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The Manoeuvring of ERP in Education

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Abstract: ***The goal of this project is to raise productivity levels in the installation of enterprise resource planning (ERP) software, notably in the educational sector. In order to do this, it was determined what factors related to benefits sought through the use of ERP systems and what crucial criteria underpinned successful ERP deployment. An institutional enterprise resource product that will connect all the departments within the institution, including academics, finance, administrative, communication, and information; contribute to the automation process; provide a dashboard for the institution; allow for the payment of fees and the keeping of logs; and have a better user interface and multi-platform usability (web & android) Android app. ERP college web applications are the only web applications that combine all of the modules and features of the college system that the administrative head may manage and students and faculty can access with a legitimate user ID and password. The project's goal is to provide a solid interface that allows educational institutions to easily and quickly handle all of their workflows, from students, preceptors, and management to all notices. Even in virtual mode, it will enable better security and stable operation. This can be particularly useful when there is a pandemic. If done with sophisticated intelligence, it might even assist the institutions in identifying management weak points or transmit its information back to top level board for development and general organizational well-being, assisting it in fulfilling its true mission.***
Keywords: Enterprise Resource Planning [ERP], Institutional, Admin, Faculty, Student.

I. INTRODUCTION

ERP refers to the coordinated management of key business processes, frequently in real time and facilitated by software and technology. Currently, ERP is going through a transition that will provide it more integrated, sophisticated, cooperative, and cloud-enabled features. Information is easily accessible from every location with internet connectivity, which has led to an increase in cloud-based operations in recent years. ERP system automated all the manually maintained information. The computer is fed with the information. Separate areas don't need to be handled by different people. To keep the all reports and records, one person is sufficient. Depending on the user's requirements, security may be provided. Production, general tally, purchasing, warehouse, shipping, order processing, accounts receivable & outstanding, and mortal coffers software are all included.

An integrated system withreal-time functionality and a shared database to support all departments. It provides a uniform appearance and feel throughout the system's modules and add Mobility and flexibility to information will prominently make things easier and speed up the result preparation and management process in an Educational institute. Django is a web application framework that was used to create this system. The news-focused website of the global firm in Lawrence, Kansas, was the initial target of its development. Complex data-driven web applications, like a news-focused website, can be developed more easily with its help. Model, View, and Template make up its carefully constructed framework. Grades, marking, groups, and submission make up our ERP system's four components. Those three elements are present in each component. The user interface template is created initially, followed by the models of the relevant component for the data architecture, and finally the view, which incorporates all the functionalities, is implemented.

II. LITERATURE REVIEW

Akash Giri et al[1]., Methodologies used to study the Web Based ERP Applications with System Architecture, Workflows and Features. finds potential for integrating the Planning ERP body of knowledge into such an IS programme. The best and brightest ERP is required to fully automate and digitalize the institution. The best outcomes can be achieved with ERP, which is the quickest to implement. The full digital E-Education System is made by a product from Education ERP.

N. Ramachandran Thangamani. et al [2]., Characteristics and Implementation factors for ERP in Higher Education, Most non-profit organizations and rigorously follow government policies. Administrative conditioning are similar as mortal resources, finances, purchases, stores, general administration, etc. In the context of school activities, starting with the admission of the student and ending with the publication of results, attendance, a lesson plan, course bidding, etc. Although these two activities are different, they are both connected..

It is observed that many research articles about ERP implementation in higher education are focusing either on academic activities or administrative activities.

Kenge, Rohit, et al[3]., The original upgrade to the ERP system only included the integration of cloud storage or central data management. The revolutionary trend is data-based ERP. The hardware and start-up fees for the ERP software are provided at the user's location, which might be expensive for small businesses. The development of cloud computing benefited consumers by significantly reducing the cost of maintaining and updating the software system. Business organisations are choosing a hybrid ERP solution as well. Hybrid ERP systems combine the advantages of on-premises and cloud-based ERP while minimising their respective drawbacks. This application is particularly helpful for businesses who provide digital services and goods.

Sourabh Salokhe, et al[4]., Identification of Modules in Cloud based ERP - Android Application. Integration between modules. This paper on College Management.

A simple user interface is provided by the college administration system application for updating student, employee, and college-related data. The project's data storage facilitates management's ability to make timely and informed decisions. Having an internet information management system is therefore preferable. Staff members can quickly obtain the information they need. This system is crucial at universities, colleges, and caravansaries.

Mohammed A. et al[5]., Android Operating System and Features. The student's attendance system is a method of recording a student's attendance based on their participation in class.

Engaging students and ensuring that they will attend consistently are the first steps in successful businesses, educational institutions, and colleges, which is why attendance rates are crucial. In comparison to other conventional attendance systems, the suggested method offers a quick, less expensive, and accessible approach for online students ' attendance and immediately generates the attendance report.

Although Gartner first used the word ERP in the 1990s, its history actually began in the 1960s. At that time, the idea was used to regulate and manage inventories in the manufacturing sector.

Programs were developed by engineers to track inventories and other factors and provide status reports. Production process scheduling methods known as Material Requirements Planning systems emerged during the 1970s. Manufacturing Resource Planning (MRP) became increasingly comprehensive in the 1980s, leading some to refer to it as MRP-II and Manufacturing Resource Planning. The adoption of ERP as we now know it began in 1990 when these systems went beyond inventory control and other back-office tasks like finance and human resources.

III. ERP ARCHITECTURE

A software project's architectural design is essentially how the complete software system is created. This pertains to the size of the modules as well as the types of modules that are present. The conceptual model of a system's structure, behaviour, and other aspects is called its architecture.

A system's formal description and representation, arranged to support information about its structures and behaviours, is called an architecture description. The development of technology has made it possible for businesses and educational institutions to both implement enterprise resource planning systems. Technology has not only facilitated new forms of learning like online classes and smart classrooms, but it has also made managing educational institutions simpler. The adoption of Enterprise resource planning erp in academic institutions has transformed institutional administration by assisting organizations in enhancing their operations and making them more efficient and manageable. The program is significantly more dependable than conventional approaches because of the time / efficiency element.

It takes a lot of effort to manually manage finances in an organization and then track them into a report. To meet these kinds of precise standards, a lot of useful time is lost.

It can occasionally become difficult and tiresome to manage many essential processes, including inventories, human resources, finances, and other services. An ERP system's adoption in a school can guarantee that the institution's operations can be as effective as possible. When compared to other industries, the educational institution sector has distinctive organizational models, fundamental procedures, and goals. The academic activities are supported, covering certain fundamental procedures like scheduling, learning, performance monitoring, and testing procedures. Studies have shown that installing ERP software in educational institutions and other enterprises has several features in common. Therefore, it is crucial to research the advantages of adopting Erp software in higher education as well as the knowledge needed to prevent issues brought on by older systems in order to implement ERP in the evolving educational institutions.

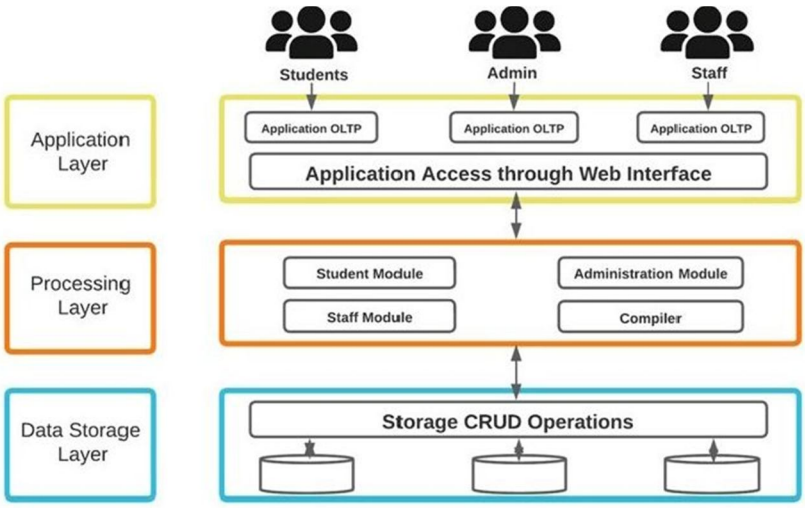

Fig 1. System Architecture for ERP System

A good architectural design will strike a clear and equitable balance between the software modules' cohesion (each has only one clear purpose), coupling (no two depend entirely on one another), abstract thought (seeing modules in their entirety rather than in detail), magnitude (logical modules stem from others), as well as dividing up (logically grouping modules together).

Table 1. System Requirement

Software Requirements	Hardware Requirements
Tools - VS code, SQLLite3	Processor: i3 4th gen or faster
Programming Languages - Python, HTML, CSS, Bootstrap, JavaScript,	RAM – 4GB or more
Framework - Django Framework	Disk space: 100GB or more

The setting where all of the student's institutional processes are managed is the student management system. It is carried out using a computerised, automated process. Paper, lines, and binders are typically used to implement this system. Both the student and the administrator benefit from this system's time savings.

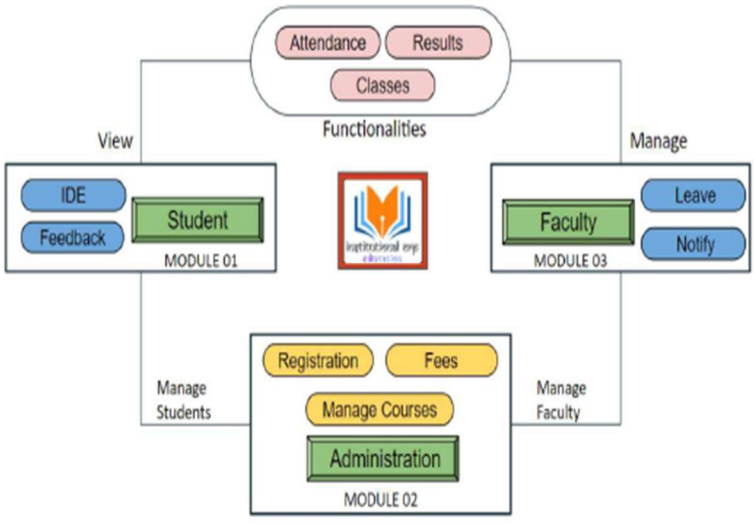

Figure 2. Module Design Flow

1) *Admin Login Module:* Faculty Update Admin will update or register the Faculty details who newly joined in the College. Admin has to update the details like Faculty_ID i.e. respective identity number provided to the staff, Faculty_Name i.e., respective name of the faculty, Subject the faculty is about to teach/lecture, Semester and department.
2) *Faculty Login Module:* Marks and Attendance Updates Faculty has to log in using the registered ID given by the Admin where all the other respective details will be displayed automatically. Faculty is supposed to enter the internal & external marks and attendance with respect to the student and the subject which Faculty is tutoring.
3) *StudentLogin Module:* Checks Marks and Attendance. Any registered student can login and check their marks and attendance percentage with respect to the subject by providing the registered USN_NO.

IV. RESULTS ANALYSIS

Fig 3.ERP System Logo

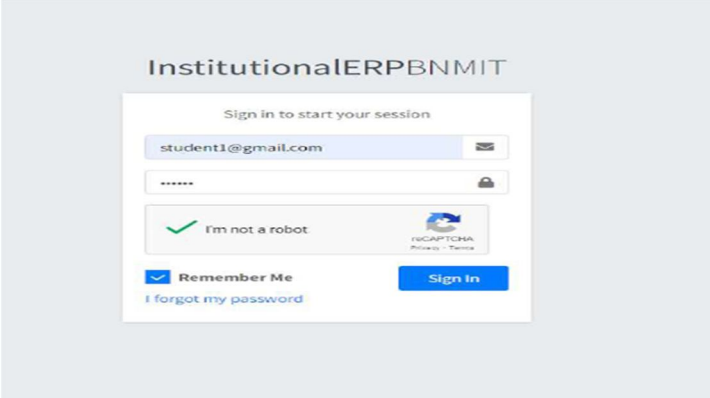

Fig 4. Admin Login Page

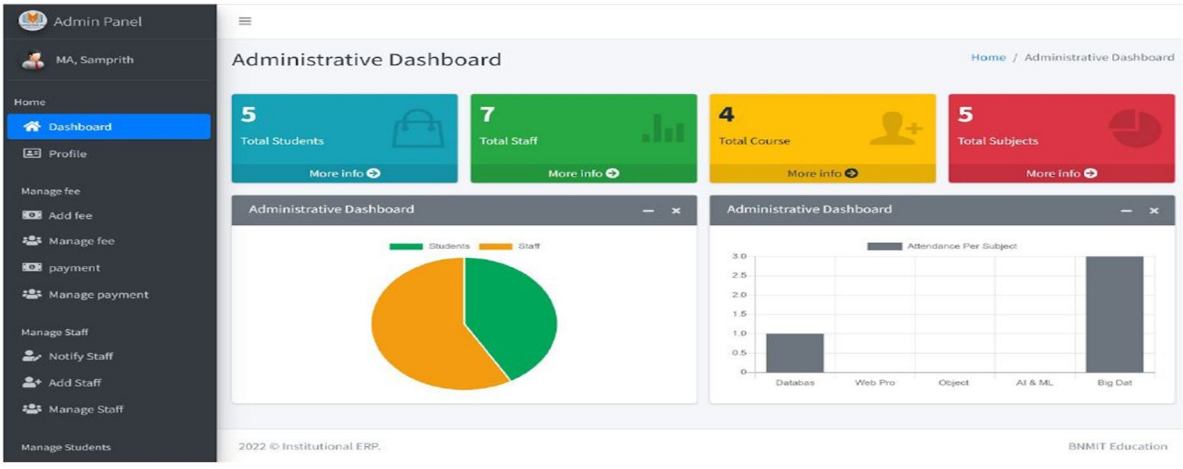

Fig 5. Admin Home Page

Fig 6. Student Home Page

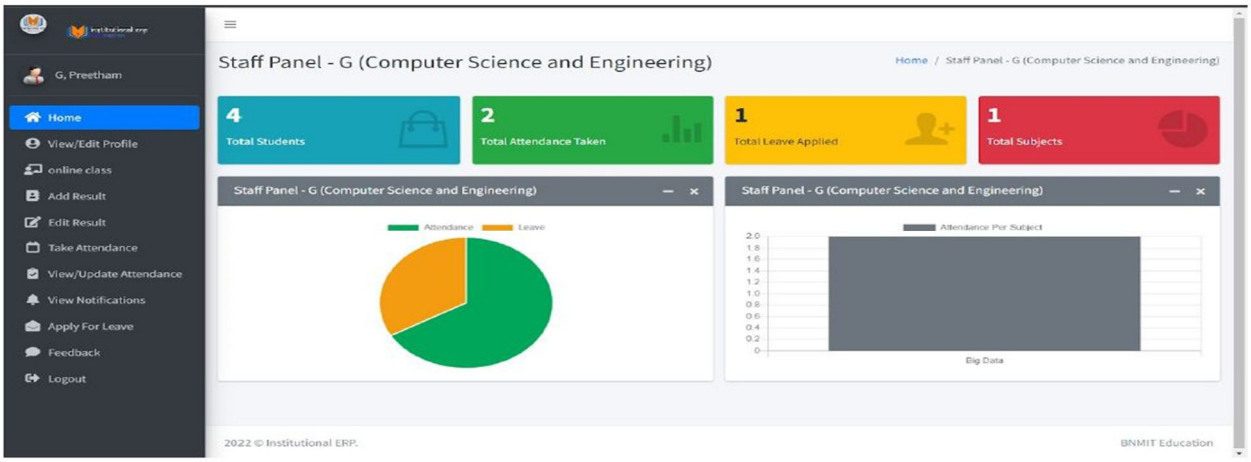

Fig 7. Staff Page

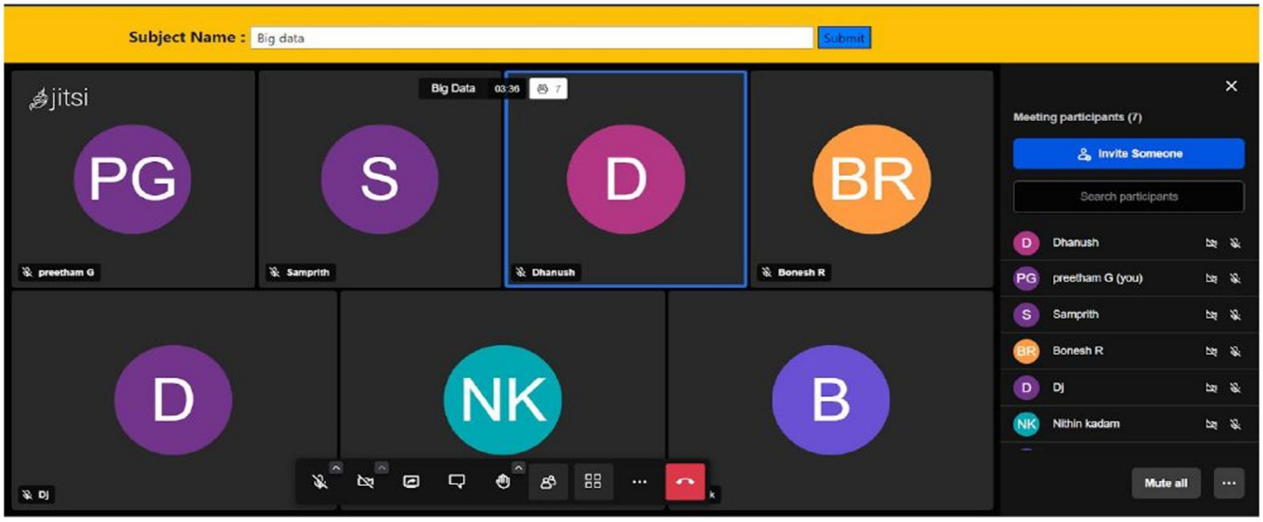

Fig 8. Online Class

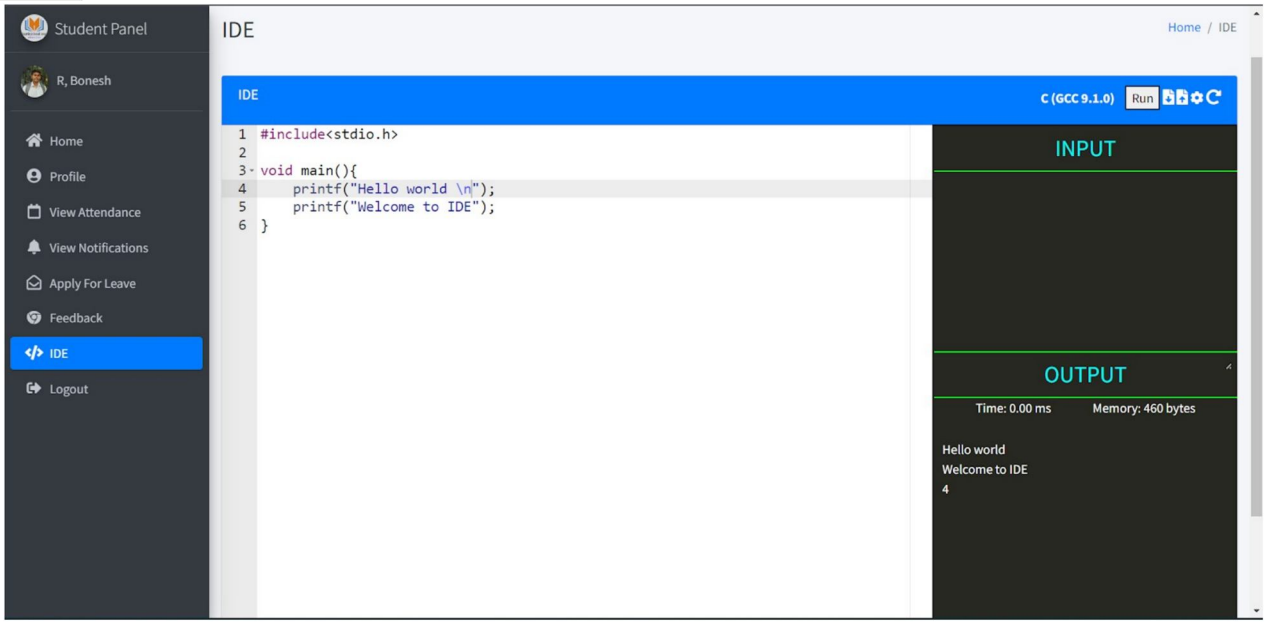

Fig 9. Coding IDE

V. CONCLUSION

The endeavour as A manual institution management system's issues are dealt with by an institutional ERP. With all the characteristics necessary for an institution, this project has been effectively implemented. The user is given all necessary information via the application. The project was created with the daily issues that a manual institution management system faces in mind. By utilising our ERP System, institutions can spend less time performing tasks manually and more time on other important tasks. The system is extensible for future improvement, highly interactive, and user-friendly. For the faculty and student development at any college, awareness and accurate information are crucial. Thus, this accomplishes the intended requirements of both groups in the proper way..

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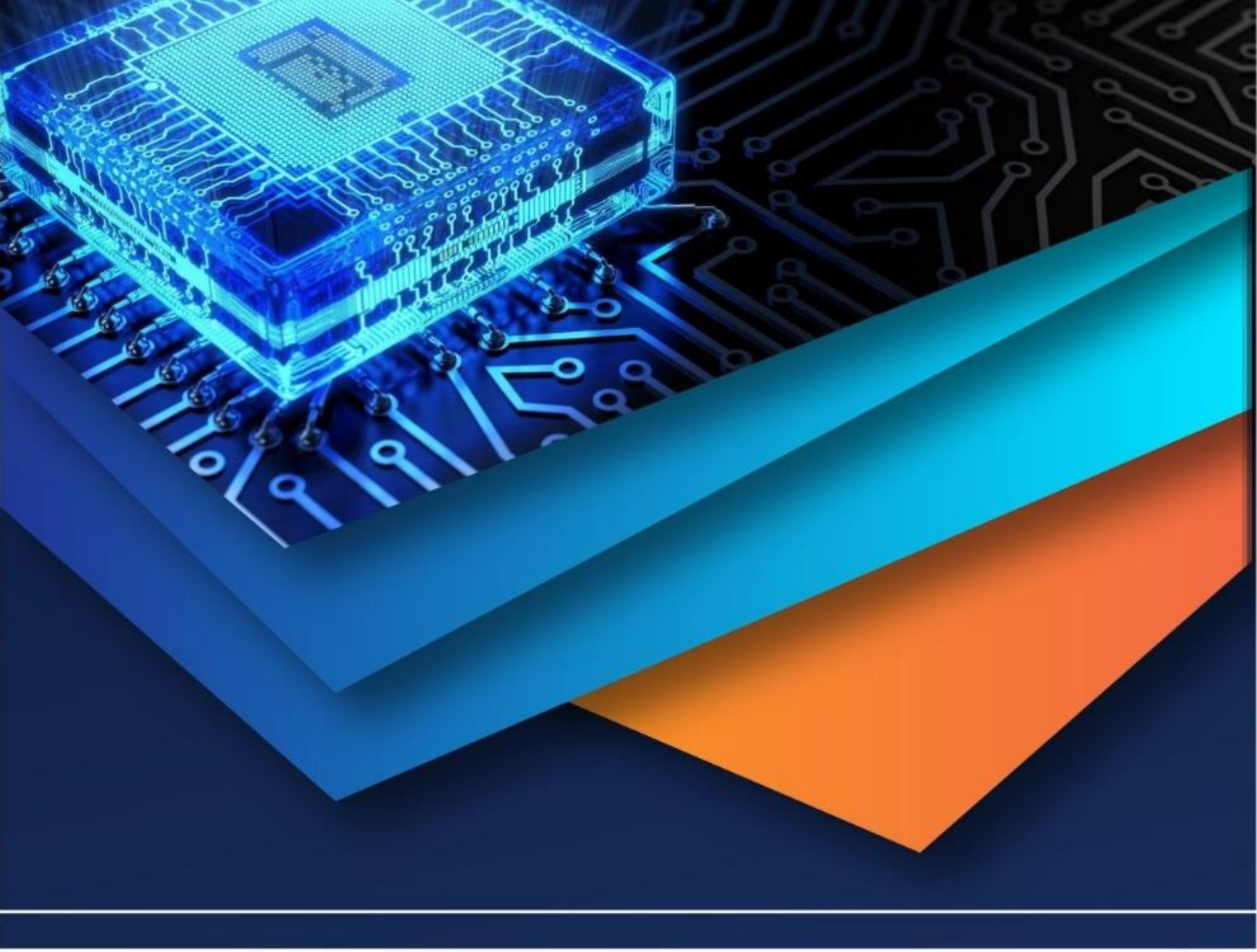

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