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Attendance System for Students of Government-Aided Schools

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Abstract: ***Every year, many students get admission to Government aided schools. As the number of students keeps on increasing, this also increases the paperwork generated for each of those students. One of those generated data is the attendance of the students. Hence, the management of this data becomes a huge issue. Current attendance management systems are manual, costly, and not quite environment-friendly. Thus, there is a grave necessity for a potent and low-cost attendance management system that can be used by not just one or two schools but all government-aided schools collectively. Hence, we have developed an Attendance System for Students of Government Aided Schools where students from all over the state can give their attendance for their respective schools and the teachers/principal can view/edit the attendance quite easily. Also, all the teachers/principals/students can analyze their attendance on a daily/weekly/monthly basis.***

Keywords: Attendance Analysis, Attendance Management System, Government Aided Schools, Database Management, Python Django.

I. INTRODUCTION

Attendance management is very crucial to each and every isolated organization; it can decide whether educational institutions and organizations containing public or private sectors may be successful in the upcoming future or not. Organizations should always keep a track of the individuals working within that particular organization, which includes employees working there and students studying in the institutions to maximize their overall performance. Managing the attendance of students during ongoing lectures is an important thing to do. It is a really difficult task to compute the attendance percentage as manual calculation of attendance may produce many errors and thus result in unnecessary waste of time.

Most of the academic organizations and institutions have a lot of students studying there. So, recording the attendance of an organization containing too many students is a time-consuming task. Moreover, this task requires a heavy amount of time, and too much effort is spent by the staff of that certain class to record the attendance of each student. Also, in many departments and academic institutions, the attendance of students is considered quite an important benchmark that is used for many different evaluations. This criterion mainly includes record-keeping of students, evaluation or assessment of students, and continuous promotion of possibly consistent attendance of students in the class. Most academic institutions and organizations have a policy that restricts the students to have a minimum amount of attendance set by the respective institutions. Also, they face the challenges of which methods to follow while taking attendance.

Most of the institutions use hardcopy papers to record the attendance of students and this is done manually. This results in many disadvantages which include not just wasting time and taking so much effort to make the sheets but also the sheets could get damaged or stolen in worst cases. The system that we have developed is an alternative to the current manual system as it is very easy to use, fast, and more reliable than manual systems, specifically after the development of IT in educational institutions. The developed system is a web app developed for the attendance of students on a daily basis of not just a single school, but all the Government schools in the State of Maharashtra.

II. LITERATURE REVIEW

Many attendance management systems are available with different functionality, dependencies, and limitations. Some of the attendance management systems are as:

O. Shoewu, et al [4] this paper consists of an attendance management system which makes use of a biometrics system. If a student wants to give his attendance, the student will have to place his/her finger over the attendance device and then the student's matriculation number which is unique for each student is sent to the database and the attendance of the student is marked. At the semester's end, automatic reports will be created that briefly show the percentage of attendance of students.

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The school needs to update the database of biometrics after a particular student gets into school. The institution is supposed to acquire the fingerprints of all students during their admission and add them manually to biometrics which is time-consuming.

Riya Lodhaa et al [5], this paper consists of an attendance management system that uses Bluetooth technology. Bluetooth will automatically connect the tag to the student's device. The application will then check whether the tag is registered in a database and then it checks the validity of the tag within the database. If it is valid, the system checks the subject and student name in the database and updates the attendance of students in the database, which means that the attendance of students will get updated subject-wise. If the tag of any of the students is not registered in the database system will get a notification that the tag is not registered.

Rakhi Joshi1 et al [6] System implemented in applications has various functions such as online study material, notices related to functions and holidays, academic calendar, and online attendance. This system helps staff to take attendance through a mobile device and keep track of the student's attendance. This system gives an alert to students through the app to the student when their attendance reaches the threshold value. The teacher also gets the if the attendance of any student goes below the threshold.

V. Somasundaram et al [7] This system's main objective is to access the student details and create reports. The system provides basic operations such as inserting, deleting, and updating data. If a student changes, their class administrator has to manually update the database. There is an analysis of attendance of students, class, and school.

III. METHODOLOGY

The system is a web app developed for the attendance of students from not just a single school but of all the Government schools in the State of Maharashtra. We have used the concept of multiple databases to store the attendance of each school. Each school will have a separate database and each school database will have its own users table and particular class table. All the users are given different functionalities based on their requirements.

A. Block Diagram

The Block diagram of the system is shown below:

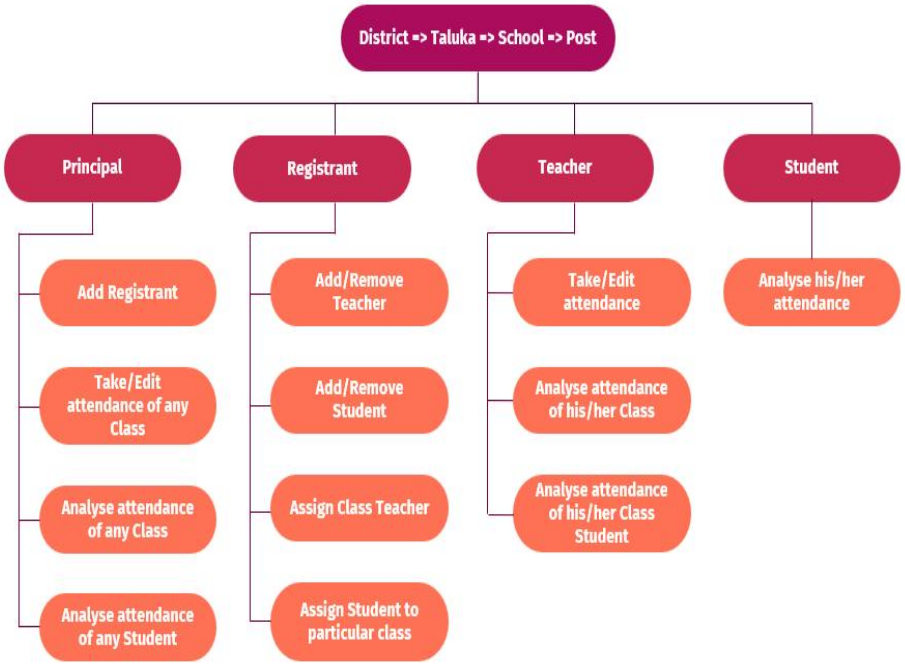

Fig. 1 - Block diagram showing the functionalities of each user in the system.

When the user navigates to the main page of our web app, he/she can see 4 options which are district, taluka, school, and post respectively. The user needs to select 1 of the 4 posts that are Principal, Registrant, Teacher, or Student. Each user is given different functionalities based on their requirements.

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B. Flowchart

1) Logging In To The System: After selecting the District, Taluka, School, and Post the user will have to enter the credentials i.e., User Id and Password. After entering the credentials, it will be checked whether they are present in the database of the user table of that certain school. If the credentials exist in the database, the user will successfully log in to the main page of the website. If they do not match any credentials, the user will be alerted and told to write the correct credentials.

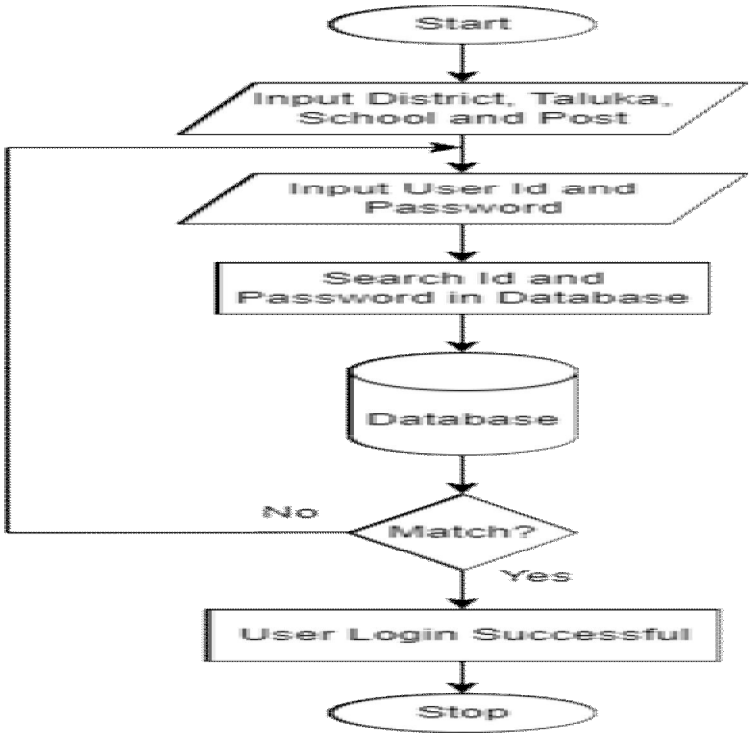

Fig. 2 - Flow chart showing the workflow during login onto the system.

2) Detailed Workflow of Each User In The System

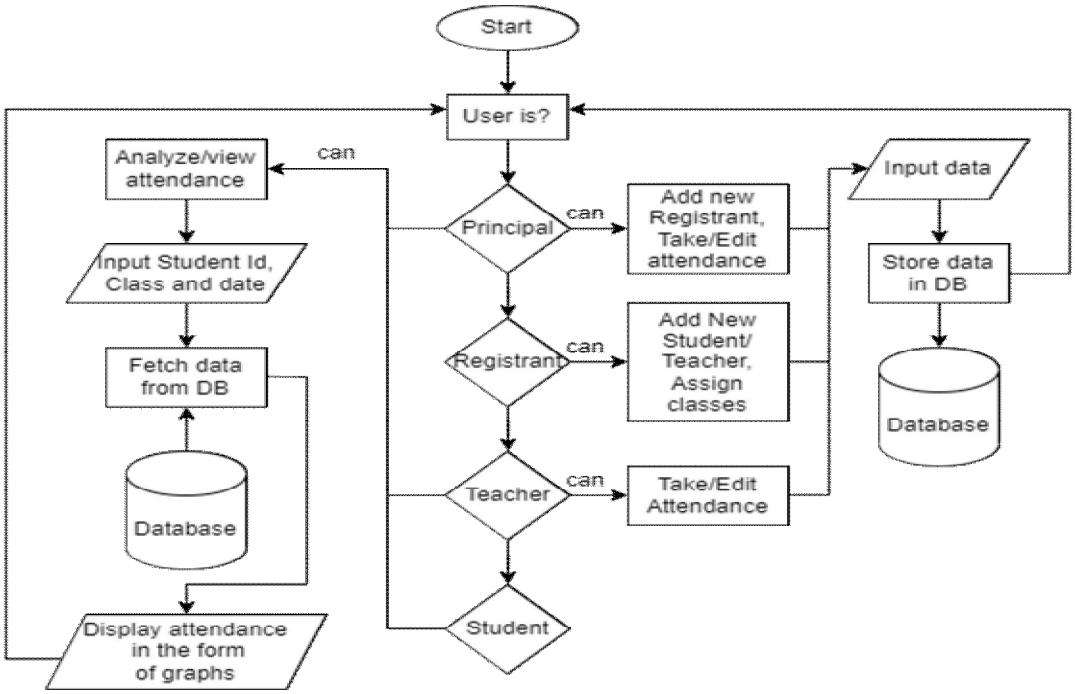

Fig. 3 - Flow chart showing the detailed workflow of each user in the system.

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Various privileges are given to all the different types of users. Principals have the highest authority as the principal can add the registrant, view/edit the attendance of any student from any class, and view/analyze the attendance of any student or any class. Registrants can add/remove students/teachers and assign class teachers to any class. Teachers can take/edit the attendance of students from their class and analyze it for students or class on a weekly/monthly basis. Students can also view the analysis of their own attendance.

C. Algorithm

Step 1: The user must choose which type of user he/she is (Principal, student, teacher, registrant) and then choose a district, taluka, or school.
Step 2: The user is provided with some options to perform operations on attendance.
if (Principal):
F1(Update Attendance)
F2(Delete Attendance)
F3(Take Attendance)
4(Analysis of Attendance)
F5(Add remove registrant)
else if(teacher):
F1(Update Attendance)
F2(Delete Attendance)
F3(Take Attendance)
F4(Analysis of Attendance)
else if(registrant):
F6(Add/remove -> teacher/students)
else if(student):
F5(View attendance)
Step 3: Logout(user).

IV. RESULTS AND DISCUSSIONS

A user-friendly web app is developed.
Some of the Web-pages are displayed below:

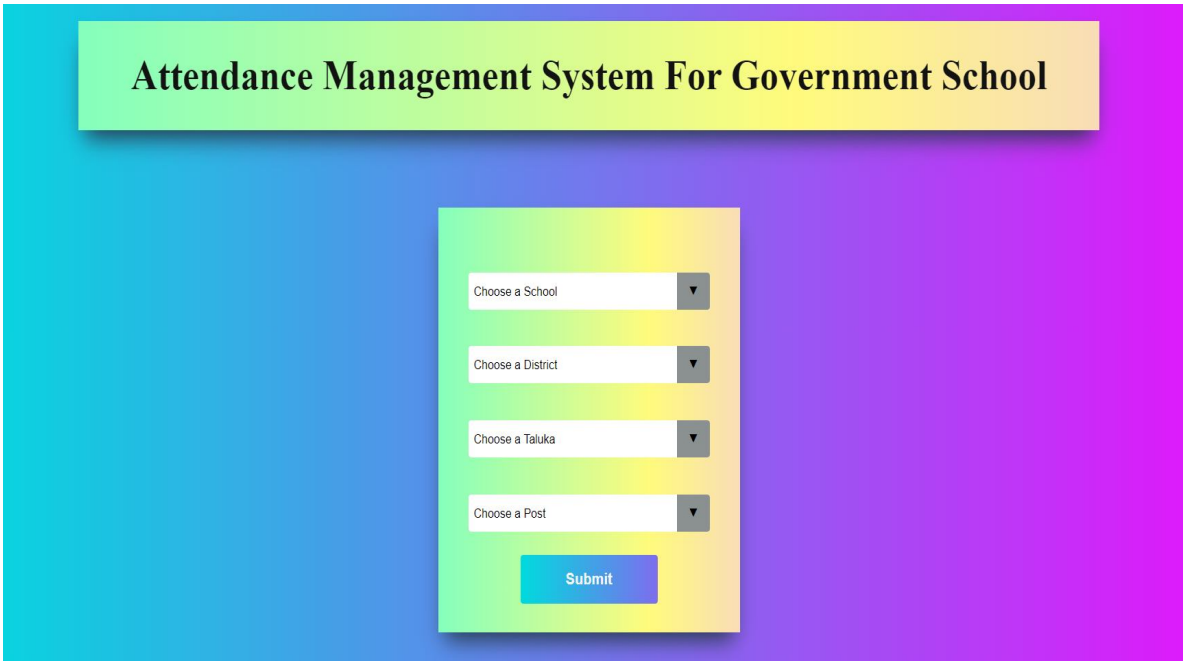

Fig. 4 - Image showing the front page of our web app

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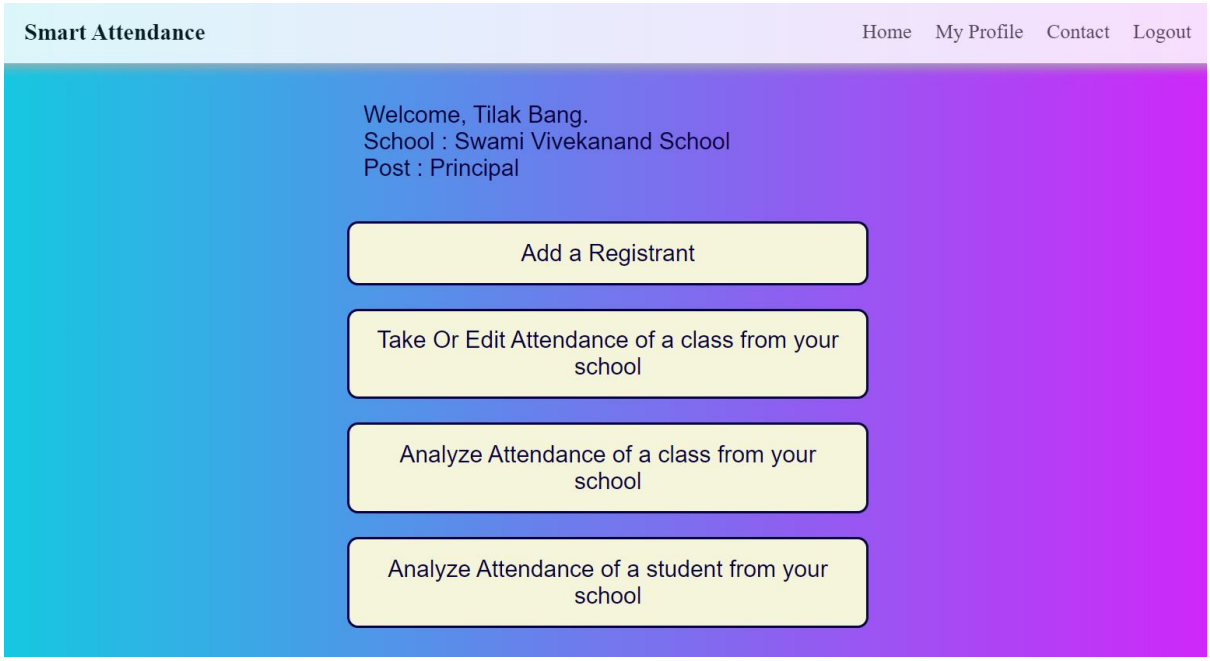

Fig. 5 - Image showing the user's page (here Principal) of our web app

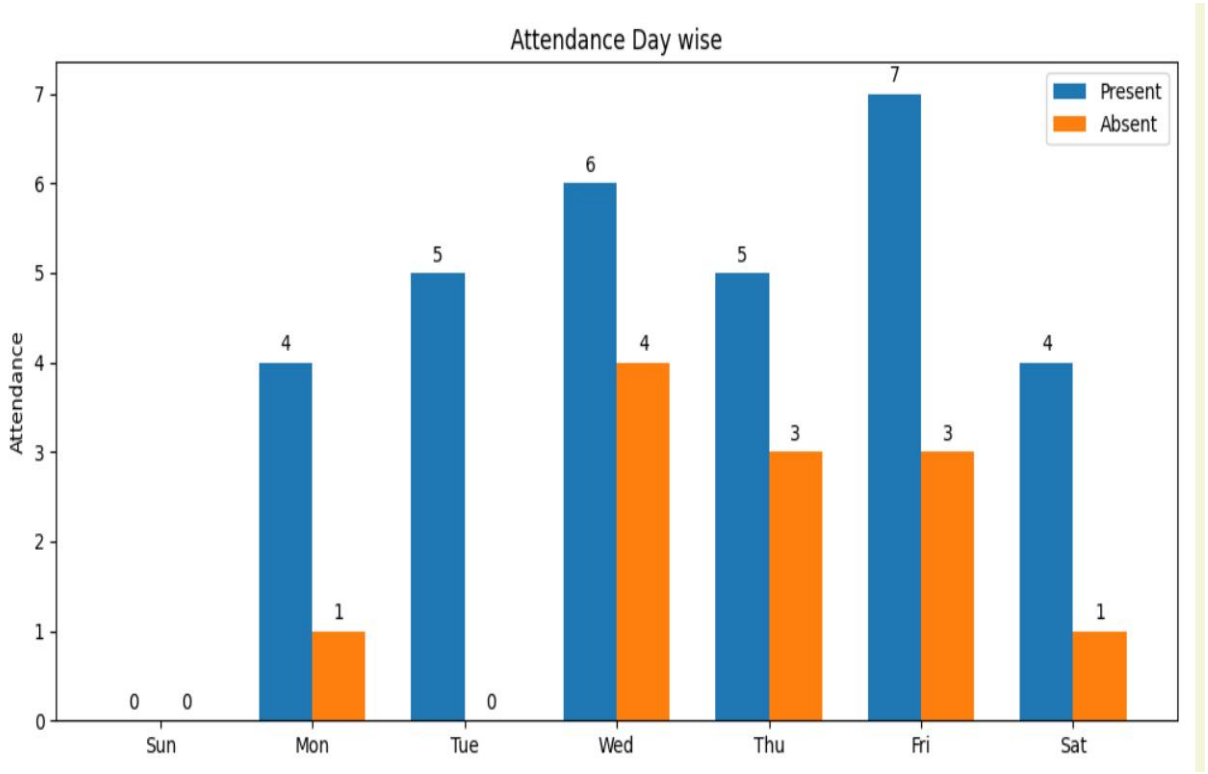

Fig. 6 - Image showing day-wise graphs of attendance of a class in our web app

V. LIMITATIONS

There are also some notable limitations of our system like: If the teacher is absent then only the principal can take attendance and no other teacher can take attendance instead of the absent teacher. If a new school is being added, the school must send its data of the principal to the administrator then the school gets added to the database, and then the principal can add a registrant and the registrant can add teachers and students. The student can only view his current year's attendance.

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VI. FUTURE SCOPE

In the future scope of the project, we can level up the project to the university level. We can also add different analysis charts other than bar graphs. Many components like lecture wise attendance can be added.

VII. CONCLUSION

The use of an Attendance System for Government Aided Schools will help in better management of attendance of the students and will also reduce the paperwork. The analysis will help to check the trends of each student's attendance.

VIII. ACKNOWLEDGMENT

The success and outcomes of this paper are a result of thoughtful guidance from many people. We are thankful to all the people who have helped us and guided us wherever we needed. Furthermore, we are grateful to the college for providing us with an opportunity to study this broad topic of "ATTENDANCE SYSTEM FOR STUDENTS OF GOVERNMENT AIDED SCHOOLS". It surely added to our knowledge and helped us get better insights into management systems.

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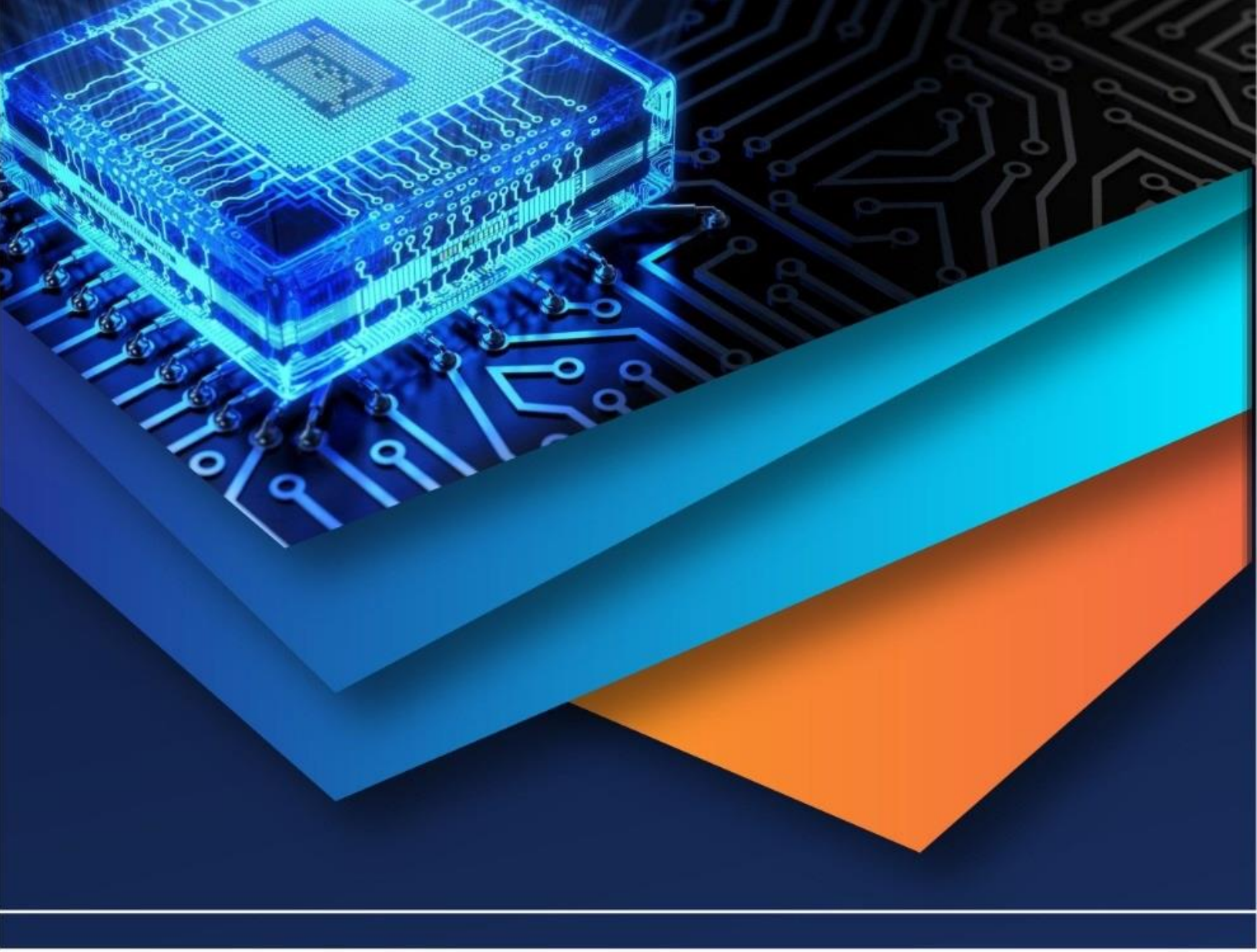

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