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Planning, Monitoring, Controlling and Reflecting Factors Associated with Online Learning Patterns of Students during COVID-19 Pandemic in the State of Goa

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Abstract: ***The Coronavirus outbreak which began in December 2019 became a world-wide pandemic by March 2020. In India there was a lockdown which started early April 2020. It had a huge impact on each and every aspect of human life disrupting the daily routines of every individual. The education industry had to adapt to this new change in a speedy and most feasible way by shifting to virtual classes over the internet and other available resources. We tried to survey the efforts required to learn online and the impact of online classes. We prepared a questionnaire and grouped it into 4 categories namely, planning, monitoring, controlling and reflecting. We have tried to understand the impact of this paradigm shift to virtual and online learning in these pandemic times from the students' perspective.***
Keywords: Pandemic, Online Learning, Planning, Monitoring, Controlling, Reflecting

I. INTRODUCTION

Coronavirus [1] outbreak across the World began in December 2019. It spread to the entire World very rapidly causing several cases of infections and deaths. On 15th March 2020, the Government of Goa [2] decided to close all the schools and colleges for students with immediate effect owing to the rapid spread of this virus. On 22nd March 2020, Our Honorable Prime Minister, Shri Narendra Modi declared the first lockdown which prohibited movement of all persons except for essential needs. This lockdown kept on extending for months together and the result was that the students could not continue their learning journey.

Taking appropriate measures, guidelines and standard operating procedures were laid down to begin teaching-learning through digital platforms. Many schools and colleges started taking lectures on platforms like Google meet, Zoom [3] (it was later discontinued owing to the privacy policy), Webex, etc. This was a paradigm shift for the entire Education Industry- the teachers, students, parents, and all other stakeholders.

There were many hiccups in the process such as issues related to internet connectivity, availability of the devices required (laptops, smartphones and tablets, etc.), training of the teachers and parents, students' training. Besides all this due to the non-tiring efforts of the teachers and the support and cooperation from other stakeholders, primarily the students and the parents, this model did manage to succeed.

The study is based on the age group of 12 to 21 year olds from different areas of Goa. The majority of respondents are from the college section with few school students responding to the same with the help of your parents/teachers. 53.8% of the responses are given by male candidates. The survey has also analysed the availability of internet enabled smart devices for attending lectures online. It can be clearly seen that 93.8% of the respondents are using smartphones for online learning. The responses have been received from different institutions spread across various Talukas of Goa. Maximum respondents are from rural areas where network connectivity is a major issue.

This study aims to see the non-functional issues with online learning. Children are used to a pattern of learning in classrooms with teachers and peers in a formal set-up. Going digital eliminates all the physical contact. This may confide the child to the home with only his smart device and the internet connectivity. More than anything else, this affects the mental health of the students. Through various statements in the survey, the patterns of planning, monitoring, controlling and reflecting are touched upon for self-retrospection of the students as well as a deep analysis by the surveyor of the overall patterns.

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A. *Terminology*

Planning refers to the skill of the students to organise and prepare for upcoming lectures in online mode and also for the preparation of class-work and submissions. The objective here was to understand whether the students make and follow a plan for studying online course material and classes.

Monitoring refers to the habits of the students regarding the progress of their plans. The objective here was to understand whether the students follow a plan for studying online course material and classes and monitor their progress.

Controlling refers to the habits of the students regarding how they are monitoring the progress of their plans and controlling their response to any deviations from the plan. It also analyses how much control the student has over the progress.

Reflecting refers to the habits of the students for analysing how they reflect upon their progress. This involves the reaction of the students to success and failure at examinations and assignments.

1) *Aims - hypothesis*

a) Does it require planning for attending online classes? Analysing time spent on planning for online classes and how the students are managing to achieve their goals through planning.

b) Importance of monitoring the progress of the plans and the impact it creates on the achievement of goals. Students successfully monitor their progress [4].

c) Controlling the deviation from plans. Analysing the reasons behind such deviations and measures used to control the same. Factors responsible for difficulty in adhering to plans. Students mostly fail to adhere to plans.

d) Importance and impact of reflecting upon the performance to improvise. Reflecting upon past performance helps to improvise.

II. RESEARCH METHOD

To collect data on students' learning curve during COVID [5], a survey was conducted via online Google forms that were sent to students in Goa, belonging to different classes.

The survey consisted of questions for which options were provided to answer. The students had to choose the best option that is true to them.

This way, by circulating the survey from 30th September 2020 to 10th October 2020, we received responses from different parts of the nation. After examining the data, we selected around 655 records keeping in mind to get a wide variety of responses.

This paper aims to depict how effective is the online education system in providing the confidence about learning to students of different backgrounds and financial status, and how well the society (family and friends) is accepting the new normal and encouraging students in this pandemic.

For this purpose, a total of 20 questions were added to the survey asking about the students' social and economic elements around them. It covered the type of education they are a part of, their parents' job, the confidence level of the students in learning from home, support from their parents, teachers, and peers for learning sitting at home, the quality of learning resources they are provided with and other socio-economical stuff related to students learning. With the received data, the analysis was done to understand how these factors are affecting students learning in the covid pandemic.

A. *Study 1*

The initial study included survey reports from various school and college students from all over Goa. The Indian schooling system comprises a total of 12 years of education out of which classes 1 through 5 fall under the primary category, grades 6 through 8 are considered secondary classes, and the rest 9 through 12 come under the senior secondary category. We circulated the Google form across various students that came from different schools, states, backgrounds, etc.

Students were catechized on their socio-economic aspects that influences their education and overall learning progress. The form was circulated to students belonging to grades 5 through 12 considering 5-8 as one group and 9-12 as another and college/university students that were either in their first, second, third, or fourth year.

The questionnaire contained questions regarding their institute type, the kind of influence they have from their parents, teachers, and friends, their parents' profession, family support, etc.

The study concentrated on finding out the relationship between the above-mentioned parameters with their learning progress and determining a 95% confidence interval for the student population in Goa using a sample population of 632 students' opinions. The data consisted of 363 reviews submitted by male students and 269 reviews were submitted by female students.

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B. Study 2

Study 2 is based on the analysis done for finding the students' learning curve in the COVID pandemic. For this analysis, the data was acquired by surveying via Google forms. The participants (students) were made to select the best one out of the given options that suit their learning in the pandemic. Collecting the chosen option from them as data, scrutiny was done effortlessly to find the socioeconomic elements that are affecting students in the pandemic. To determine the learning progress of the students, factors like family support, peer influence, teacher influence, number of siblings, institute type, the gender of the students, and other socio-economic stuff were considered to have effective research on them.

The paper aims to depict the students' learning curve in the pandemic. The study for this was done on different parameters that are affecting the learning progress of the students. All the data pertaining to socio-economic factors were considered and the analysis was done in comparison to the students learning growth to obtain the curve. The study for all the aims mentioned in the hypothesis was carried out and the effective graph was procured. The acquired graph was then analysed to know the students state and the problem faced by them in this pandemic. For example, a student institute type versus learning progress graph was drawn to understand how their institute type is affecting their learning from home during COVID. The effect of online education on the students and the support level received by them from their family, peers, and teachers for learning sitting at home could be determined by the analysis done. Understanding these factors and their effect on the students' education and growth becomes a dominant feature to be considered as they directly relate to the country's economic status.

C. Data Analysis

As per the study 1, initially, the mean values and standard deviations were calculated. For the appraisal of grade and gender difference analysis, the variance was applied. The confidence interval was calculated for about 95% to get the similarity for the collected dataset to the nationwide student population.

According to the given hypothesis, the relationship between the various factors affecting the students is calculated to understand how they have affected the students' growth in learning. The data was procured as a categorical one (options chosen by students). Hence, we could encode all of these for better and trouble-free investigation. Graphs were developed of different kinds for each relationship check using the seaborne python package. Keeping this graph as a reference, the conclusion was drawn for various factors and how it is affecting the learning of the students during COVID which happens to be the main study of this paper. The type of education of the students relates to their learning progress and this happens to be one important factor that can affect the learning. Hence, the relationship graph for this was constructed to show how it has impacted the learning in the pandemic. Likewise, a parent's job and learning progress relationship graph was assembled to understand how the parents' job plays a role in the students' learning and how it has affected the learning in the COVID era. Consequently, we analysed each of the factors and determined how it has left an impact on the students as the education system is running on the online mode which is not easily adaptable. Correlation between the socio-economic factors and students' education was built to give a clearer understanding of the study.

III. RESULTS AND ANALYSIS

The students were given a multiple choice grid where various statements were provided with five different choices (only one of these could be selected for each statement). The choices for all the statements were Strongly Agree, Agree, Neutral, Disagree and Strongly Disagree. The statements were divided into four broad categories namely Planning Criteria, Monitoring Criteria, Controlling Criteria and Reflecting Criteria.

A. Planning Criteria

Under this criteria, five statements related to the planning habits of the students were given to the students for analysing the planning skills and patterns. The objective here was to understand whether the students make and follow a plan for studying online course material and classes. From the below graph we can see that most of the students have a plan which they implement. Very few students are unaware of the topics that will be covered during the next lecture. Only 12% of students do not make a study plan for upcoming lectures. Most of the students read and prepare for upcoming lectures, only 16% of the students do not prepare for upcoming lectures. We can see that 86% of the students can estimate the time required to complete the homework while the others fail to do so. The last statement however attracts a mixed and balance response. The statement itself is negative where we are trying to find out if the students are having trouble in making plans to reach their goals. We can see that the responses are balanced on either side, however 66% students are able to stick to their plans while others are struggling with reaching their goals.

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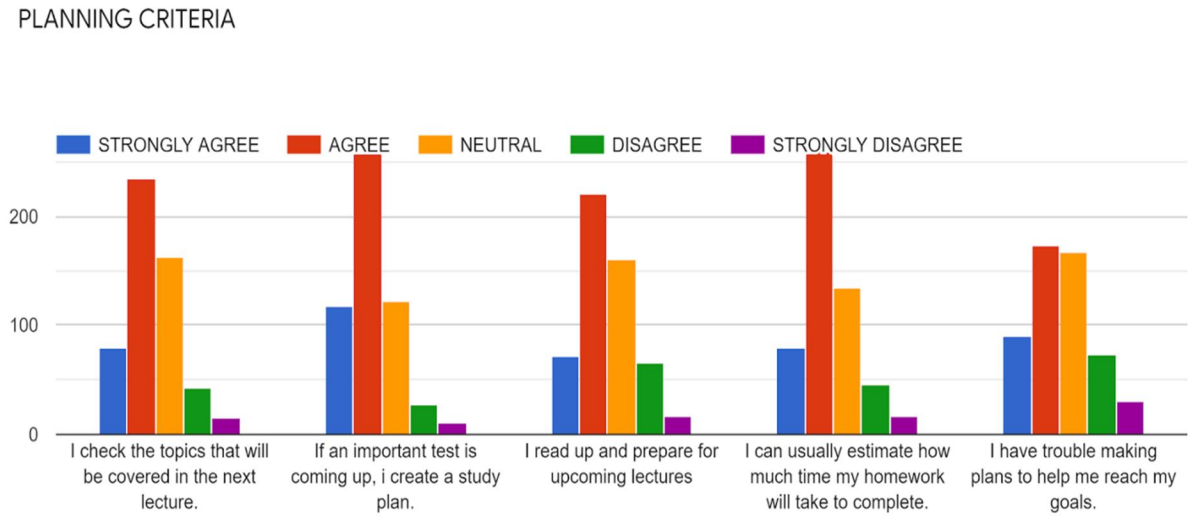
The overall analysis shows that the students have to plan for online classes and they are managing to achieve their goals through planning.

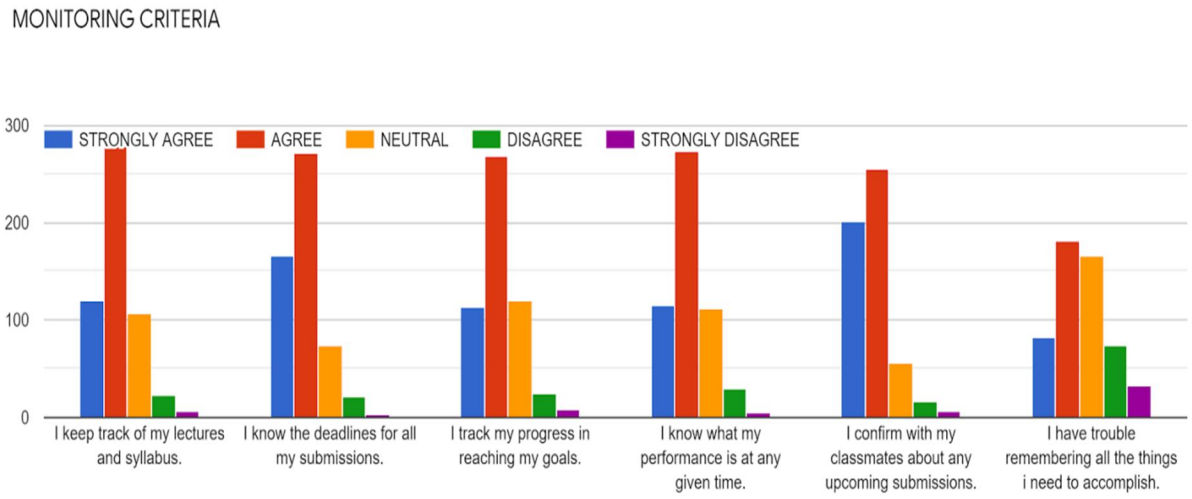


B. Monitoring Criteria

Under this criteria, six statements related to the monitoring habits of the students were given to the students for analysing how they are monitoring the progress of their plans. The objective here was to understand whether the students follow a plan for studying online course material and classes and monitor their progress.

From the below graph we can see that most of the students keep track of their lectures and syllabus. Only 6% students don't keep track of their lectures and syllabus. We can see that more than 90% students are aware of the deadlines for their submissions. Since most of the students have a plan which they implement, they track their progress in reaching their goals. This also helps more than 93% students to know their progress at any given time. Since everything is in digital format, most of the things are shared through online platforms by the lecturers and the students. This makes it easier to keep track of one's progress. Yet, the majority of the students confirm the upcoming submissions from their classmates. There are many (around 15%) who still have issues in remembering all the submissions.

The overall analysis shows that the students are monitoring their plans and most of them are successful in sticking to their plans and tracking the progress.



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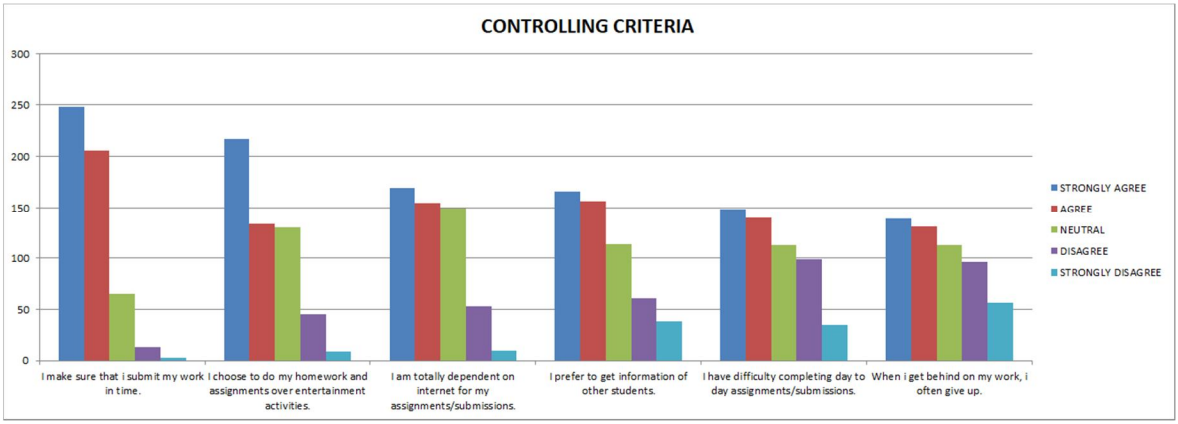
C. Controlling Criteria

Under this criteria, six statements related to the controlling habits of the students were given to the students for analysing how they are monitoring the progress of their plans and controlling their response to any deviations from the plan. It also analyses how much control the student has over the progress.

From the below graph we can see that most of the students make sure that they submit their work in time. Only 6% students don't manage to do so. We can see that more than 80% students are giving priority to class work and homework over entertainment activities. Majority of the students agree and admit that they are dependent upon google for their assignments and submissions. There is a large number of students (20%) that do not bother about the data pertaining to other students and bother about their own work and progress. Due to the stress caused by online classes, network issues and other technical problems, several students are facing difficulty in submitting their work in time, and completing it on a daily basis. Many students (40%) have agreed that if they fall behind the deadlines, they usually give up on the work assigned.

The overall analysis shows that students are having difficulty in coping with the submissions and assignments.

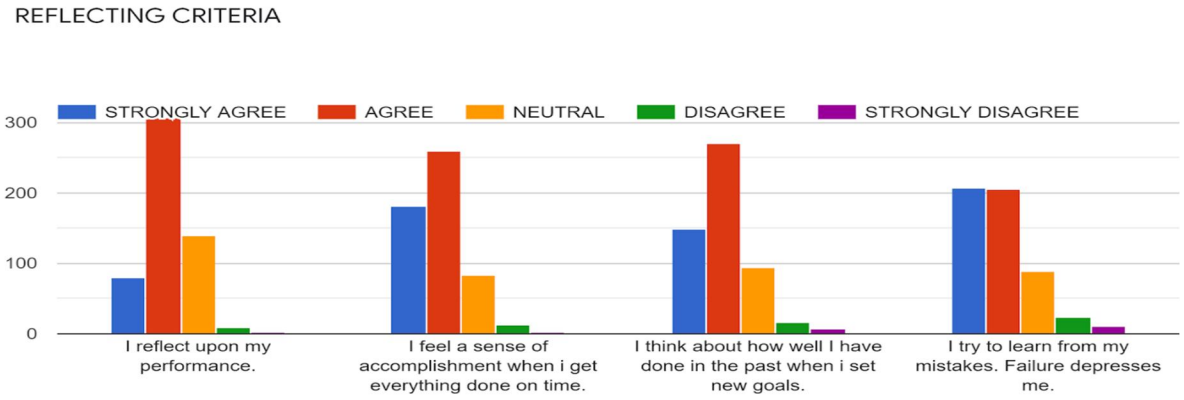


D. Reflecting Criteria

Under this criteria, four statements related to the reflecting habits of the students were given to the students for analysing how they reflect upon their progress.

From the below graph we can see that most of the students reflect upon their performance. Only 3% of students do not do so. It is a motivation factor for students to accomplish a given task in time. More than 95% of the students feel a sense of accomplishment when they complete a task on time. We can also see that many students set future goals based on past performance analysis. The last point is a mixture of positive and negative emotions. Here we have tried to understand the psychology of the student, whether the student feels depressed when they face failure. It also asks whether the students are trying to learn from their mistakes.it is essential for students to acknowledge their mistakes and learn from them.

The overall analysis shows that students are reflecting upon their performance and learning from their past experiences. It also shows that an analysis of the past performance helps to set future goals.



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IV. CONCLUSION

From the above analysis, we can conclude that online education requires a lot of planning, monitoring, controlling and reflecting on a daily basis. The students are mentally accommodating the changes and adapting to the new education environment which is virtual and completely online. We can see that the results are positive and encouraging. The student community is making efforts to adapt to this paradigm shift and most of them are happily shifting to the new normal in the pandemic times. However, a significant number of students have failed to adapt to the same due to limited resources and lack of self-motivation.

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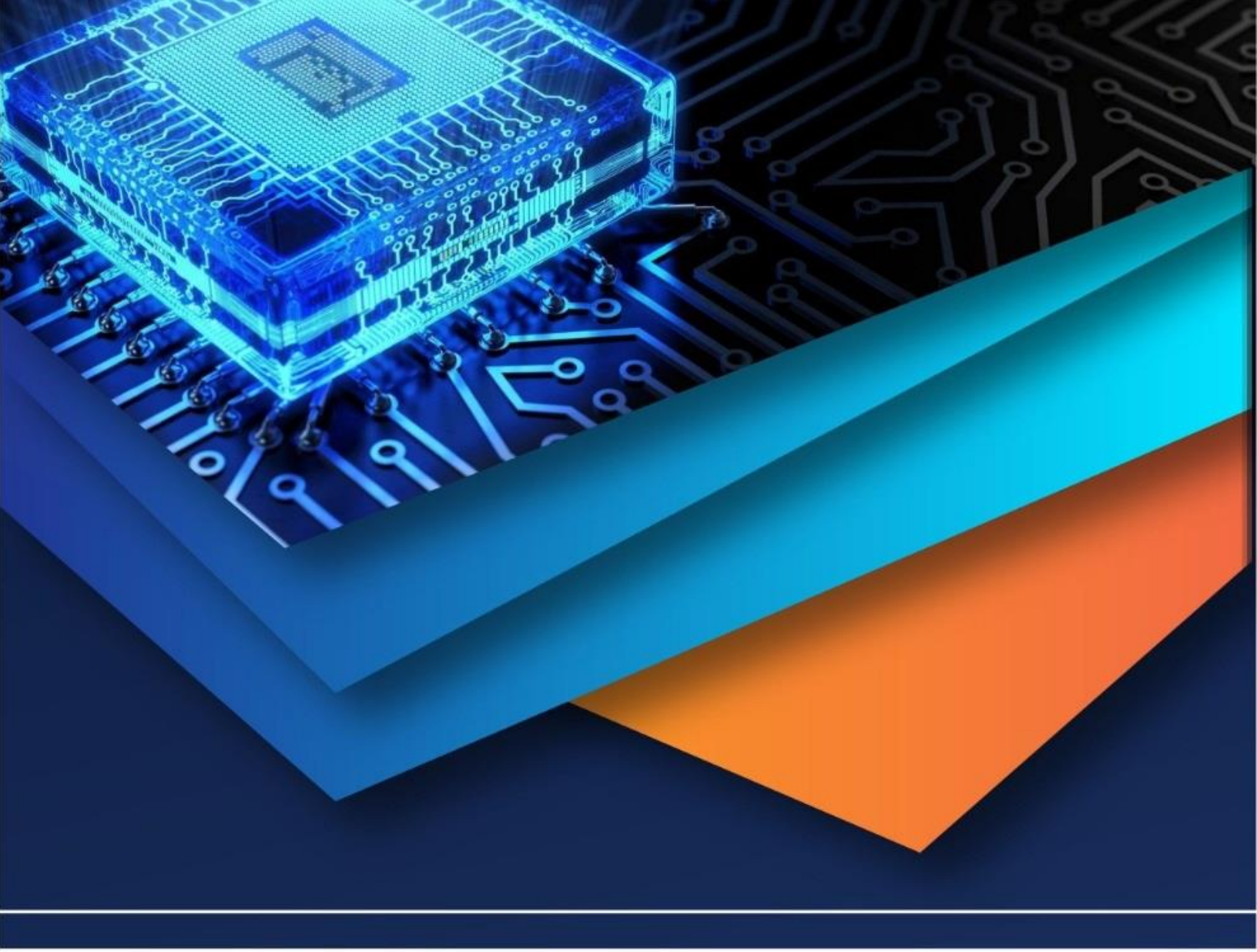

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