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Employee Performance and Leave Management System

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Abstract: ***In educational and institutional settings, staff performance management and vacation tracking work continues to operate through either manual processes or separate digital systems throughout most organizations. The system experiences multiple issues which include operational delays and missing information plus inefficient methods for making decisions. The proposed system EduTrack – Employee Performance and Leave Management System delivers its solution through a digital platform which enables different users to access specific functions based their assigned roles. EduTrack operates through a three-tier system which connects its mobile application with web-based administrator interface and its secure backend system that uses Node.js and MongoDB technology. The system allows employees including teachers and staff members to request leave while they monitor their performance records and get instant updates. Class Teachers and HODs perform administrative duties through their authority to evaluate and approve leave applications and their ability to assess performance standards throughout all departments. The platform protects data security through JWT authentication together with role-based access control which enables users to access only the features that match their specific roles. Performance assessment uses structured data collection methods which enable enhanced measurement and documentation procedures. The system automates leave processes to decrease both documentation needs and delays that occur during the approval process. EduTrack uses digital technology to automate its business functions which allows institutions to work more efficiently while improving operational transparency and reducing human errors and promoting data-based decision-making. The system delivers an adaptable and easy-to-use solution which organizations can use to efficiently handle employee performance evaluations and leave management across different operational settings.***

Keywords: Employee Management, Leave Management System, Performance Tracking, Role-Based Access Control, Android Application, Web Dashboard, Node.js, MongoDB, JWT Authentication, Data Automation, Administrative Workflow, Institutional Management System.

I. INTRODUCTION

The traditional methods that educational institutions and organizations use for employee performance evaluation and leave record maintenance depend on manual registers and spreadsheets and independent systems that lack interoperability. The process becomes disorganized because the approval procedure needs additional time and records are lost and performance assessment becomes unstable and the decision process transforms into unpredictable guessing. The growing number of employees together with the rising demands of administrative work create an urgent requirement for a unified system which provides organized performance assessment and leave tracking capabilities. The EduTrack – Employee Performance and Leave Management System solves this problem by creating a digital platform which enables employees to request leave and monitor their work performance while receiving updates through notifications. Class Teachers and HODs gain the necessary administrative rights to evaluate leave applications and enter performance information while tracking departmental performance. The system consists of two components which include a mobile application for users and a web interface for administrators and operates through a protected backend framework. EduTrack automates administrative tasks while handling data processing which enables the system to achieve smooth operations and better data processing and faster approval procedures. EduTrack aims to transform institutional operations by replacing their existing document-centric systems with modern academic management solutions which promote efficient processes and open operations and utilize advanced technological systems.

II. PROBLEM STATEMENT

1) Most organizations continue to use manual systems or poorly integrated digital solutions to handle both employee performance assessments and leave request management. The traditional methods create delays in the approval process which results in higher risks of losing records and creates challenges in keeping precise performance records throughout extended periods.

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2) Leave applications typically proceed through either formal paperwork procedures or informal communication links which create obstacles for decision makers while making it harder to track the process. Administrators face challenges in assessing staff development and departmental effectiveness because performance evaluation data exists in separate databases.
3) The primary challenge exists because organizations need to establish a system for implementing access controls based on employee responsibilities. The absence of a formal system results in confusion regarding employee duties to approve leave requests and track employee performance which leads to disruptions in work efficiency.
4) Institutions face operational challenges because they lack a centralized platform which results in:
5) Lengthy processes required for approval
6) The system needs to be developed as a unified solution which enables organizations to handle both performance assessment and leave management tasks while safeguarding data and providing various user roles easy access to information.

III. OBJECTIVES

The EduTrack system exists to simplify employee performance assessment and leave management processes which institutions currently use for their operational needs.
The key objectives are:
1) To develop a centralized platform that manages both employee performance and leave records in one place.
2) The system wants to automate leave application processing because it needs to decrease both processing times and the need for physical documents.
3) The system gives different access levels to employees, class teachers, and administrators so they can complete their job functions with secure access to necessary resources.
4) The system enables organizations to track employee performance through its recording system which helps assess their work activities.
5) The system establishes a workflow process which will increase visibility into the leave approval process and performance evaluation procedures.

IV. METHODOLOGY

The EduTrack system development process uses an organized method to achieve successful system deployment and dependable system operation. The system architecture includes three components that operate through a mobile application and a web-based admin panel and a backend server.
The Android mobile application enables employees to submit leave requests and check their performance records and get notifications. The system enables users to access its features at any time while they can communicate with each other in real time.
The web-based admin panel functions at the second level to permit administrative users such as Class Teachers and HODs to perform their duties. The panel gives administrators the ability to handle user accounts while they approve or deny leave requests and document performance information and watch all activities throughout the organization.
The backend server functions as the system's main component which utilizes Node.js and Express for its development. The backend system handles business operations by processing mobile and web platform requests while maintaining security through JWT-based authentication.
The system uses MongoDB as its database which organizes and stores user information together with leave records and performance information and system notifications. Role-based access control enables users to access only those system features which correspond with their assigned responsibilities.

The methodology also includes:
1) System architecture and database schema design
2) Secure API endpoint implementation
3) Mobile and web interface backend service integration
4) Leave workflow and performance tracking functionality testing
5) System reliability and data security validation

EduTrack uses this system approach to provide an efficient scalable solution which streamlines the management of employee performance and leave processing.

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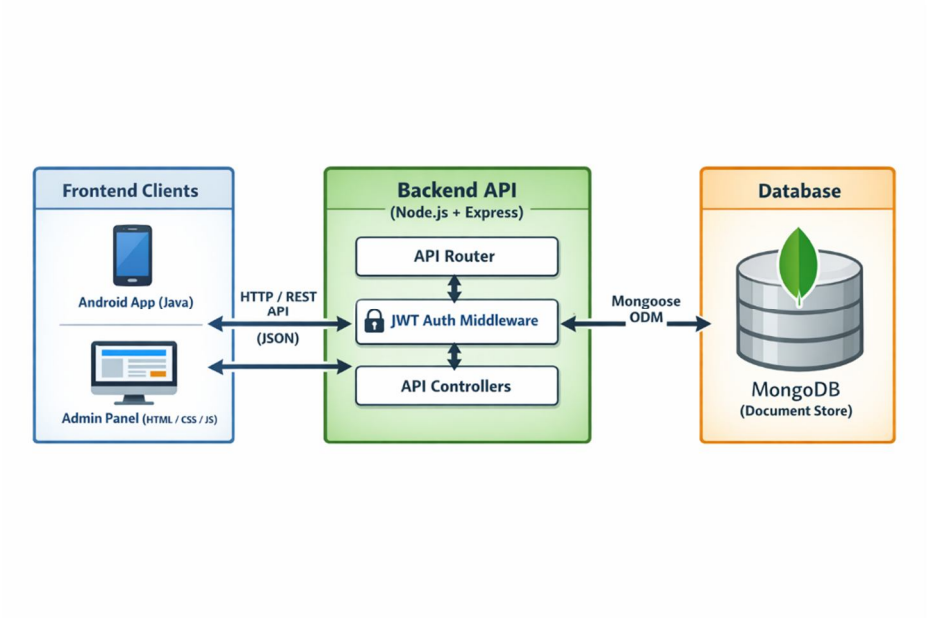


Fig1 : System Architecture

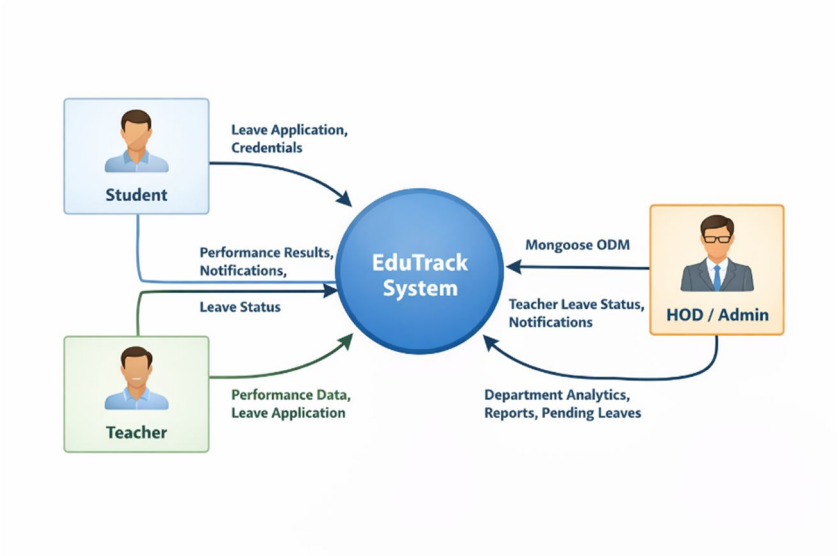


Fig2 : DFD Level 0

V. RESULTS AND PROJECT OUTPUT

The developed system was implemented and executed successfully in a real-time environment. All the main functionalities were tested individually and collectively to ensure proper working of the application.

During testing, each user role such as HOD, Teacher, and Student was able to log in using valid credentials and access only the features assigned to them. The role-based access control mechanism worked effectively and restricted unauthorized access.

The leave request process was verified by submitting applications from the student and teacher side and approving them from the higher authority level. The approval status was updated correctly without any delay. Attendance and performance details entered by the teacher were stored in the database and displayed accurately in the student dashboard.

The overall system performed smoothly without major errors. The implementation proved that the digital platform can effectively replace manual record maintenance and improve workflow efficiency.

The following screenshots illustrate the working modules of the system.

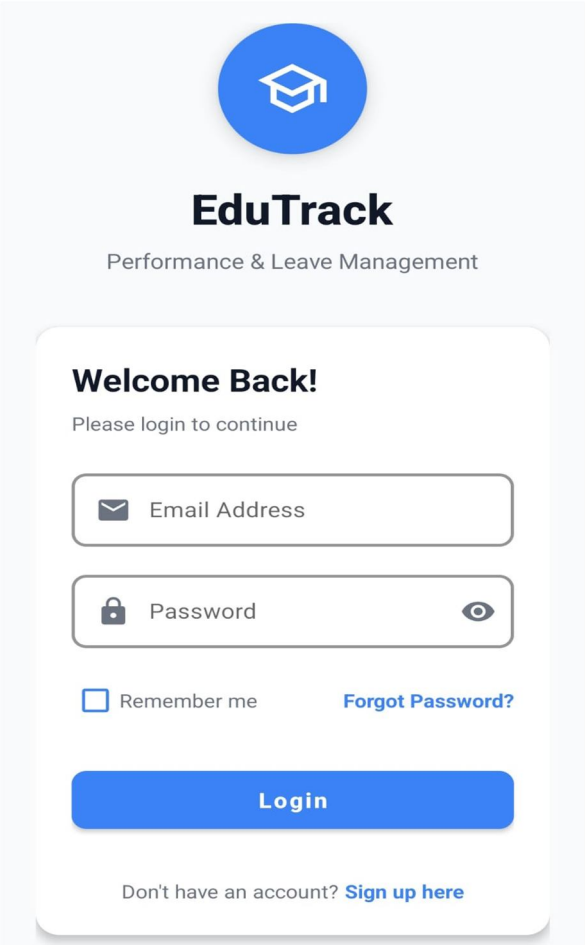


Fig3 : Common Login Page

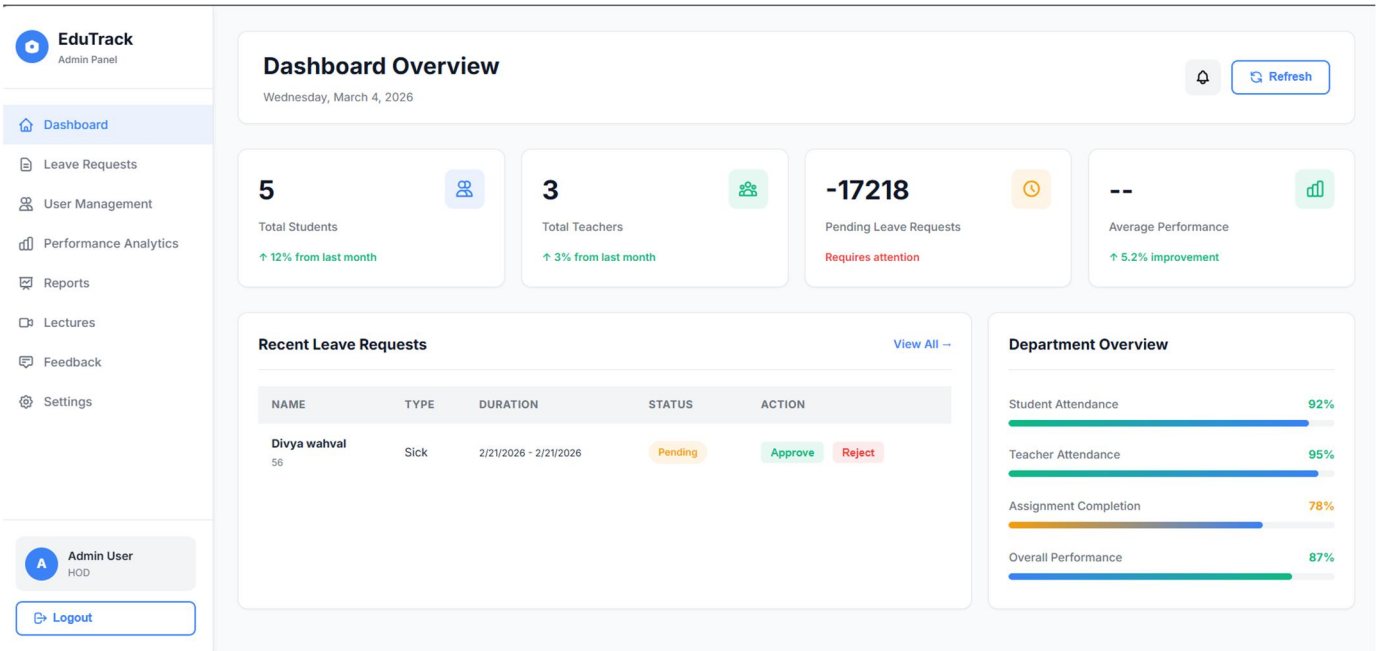


Fig4 : HOD Dashboard Overview

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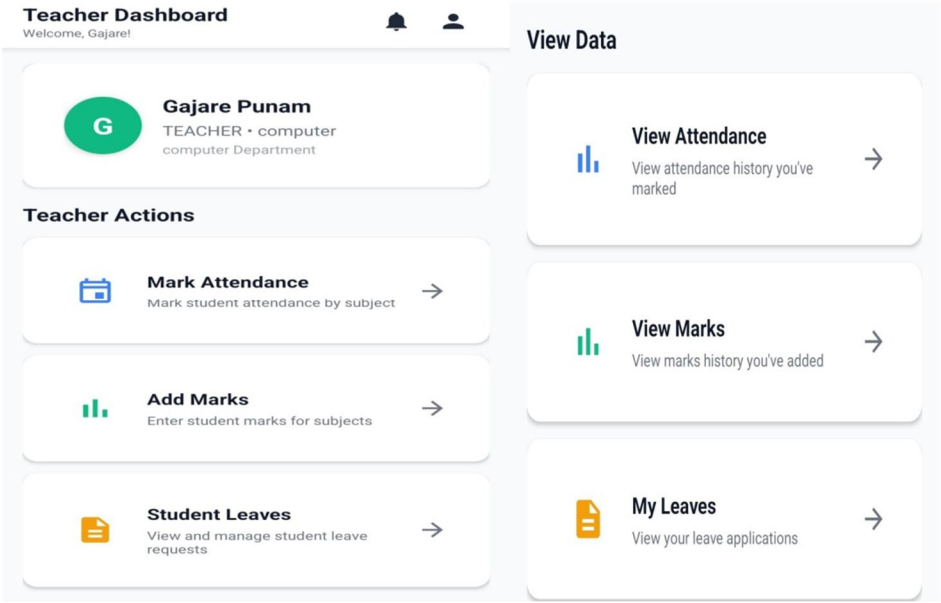


Fig5: Teacher Dashboard

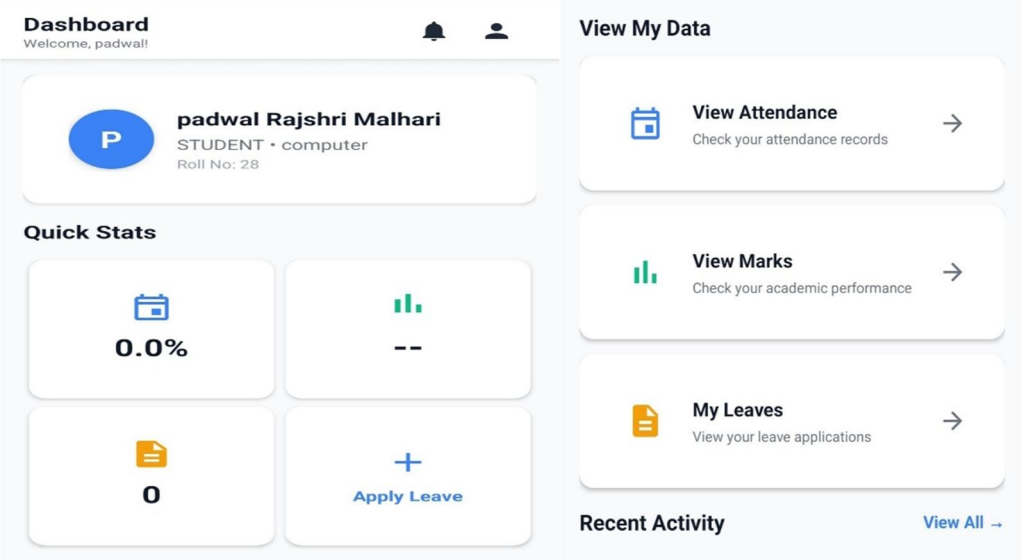


Fig6 : Student Dashboard

VI. CONCLUSION

The EduTrack system provides organizations with an effective tool that handles both employee performance and leave management processes. The system achieves its goals by using a centralized digital solution to replace manual operations which results in faster processing and reduced mistakes and better visibility of operational processes.

EduTrack provides a complete system that includes a mobile application and a web-based admin panel and a secure backend system which allows employees to request leave and assess their performance while administrators can track their activities and gather information to drive their choices. The system establishes different access levels through role-based access which functions as a security mechanism to protect data and restrict system access to specific users.

The process of automating common tasks such as leave approval and performance documentation results in two benefits which include shortened time requirements and diminished work obligations for administrators. The structured data systems improve the planning process which leads to better assessment results.

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EduTrack provides three main benefits which include improved efficiency and better communication and establishment of orderly management systems. The system provides expandable features which organizations can customize to meet their unique requirements which makes it a dependable solution for transforming employee management systems.

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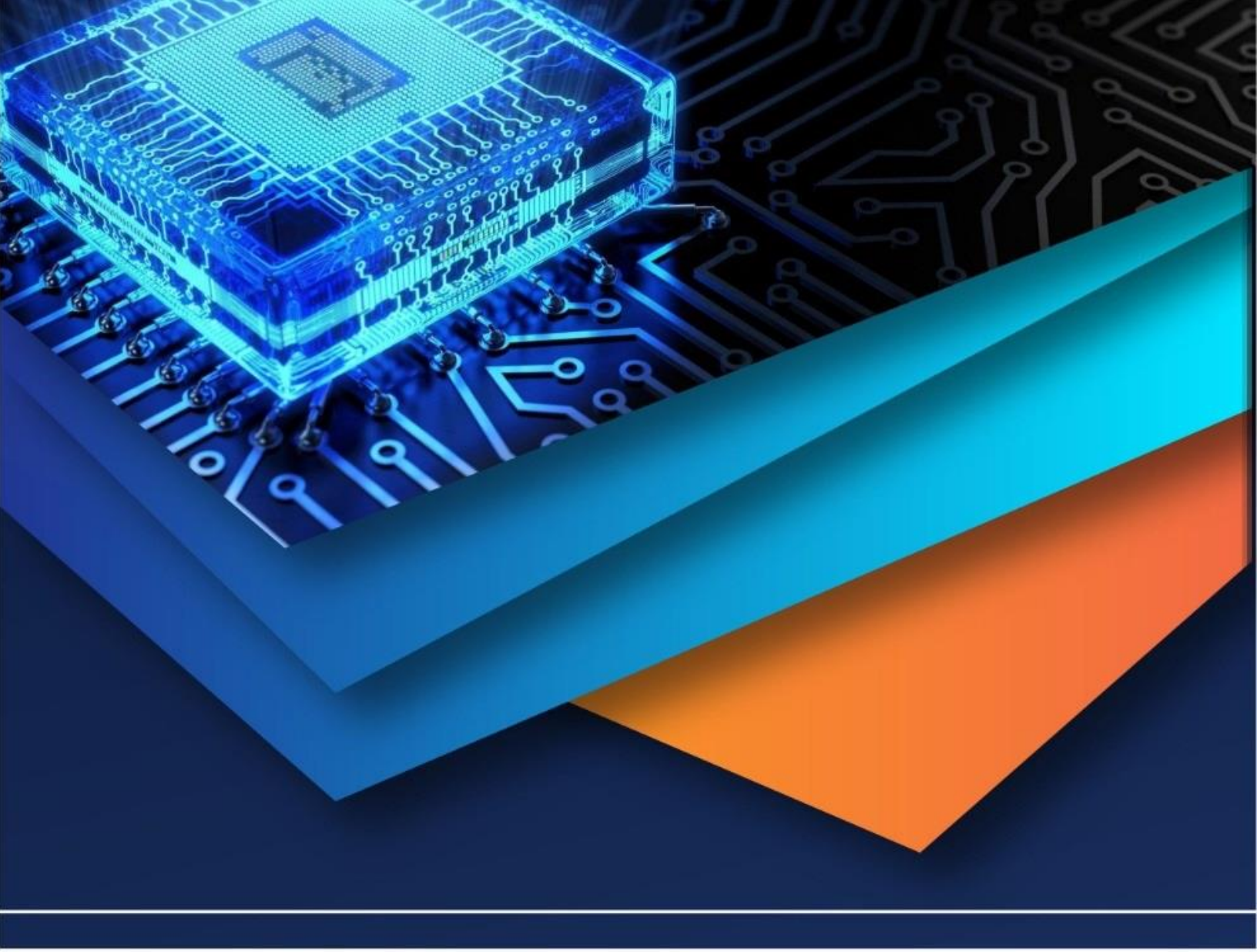
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