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College Task Management System for Web Technologies

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Abstract: ***In educational institutions, effective task coordination among administrative authorities, departments, and faculty members is essential for smooth academic and administrative operations. Traditional manual task allocation methods often lead to delays, lack of transparency, and poor tracking of task progress. This review paper presents the design and development of a Role-Based Task Management System for a polytechnic institute using frontend web technologies. The system supports multiple institutional roles such as Principal, Head of Department (HOD), Faculty, Scholarship Section, and Accounts Section. Authentication and task handling are implemented using JavaScript with browser-based local Storage, eliminating the need for backend infrastructure. The proposed system ensures structured task assignment, real-time status updates, and improved accountability. This approach is cost-effective, easy to deploy, and suitable for academic demonstration and small-scale institutional use.***

Keywords: Institute, JavaScript, local Storage, Web Application.

I. INTRODUCTION

Educational institutions handle a wide range of administrative and academic tasks daily, including academic planning, documentation, reporting, and departmental coordination. In many polytechnic institutes, these tasks are assigned verbally or through written notices, which often results in miscommunication, delays, and lack of accountability. With the increasing adoption of digital systems in education, there is a growing need for simple and efficient task management solutions.

A task management system helps organize work by assigning tasks to specific users, tracking deadlines, and monitoring task progress. However, most available systems are either too complex or require backend infrastructure, making them unsuitable for small institutions or academic projects. This research focuses on developing a **frontend-based task management system** that demonstrates institutional workflow without relying on a server-side backend.

The proposed system is designed using HTML, Tailwind CSS, and JavaScript. It introduces role-based dashboards where each user can access functionalities according to their role. By using browser local Storage for data persistence, the system simulates real-world task handling while maintaining simplicity and ease of use.

II. LITERATURE REVIEW

A. Pressman, R. S., Software Engineering: A Practitioner's Approach, McGraw-Hill.

Software Engineering: A Practitioner's Approach by **Roger S. Pressman** provides a clear and practical overview of software engineering concepts, covering software development life cycle models, requirements analysis, design, testing, quality assurance, and project management, making it a fundamental reference for both students and professionals.

B. Sommerville, I., Software Engineering, Pearson Education.

Software Engineering by Ian Sommerville presents a comprehensive introduction to software engineering, focusing on systematic software development, requirements engineering**,** system modelling , software processes, and project management, with emphasis on building reliable, scalable, and maintainable software systems.

C. MDN Web Docs – JavaScript local Storage API.

MDN Web Docs provides detailed and reliable documentation on the JavaScript Local Storage API, explaining how web applications can store, retrieve, and manage data on the client side, enabling persistent storage and improved performance without relying on server-side databases.

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D. Tailwind CSS Documentation.

Tailwind CSS documentation explains a utility-first approach to CSS that enables rapid UI development through predefined classes, helping developers build responsive, consistent, and maintainable user interfaces with minimal custom CSS**.**

E. Role-Based Access Control (RBAC) – NIST Standards.

National Institute of Standards and Technology (NIST) standards on Role-Based Access Control (RBAC) define a structured access control model where permissions are assigned to roles rather than individuals, improving system security, scalability, and manageability by ensuring users can access only the resources necessary for their responsibilities.

F. Work-in-progress (WIP) Limit

Work-in-progress (WIP) limits are a key concept in agile and lean methodologies, restricting the number of tasks or items in progress at any given time. This improves workflow efficiency, reduces bottlenecks, enhances focus, and helps teams deliver higher-quality work faster.

III. CONCLUSION AND FUTURE SCOPE

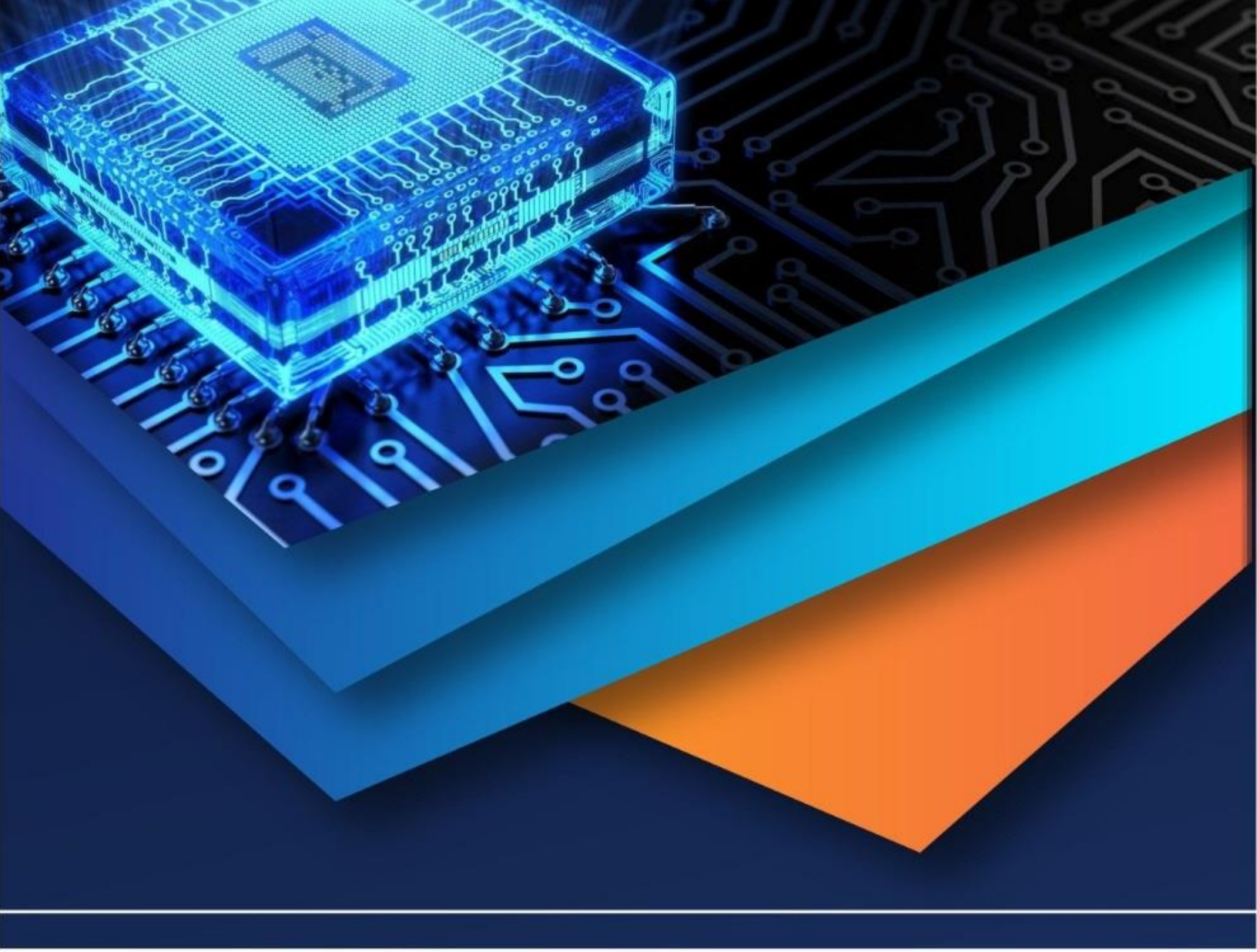
This review paper presented a Role-Based Task Management System developed using frontend web technologies for a polytechnic institute. The system demonstrates how institutional workflows can be digitized using simple tools without backend dependency. The project successfully integrates authentication, role-based access, task assignment, and progress tracking.

For future enhancement, the system can be extended by integrating a backend server, secure authentication, and a database for large-scale deployment. Additional features such as email notifications, performance analytics, and report generation can further improve system effectiveness.

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[5] Role-Based Access Control (RBAC) – NIST Standards.
[6] Work-in-progress (WIP) Limit
[7] Vision-based occupancy detection and environmental quality monitoring for smart buildings
[8] People detection and counting from overhead depth images for smart building applications
[9] Vision-based crowd density estimation using deep convolutional neural networks
[10] You Only Look Once: Unified, Real-Time Object Detection
[11] The OpenCV Library.

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