Online Nodue Management System

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Abstract: The Automated No Due Management System is a smart, efficient, and user-friendly platform designed to automate and streamline the clearance process for students in educational institutions. It replaces the traditional manual procedure of obtaining department- wise no due signatures with a fully digital workflow. Students can log in securely to submit their clearance requests online, while department staff can review, approve, or reject them in real time through a dedicated dashboard. Once all approvals are completed, the system automatically generates a digitally verified No Due Certificate that can be downloaded by the student. Each department—such as library, hostel, accounts, and lab—has separate access to manage pending requests efficiently, ensuring transparency and accountability at every stage. The system also provides automated email notifications to keep users informed about updates and pending tasks.

Keywords: No Due Clearance, Academic Automation, Digital Approval System, Student Portal, Departmental Workflow, Spring Boot, React.js, Paperless Administration, Institutional Management, Real-Time Tracking.

I.INTRODUCTION

Manual clearance and approval delays are among the most common challenges faced by educational institutions today. Each semester, students are required to obtain departmental no due approvals before receiving their hall tickets or completing course-related formalities. The absence of a centralized digital platform forces students to depend on physical forms and manual signatures from departments such as library, hostel, and accounts, leading to delays and confusion. This outdated process often causes miscommunication, data inconsistency, and document misplacement.

The **Automated No Due Management System** is developed to address these challenges by providing a smart, web-based platform that connects students, departmental staff, and administrators through a unified digital environment. The system automates the entire no due clearance process — from student request submission and departmental verification to final approval and certificate generation. Students can easily submit clearance requests online by selecting their departments and entering necessary details, while staff members can review, approve, or reject requests through their dedicated dashboards.

The system also incorporates a built-in tracking and approval module that facilitates real-time monitoring of clearance progress across departments. Each student request is assigned a unique application ID and status indicator, ensuring complete transparency and accountability throughout the approval process. Department staff and administrators can easily view pending, approved, or rejected requests, while students receive instant updates on their clearance status. Additionally, the system includes a feedback mechanism that allows students and faculty to share their experiences,

I. LITERATURE SURVEY

The increasing demand for automation in academic administration has driven several innovations aimed at simplifying clearance workflows, including No Due certification systems. This section reviews existing research and technological advancements that have contributed to the development of automated academic clearance platforms and process management systems.

Sangeetha et al. [1] developed an *Automated No Due Certificate System* to replace manual clearance procedures with digital workflows. Their system improved processing speed but lacked features like automated notifications and centralized approval tracking.

Kumar and Singh [2] proposed a *Web-Based No Dues Automation System* enabling students to submit clearance requests online. While it reduced paperwork and manual intervention, it did not support real-time monitoring or multi-level departmental approvals.

Joseph and Prakash [4] designed an *Online No Due Management Portal* for academic institutions that streamlined data exchange between students and administrators. However, the system was limited in scalability and did not include secure role-based access for multiple departments.

Mehta and Thomas [5] implemented *Automated Clearance Systems Using React and Firebase*, emphasizing cloud integration for data synchronization. Although efficient, it relied heavily on continuous internet connectivity, reducing accessibility in offline environments.

Banerjee and Nair [6] introduced a *Cloud-Based Workflow Management System* that enhanced approval efficiency and accountability. Their work inspired the integration of real-time alerts and dynamic approval routing in newer systems like the proposed Automated No Due Request System.

Based on insights from the above research works, the proposed **Automated No Due Request System** bridges the existing gaps by introducing a unified, web-based platform that integrates students, tutors, and HODs through automated request submission, approval routing, and digital verification. It employs secure authentication, instant notifications, and real-time tracking to ensure transparency and efficiency.

II. PROPOSED SYSTEM

The **Automated No Due Management System** is designed to overcome the inefficiencies of traditional manual clearance methods by providing a centralized, automated, and transparent digital platform that connects students, departmental staff, and administrators in real time. The system aims to streamline the entire clearance process— from submitting requests to approval and final certificate generation— through a secure, user-friendly, and efficient interface. In the proposed system, students can log in to their portal and submit clearance requests by selecting relevant departments such as library, hostel, accounts, or laboratories. Each department can review, approve, or reject requests through their respective dashboards, ensuring accountability and structured workflow. Once all departments approve the request, the system automatically generates a digitally verified No Due Certificate that students can download instantly.

A major enhancement of this system is its **real-time tracking and automated notification module**. Students can monitor the status of

each clearance—pending, approved, or rejected—while departments receive instant alerts when new requests are assigned. This transparency ensures faster processing and eliminates the need for physical follow-ups or paperwork. Each clearance request is associated with a unique application ID, timestamp, and verification status, ensuring data accuracy, traceability, and accountability across all departments.

The system incorporates role-based dashboards for different users — Donor, NGO, Admin, and Driver — each equipped with specific functionalities. Donors can manage their donation history, NGOs can monitor received and pending donations, admins can oversee operations and assign drivers, and drivers can track pickup and delivery routes. This modular role separation enhances clarity, usability, and data security across all user types.

The system incorporates **role-based dashboards** for students, staff, HODs, and administrators, each equipped with dedicated features. Students can view their clearance progress and history, departmental users can manage requests and approvals, and administrators can monitor overall workflow efficiency and generate reports. This modular role segregation enhances usability, security, and operational clarity.

Overall, the proposed Automated No Due Management System creates a smart and reliable academic clearance ecosystem that enhances transparency, reduces administrative workload, and promotes sustainability through paperless operations. By integrating real-time tracking, automated approvals, and digital certification, the system transforms traditional clearance workflows into a fast, secure, and efficient digital process that supports institutional modernization and better student experiences.

III. PROPOSED SOLUTION

The **Automated No Due Management System** proposes a comprehensive, technology-driven solution to eliminate the inefficiencies of traditional manual clearance processes in educational institutions. The system focuses on digital integration, real-time tracking, and role-based automation to create a transparent, reliable, and sustainable clearance workflow. By connecting students, departmental staff, and administrators through a centralized web platform, the system ensures that clearance requests are submitted, verified, and approved efficiently and securely, without delays or paperwork.

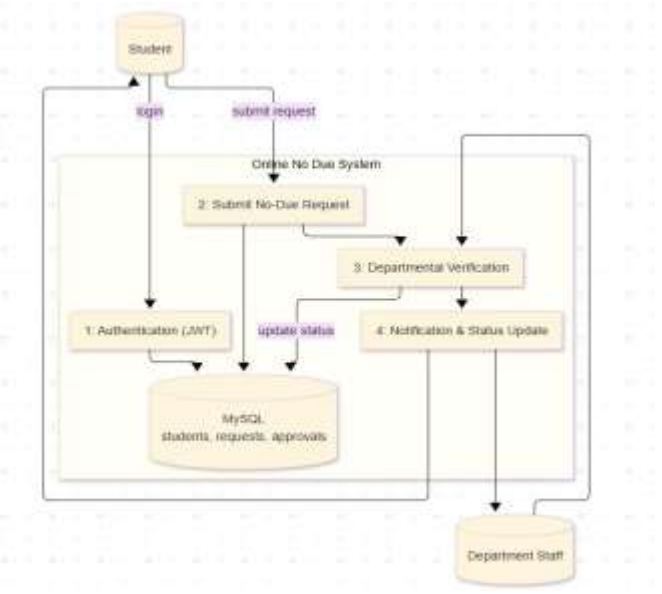
At the core of this solution is a **web-based platform** developed using modern technologies — **React.js** for the frontend and **Spring Boot** for the backend. React.js provides a responsive, component-based interface that enhances usability and accessibility for users across all devices, while Spring Boot ensures secure server-side logic, API communication, and robust database handling. The backend connects seamlessly with a **MySQL** database to store and manage all clearance-related information, ensuring data integrity, consistency, and easy retrieval. The system follows a **role-based architecture**, where each user type — Student, Department Staff, Head of Department (HOD), and Admin — is provided with a customized dashboard designed for their specific responsibilities. This modular design prevents confusion, strengthens data security, and simplifies workflow management.

The proposed solution automates the entire **no due clearance workflow**. Students can log in securely and submit clearance requests by selecting relevant departments and entering the required details. Each department user can log in to review pending requests, verify student records, and either approve or reject them. Once a department approves the request, the system updates the status in real time, visible to both students and administrators. After all departmental approvals are completed, the system automatically generates a **digitally verified No Due Certificate**, which students can download directly from their dashboard.

A key feature of the system is its **real-time tracking and notification mechanism**. Students can monitor the progress of their clearance status — from "Pending" to "Approved" or "Rejected" — and receive instant updates through automated notifications. Similarly, department users are alerted when new requests are assigned to them, ensuring timely action and faster approvals. Each request is tagged with a **unique clearance ID**, timestamp, and digital signature to ensure transparency, traceability, and accountability throughout the approval process.

The Overall, the proposed **Automated No Due Management System** transforms the conventional clearance process into a fully digital, paperless, and efficient workflow. By integrating automation, transparency, and real-time data updates, it enhances institutional productivity, minimizes administrative workload, and promotes a more organized and eco-friendly academic

MODULES



IV. IMPLEMENTATION

The implementation of the **Automated No Due Management System** involves converting the designed architecture into a fully functional web- based platform that automates the clearance process for students across all departments. The system follows a modular and scalable architecture to ensure maintainability, high performance, and secure data handling. It is developed using **React.js** for the frontend and **Spring Boot** for the backend, ensuring a smooth, responsive, and efficient workflow between the user interface and server-side logic. React's component-based design simplifies reusability and state management, while Spring Boot provides robust APIs and secure integration with the **MySQL** database for persistent data storage and real-time updates.

The Each module in the system has been designed to handle specific functionalities such as student requests, department approvals, and admin management. The application also implements **role-based dashboards**, where each user type—Student, Department Staff, Head of Department (HOD), and Admin—has access to dedicated panels with features suited to their roles. Students can submit and track their clearance requests, department staff can approve or reject them, HODs can monitor the approval flow, and Admins can manage the entire system, view reports, and maintain audit logs.

Real-time tracking and status updates are implemented using **React state management** and dynamic API calls to ensure that every change in request status is immediately reflected across user dashboards. When a department approves or rejects a request, the student's dashboard updates automatically with the latest status.

Each clearance request is assigned a **unique application ID**, timestamp, and verification code to maintain data integrity and transparency. Notifications are also triggered automatically at each stage, ensuring efficient communication between students and departments.

Real Security and privacy are ensured using **JWT (JSON Web Token)** authentication, encrypted passwords, and session management within Spring Boot. Only verified users can access the system, and sensitive student data is stored securely in the database. Additionally, an **Audit Logging Module** records all activities, helping administrators track actions for accountability and reporting purposes.

1. LOGIN MODULE

The **User Login Module** acts as the secure entry point for all usersof the Automated No Due Management System, including Students, Department Staff, HODs, and Admins. It verifies user credentials through the backend using encrypted validation and assigns appropriate access based on roles. Once authentication is successful, users are redirected to their respective dashboards—students to the request submission page, departments to approval panels, and admins to the system overview interface. Invalid credentials trigger alerts to prevent unauthorized access. This module ensures secure access control and protects sensitive data from external theats

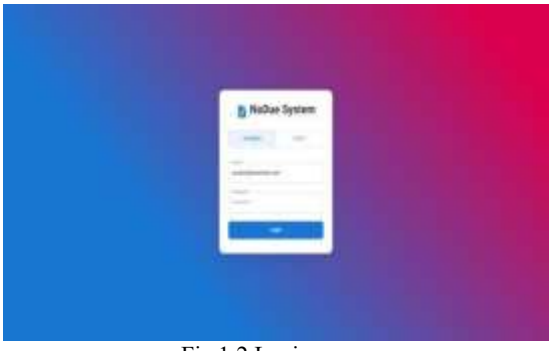


Fig 1.2 Login

2. NODUE REQUEST MODULE

The **No Due Request Module** enables students to submit and manage their clearance requests through an intuitive and user-friendly web interface. Students can provide essential details such as register number, name, department, year, and section, along with selecting the departments from which they require clearance—such as Library, Hostel, Accounts, and Laboratory. Once the request is submitted, it is securely stored in the system's database with a "Pending" status and becomes visible to the respective departmental staff for verification.

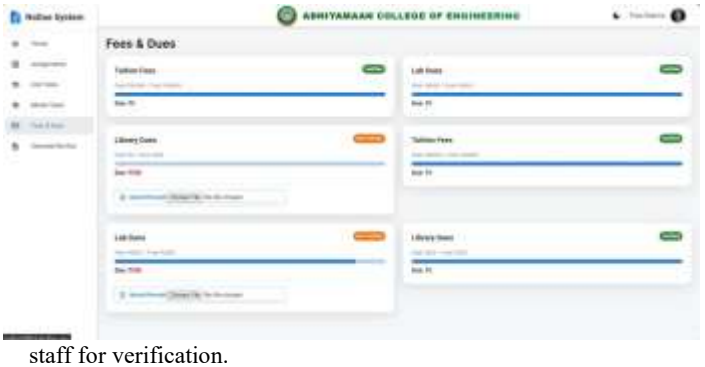


Fig 1.2 No Due Request Dashboard

3. ASSIGNMENTS MONITORING MODULE

The **Assignments Monitoring Module** provides departmental staff and administrators with a transparent and organized interface to view, manage, and monitor all ongoing no due clearance requests submitted by students. Each department can access a list of pending applications, review student details, and update the clearance status accordingly. Once a department verifies that the student has fulfilled all requirements — such as returning library books, clearing hostel dues, or settling laboratory deposits — the system updates the request status to **"Approved."** If any discrepancies are found, the department can mark the request as **"Rejected"** with specific remarks explaining the issue.

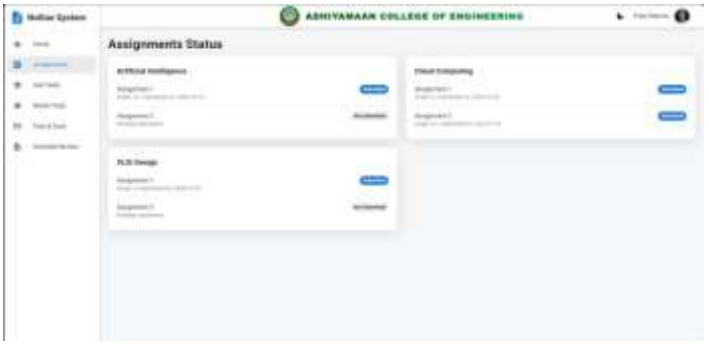


Fig 1.3 Assinments Dahsboard

4. Fees Verification Module

The The **Fees Verification Module** allows students to conveniently check and verify their fee payment status as part of the no due clearance process. Through their personalized dashboard, students can view detailed information regarding pending or completed payments related to tuition fees, library fines, hostel charges, or other departmental dues. The system automatically fetches and displays the latest fee status fromthe accounts database, ensuringtransparencyand accuracy.

Fig 1.4 Fees verification Module

5. Staffs Dashboard Module

The The **Staffs Dashboard Module** plays a vital role in managing and processing student clearance requests within the Automated No Due Management System. This module provides departmental staff with a dedicated and interactive interface where they can view all clearance applications submitted by students. Each request includes essential details such as student name, register number, department, year, and the specific clearance category (e.g., library, hostel, lab, or accounts). Staff members can review the details, verify the student's eligibility for clearance, and update the status as **"Approved," "Rejected,"** or **"Pending."**

Fig 1.5 Staffs Dashboard Module

6. Marks Uploading module

The **Marks Uploading Module** enables faculty members to efficiently upload, manage, and verify students' academic marks through a secure and user-friendly interface. This module allows authorized staff to log in to their dashboard and enter internal or external assessment marks for each student based on course, subject, and semester. The uploaded marks are automatically validated and stored securely in the system's database, ensuring accuracy and preventing duplication or data loss.

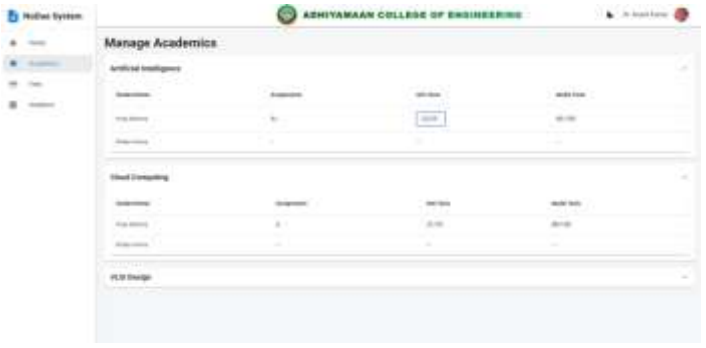


Fig 1.6.Marks Uploading Module

V. CONCLUSION

The **Automated No Due Management System** was developed to eliminate the inefficiencies of traditional manual clearance processes by connecting students, departmental staff, and administrators through a single, unified digital platform. The system successfully streamlines the workflow of submitting, verifying, and approving no due requests, ensuring that students can complete their clearance process quickly, securely, and transparently. By integrating multiple user roles—Student, Staff, Head of Department (HOD), and Admin—the application promotes coordination, accountability, and efficiency across all departments involved in the clearance process.

Each module of the system is designed with a structured workflow— from student request submission and departmental verification to final approval and digital certificate generation—ensuring that every stage of the process is traceable and automated. The use of modern technologies such as **React.js** for the frontend and **Spring Boot** for the backend provides a fast, responsive, and secure web application that enhances user experience while maintaining data integrity and reliability.

VI. REFERENCES

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