>
Institute:	<input type="text"/>	Experience (in months):	<input type="text" value="eg. 23"/>
Institute Id:	<input type="text" value="Choose File No file chosen"/>		
Address:	<input type="text" value="Enter address..."/>		
<input type="submit" value="Submit"/>			

Fig: Application for various roles

2. Moderator Dashboard

When logged in as a moderator, there are several options available, including "Setter Application," "Setter List," "Question Paper," and "Upload Syllabus." In the "Setter Application" section, the moderator can view applications from individuals interested in the role of a paper setter for various subjects. The moderator has the authority to select suitable setters and notify them to prepare and submit the paper within a specified timeframe. The notification is sent to the paper setters via email. The moderator possesses a pre-determined timetable for the examination papers. Referring to the timetable, the moderator schedules the papers by setting the appropriate time and sends

them to the examiners. Additionally, the moderator can upload the syllabus, paper patterns, and related materials from the dashboard.

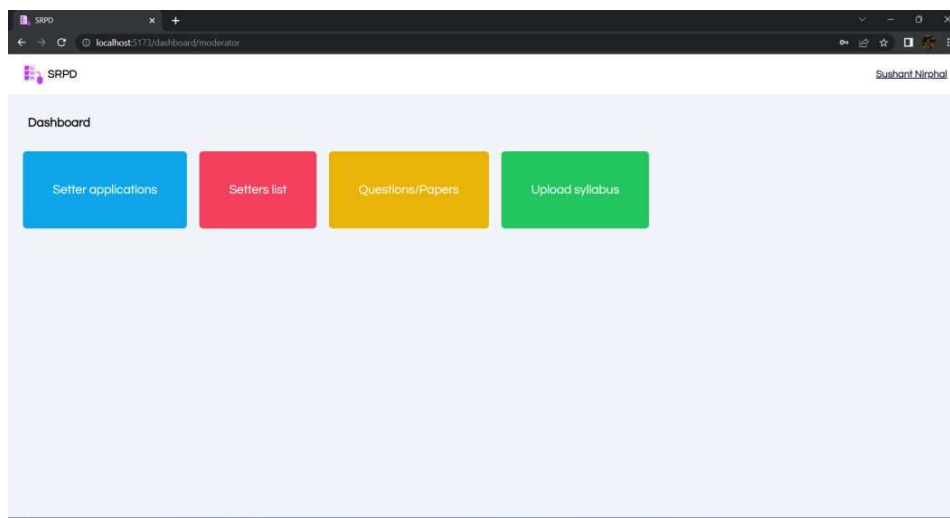


Fig: Moderator dashboard

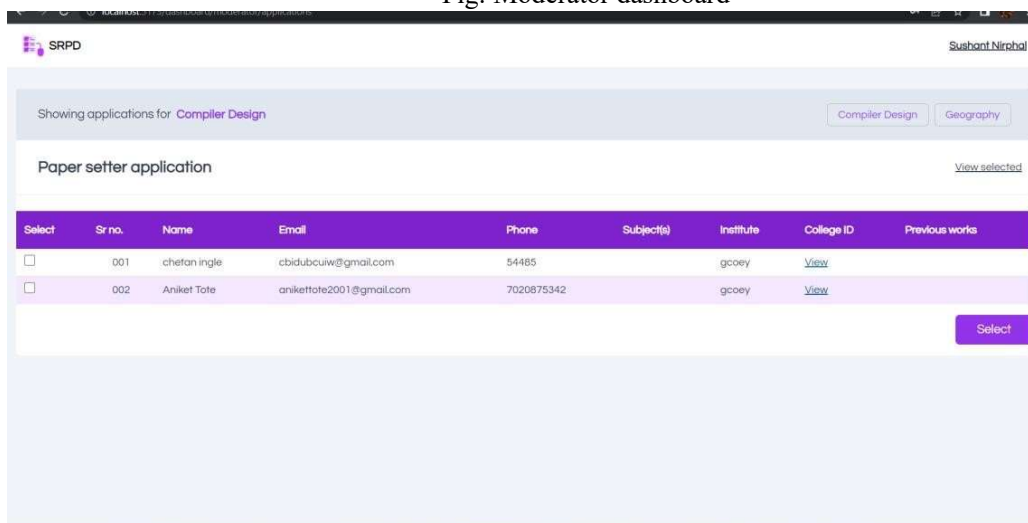


Fig: Application for paper setters

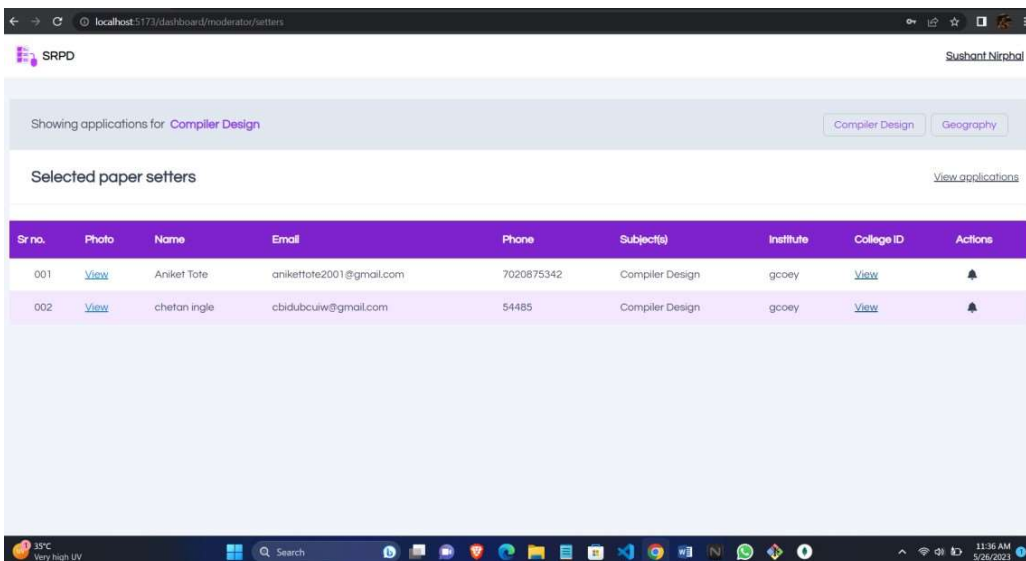
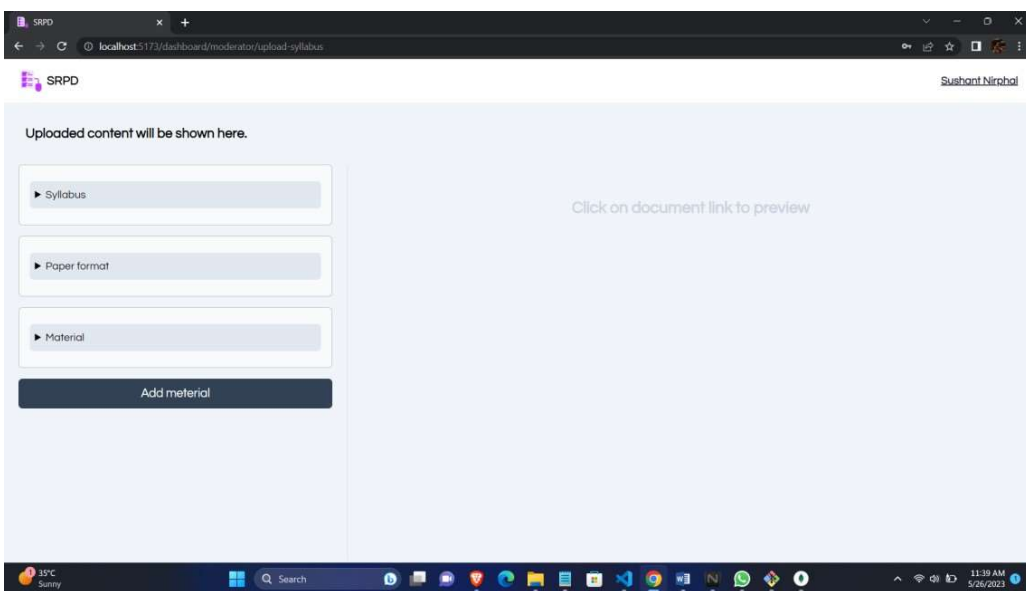
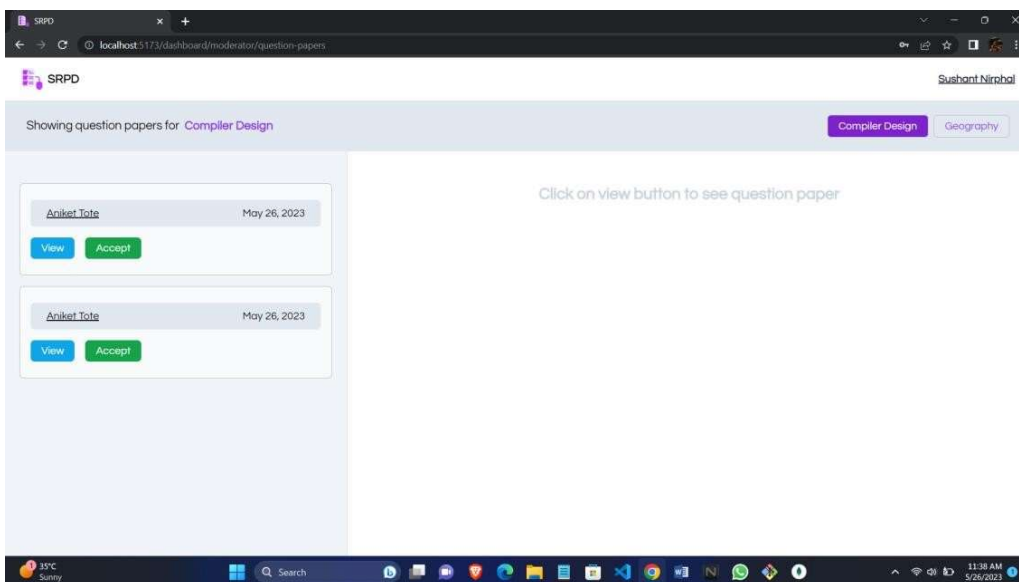


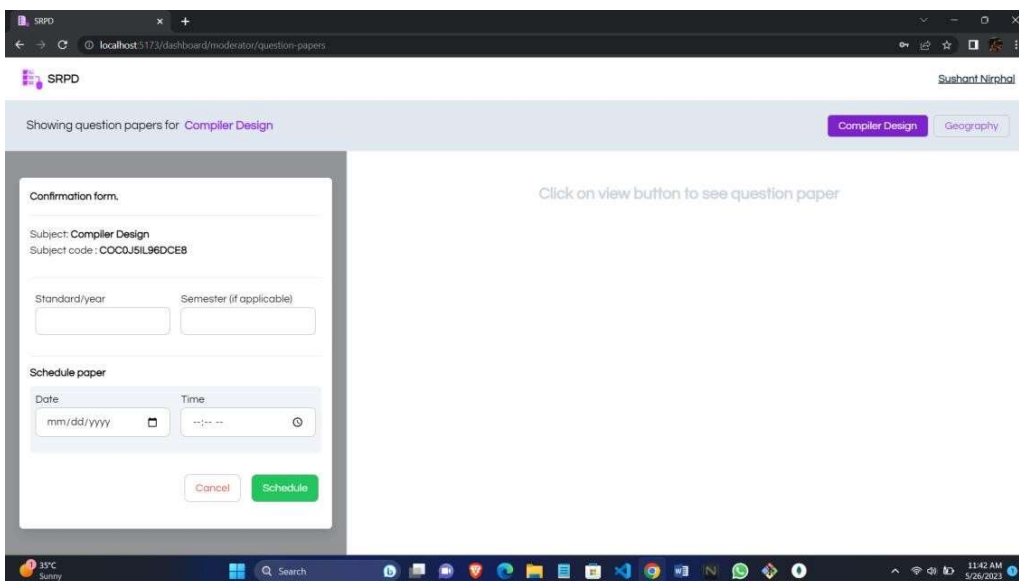
Fig: Selected candidates



Section for uploading syllabus,paper format and material



Accept paper



Paper sent to college from this page

3. Paper-Setter Dashboard

The paper setter receives a notification via email regarding their assigned task. They can also find the same notification on their dashboard. To complete their task, the paper setter can navigate to the "Upload" page and submit the paper. They can refer to the syllabus and paper pattern provided on the "Syllabus" page to ensure they align with the required format. Once the paper is set, it is forwarded to the moderator for further processing.

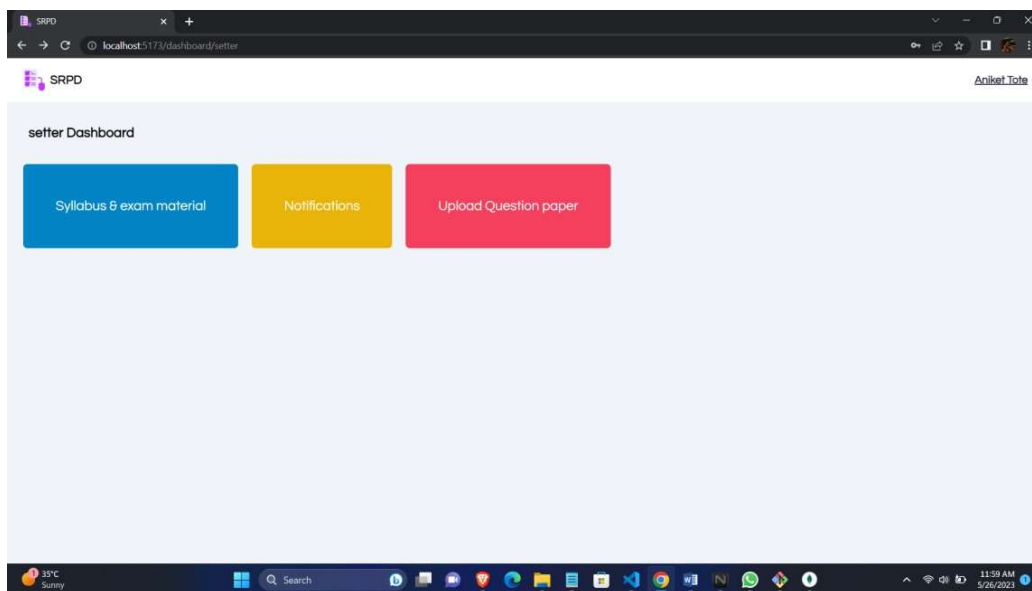
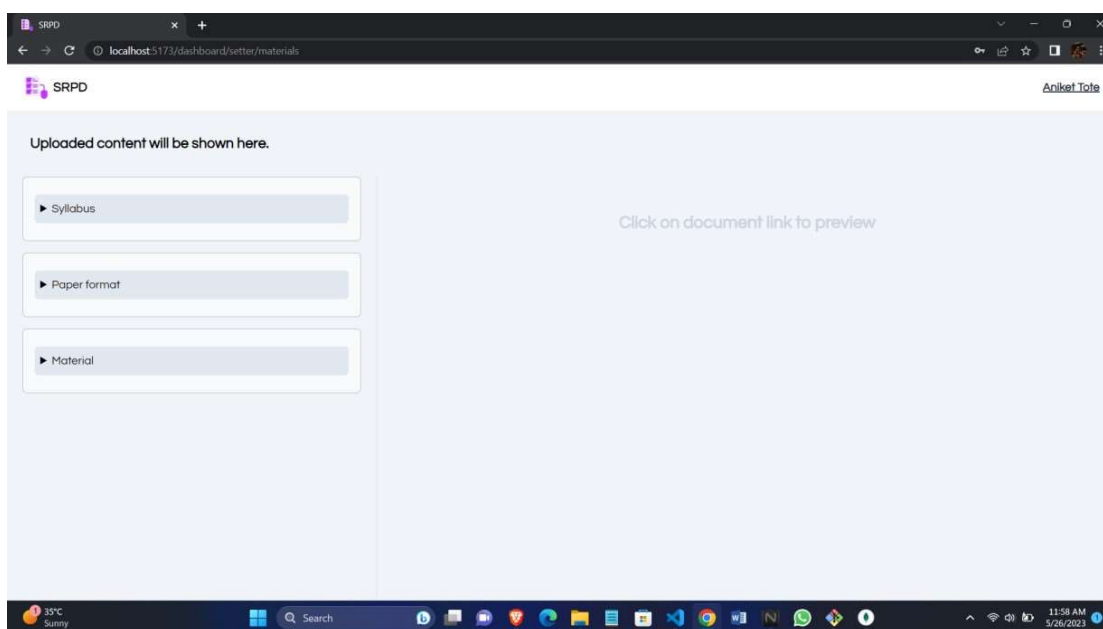


Fig: Setter dashboard



Material will available on this page

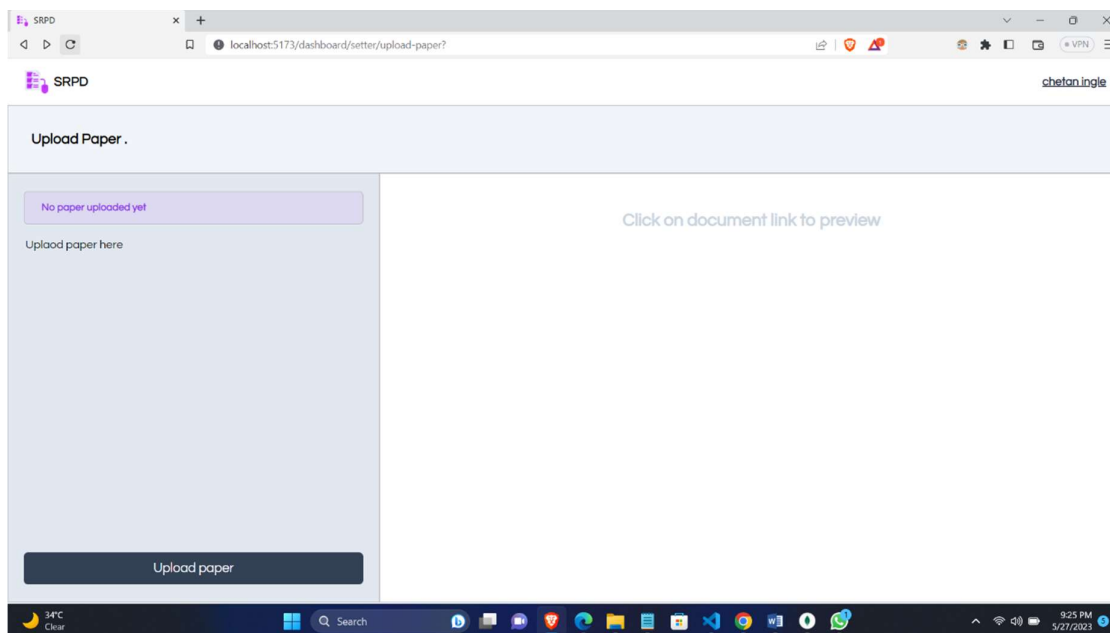


Fig: Page for upload the paper

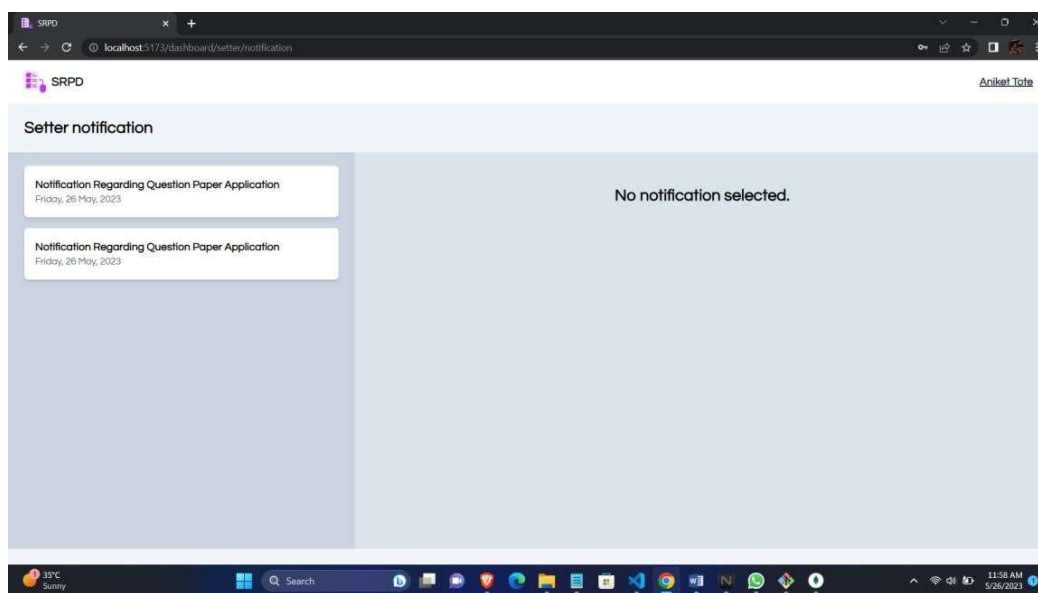


Fig: Notifications are displayed here

4. Examiner dashboard

When logging in as an examiner, you are presented with a range of convenient options tailored to your role. Specifically, you have two key functionalities at your disposal: "Download & Print the Paper" and "Notifications." Within the "Download & Print the Paper" section, you can effortlessly access and procure examination papers aligned with the specific session and meticulously planned schedule. This ensures a streamlined evaluation process. Additionally, crucial notifications pertaining to the examination timetable are thoughtfully communicated via email, and you can conveniently review them on the dedicated "Notifications" page where all emails and notifications are systematically stored.

These user-friendly features aim to enhance your experience as an examiner, facilitating a seamless and efficient workflow.

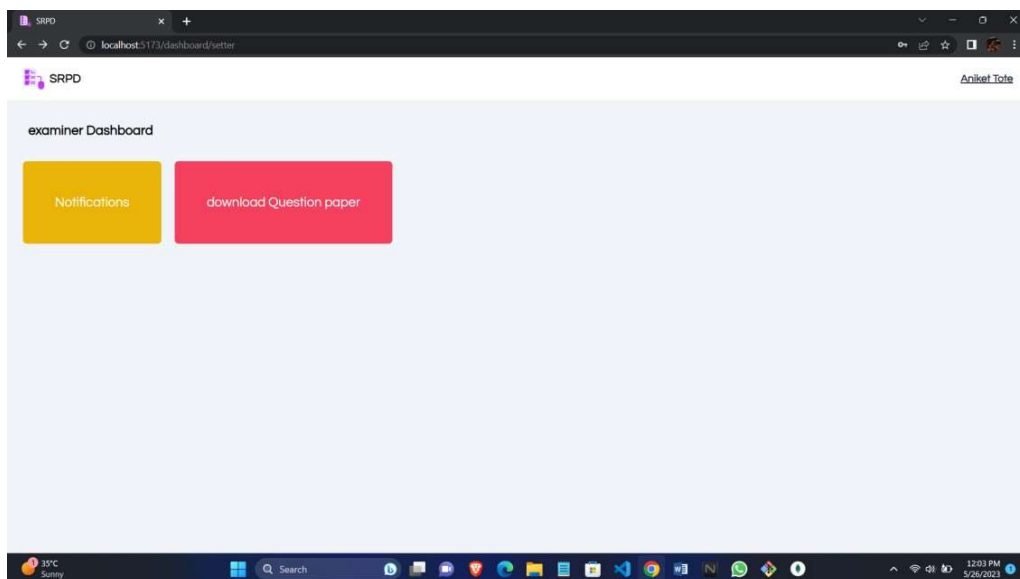


Fig: Examiner dashboard

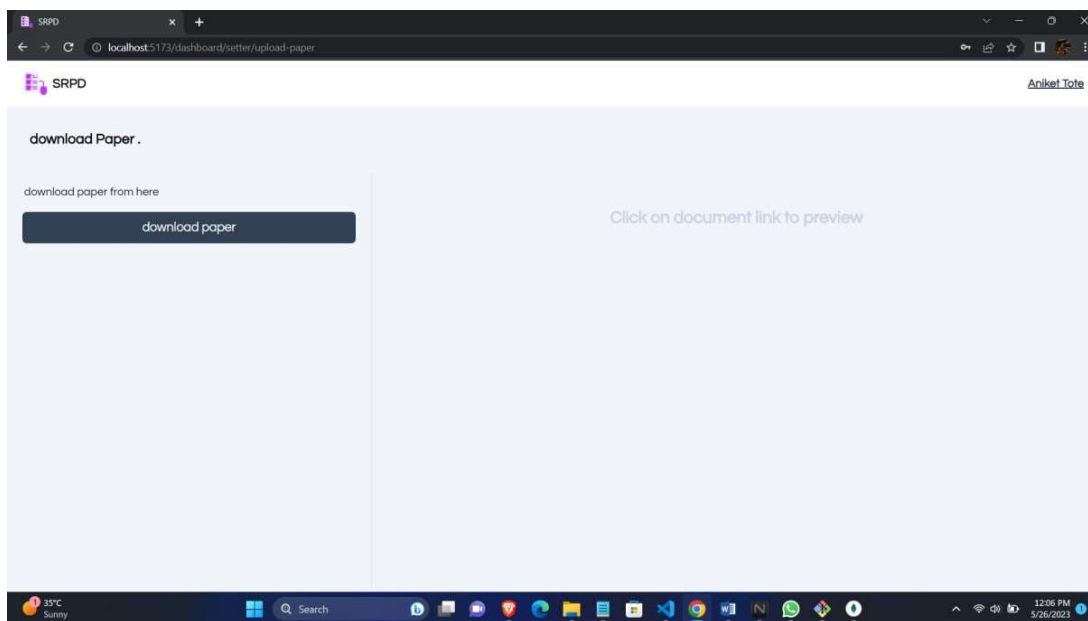


Fig: Section for download the paper

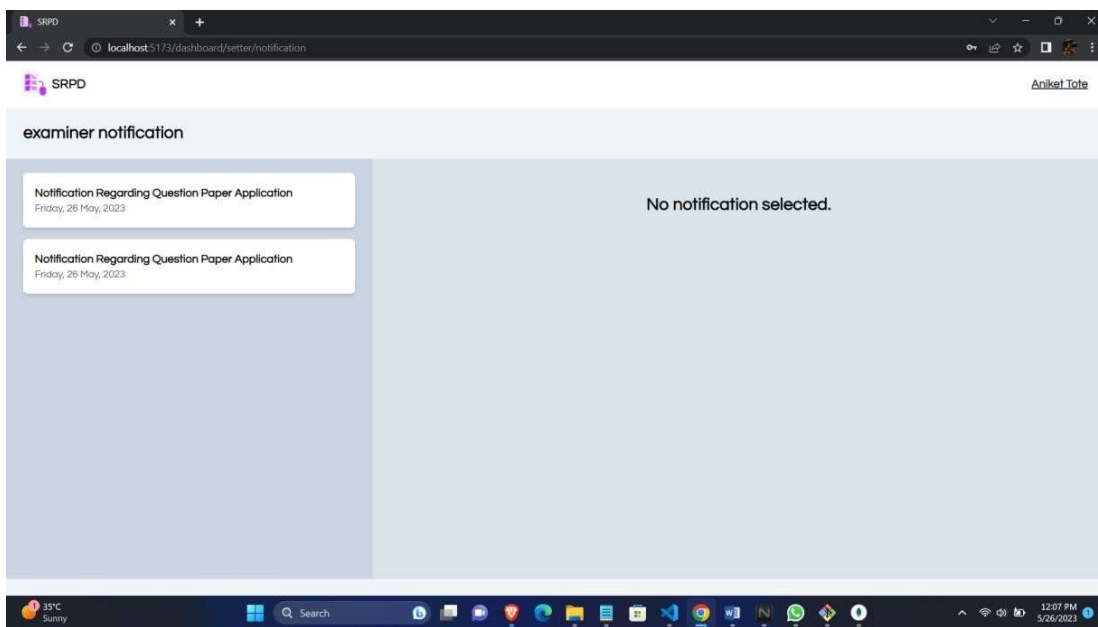


Fig: Notification section

4. System Design

1. ER Diagram

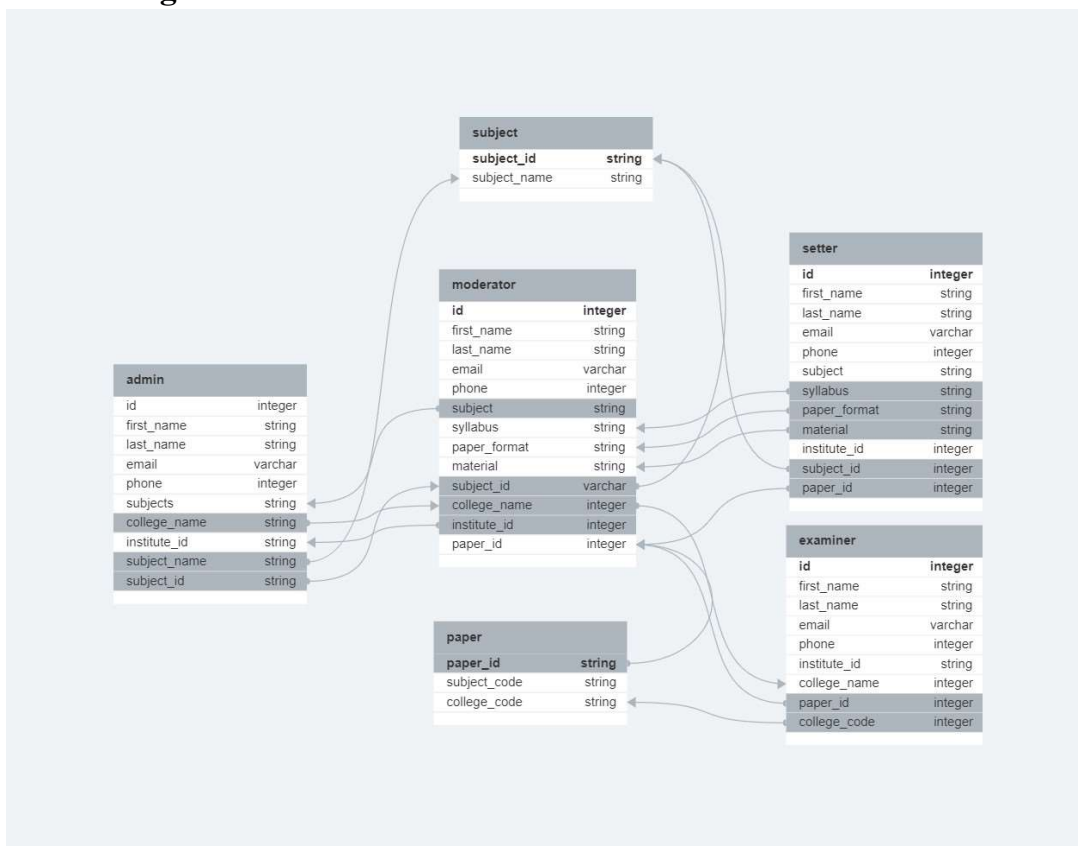


Fig: ER Diagram

2.flow charts

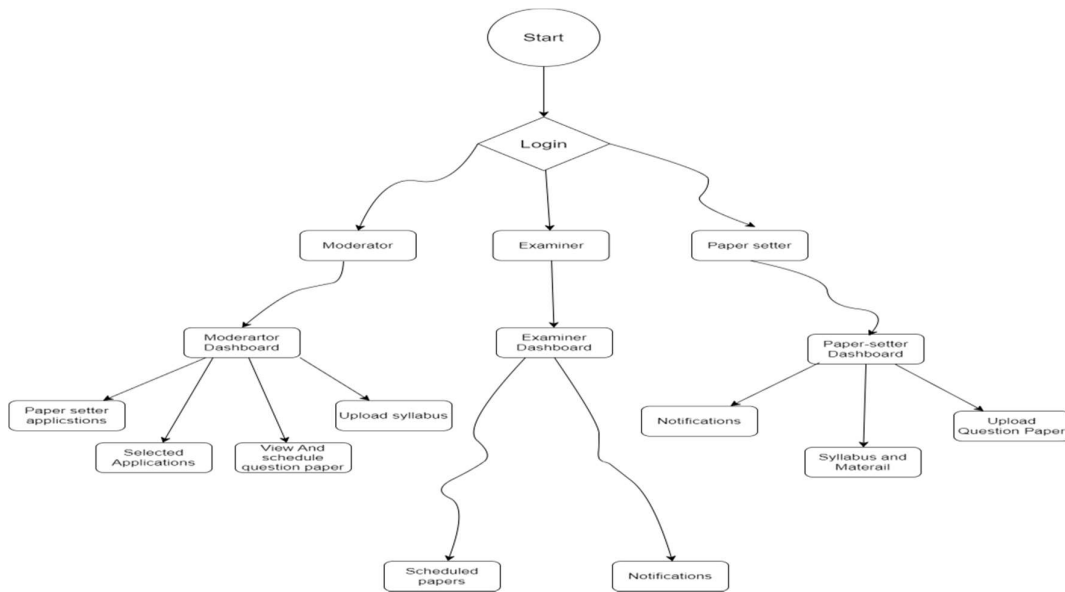


Fig: Flow Chart

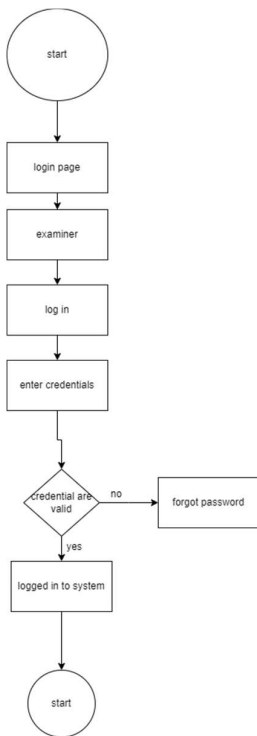


Fig: Examiner login

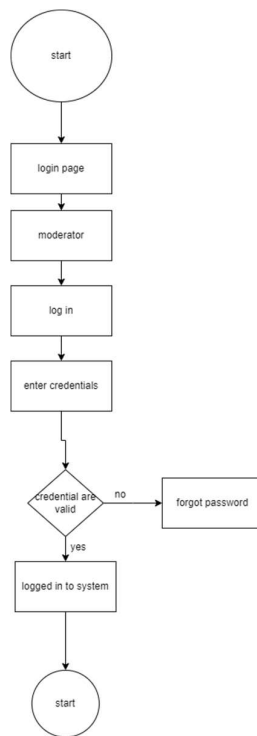


Fig: Moderator login

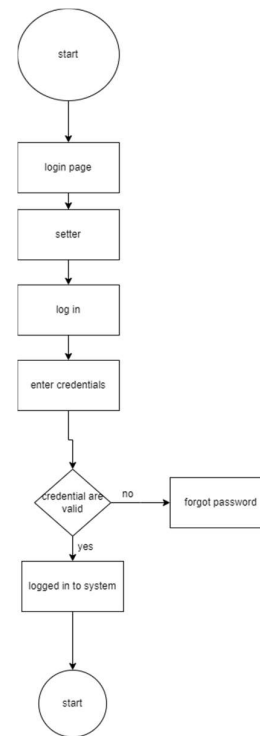


Fig: Setter login

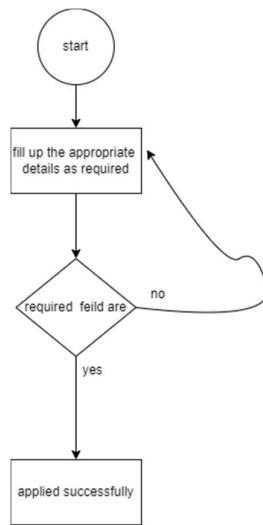


Fig: Application Form

3. Data Flow Diagram

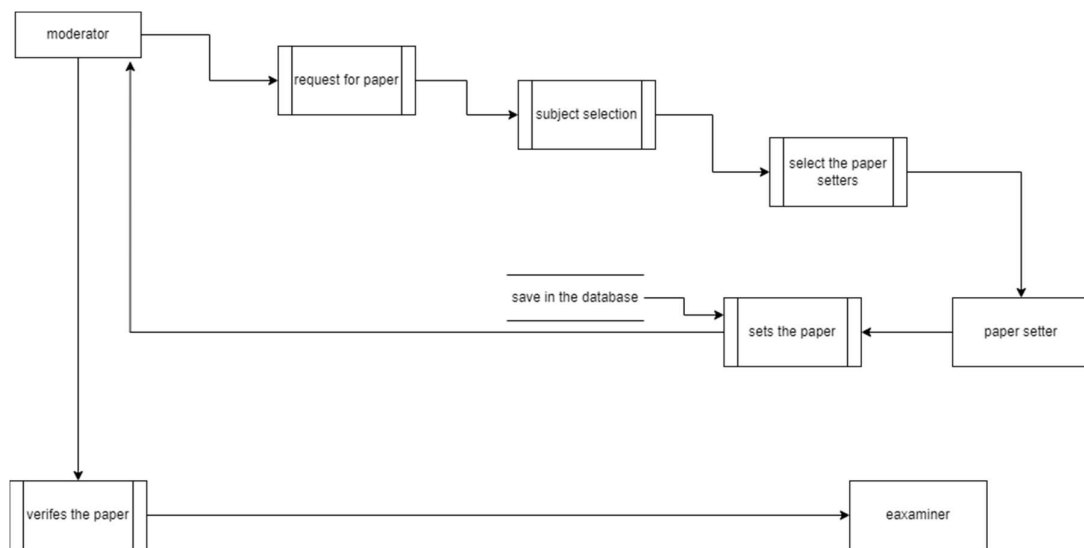


Fig : Data flow

6. Conclusion

The Secure Rapid Paper Delivery (SRPD) system streamlines exam paper creation and delivery, ensuring integrity and security. It consists of three components: the paper setter console, moderator console, and admin console. SRPD improves efficiency by facilitating coordination between paper setters and moderators, resulting in high-quality exam papers. It enhances security by providing a secure platform that minimizes the risk of unauthorized access or tampering. SRPD promotes collaboration among stakeholders and ensures a fair assessment process. With SRPD, institutes can standardize paper creation, enhance security, and streamline the delivery of exam papers in a more efficient manner.

7. Future Scope

1. Enhancing the SRPD system could involve integrating advanced question paper analysis techniques to evaluate difficulty levels and topic coverage.
2. Integration with online assessment platforms would provide a comprehensive solution with features like scheduling, grading, and analytics.
3. The incorporation of AI and machine learning algorithms could automate certain aspects of question paper creation.
4. Improving user interfaces for the consoles would enhance usability.
5. Optimizing scalability and performance would ensure the system can handle increasing demands effectively.

By addressing these areas, the SRPD system can continue to evolve and provide even more efficient and secure solutions for exam paper management.

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