



ANALYSIS OF SOCIAL MEDIA IMPACT ON STUDENT ACADEMIC PERFORMANCE

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Abstract: Social media is now a common part of student life. Students use social media for communication, entertainment, news, and study-related activities. However, too much use of social media may affect students' study time, sleep, concentration, and academic performance. This research studies the impact of social media use on academic performance of students. Data was collected from students using a Google Form. The collected data was cleaned and analyzed using data analysis and machine learning techniques. Logistic Regression, Decision Tree, and Random Forest models were used to study and predict academic performance. The model results showed that Logistic Regression and Decision Tree achieved 47.62% accuracy, while Random Forest achieved 42.86% accuracy. The study also analyzed social media usage time, late-night social media use, distraction while studying, sleep hours, and academic performance. The findings help to understand how different social media habits are related to students' academic performance.

Keywords: Social Media, Academic Performance, Students, Machine Learning, Data Analysis.

1. INTRODUCTION

Social media is a part of student life today. Many students use social media every day. They use Instagram, YouTube, and other social media apps for entertainment, communication, and information.

Social media can be useful for students. But using social media too much can affect study time and concentration. Using social media at night can also affect sleep. This may affect the academic performance of students.

This research is about the effect of social media on student academic performance. In this study, we look at social media time, late-night use, distraction during study, sleep hours, and study hours.

For this research, data was collected from students using Google Forms. The data was cleaned and analyzed. Machine learning models like Logistic Regression, Decision Tree, and Random Forest were used.

The main aim of this research is to understand the relation between social media use and student academic performance.

2. PROBLEM STATEMENT

Students use social media every day. Some students spend many hours on social media. This can reduce their study time and concentration. Using social media late at night can also affect sleep.

It is important to understand whether social media habits have any relation with student academic performance. Therefore, this research studies different social media habits and their effect on academic performance of students.

3. OBJECTIVES

The main objectives of this research are:

1. To study the daily use of social media by students.
2. To study the relation between social media use and academic performance.
3. To understand whether social media affects students' study time and concentration.
4. To study the effect of late-night social media use on students.
5. To use machine learning models to study academic performance.
6. To find important factors related to academic performance.



4. LITERATURE REVIEW

Sr. No.	Author & Year	Research Topic	Main Finding
1	Bhandarkar et al. (2021)	Impact of social media on academic performance of undergraduate medical students	The study looked at social media use and students' academic performance.
2	Deepa, Sujatha & Baber (2022)	Academic distraction and academic performance	The study found a relation between social media use, academic distraction, and student performance.
3	Ashraf et al. (2021)	Social media use and students' academic performance	The study showed that social media can also support learning when it is used in a useful way.
4	Aiyende & Omojola (2021)	Influence of social media on academic performance	The study examined how social media platforms influence university students' academic performance
5	Salari et al. (2025)	Social networking addiction and academic achievement	The study found a negative relationship between social networking addiction and students' academic performance.
6	Pyhäntö et al. (2025)	Social media, smartphone use and academic achievement	The review found that off-task social media and smartphone use was mostly related to lower academic achievement.

5. RESEARCH GAP

Previous studies have studied the use of social media and its effect on students. Many studies focused mainly on the time spent on social media.

In this research, we consider more factors such as late-night social media use, social media distraction, sleep hours, and study hours. We also use machine learning models to study academic performance.

Therefore, this research tries to study different social media habits together and understand their relationship with academic performance.

6. METHODOLOGY

This research was conducted to study the impact of social media usage on the academic performance of students. The study used a quantitative research method.

The data was collected from 103 students using a structured questionnaire through Google Forms. Students from different years of study were included in the survey. The collected information was based on their social media usage, study habits, sleep hours, and academic performance.

- The questionnaire included questions related to:
- Year of Study
- Gender
- Most Used Social Media Platform
- Daily Time Spent on Social Media
- Purpose of Using Social Media
- Late-night Social Media Usage



- Daily Study Hours
- Average Sleep Hours
- Social Media Distraction while Studying
- Last Semester Academic Performance

After collecting the responses, the data was checked and cleaned to remove incorrect and inconsistent entries. The responses were then organized in a suitable format for further study.

The academic performance of students was considered the main outcome of the research. Based on the collected responses, students were grouped into Average, Good, and Excellent performance categories.

The study used the collected data to understand whether social media usage and related factors have an effect on students' academic performance. The research process included data collection, data cleaning, organization of data, and preparation of data for further analysis.

7. DATA COLLECTION

This research mainly uses Primary Data because the data was directly collected from students through Google Form.

Secondary Data was also used for studying previous research papers related to social media and academic performance. It was mainly used for literature review.

Primary Data: Data collected from 103 students through Google Form. Secondary Data: Previous research papers and studies.

8. DATA ANALYSIS

The collected data was analyzed to understand the effect of social media on students.

Different graphs were created using Power BI. The graphs show the relation between social media use and academic performance.

The study looked at social media use at night, social media distraction during study, sleep hours, and academic performance.

The graphs help us understand the data in an easy way. They show that social media habits are related to the study habits and academic performance of students.

The Power BI dashboard was used to present the results in a simple and clear way.

9. MACHINE LEARNING MODELS

The machine learning-based classification approach was used in this research to study students' academic performance.

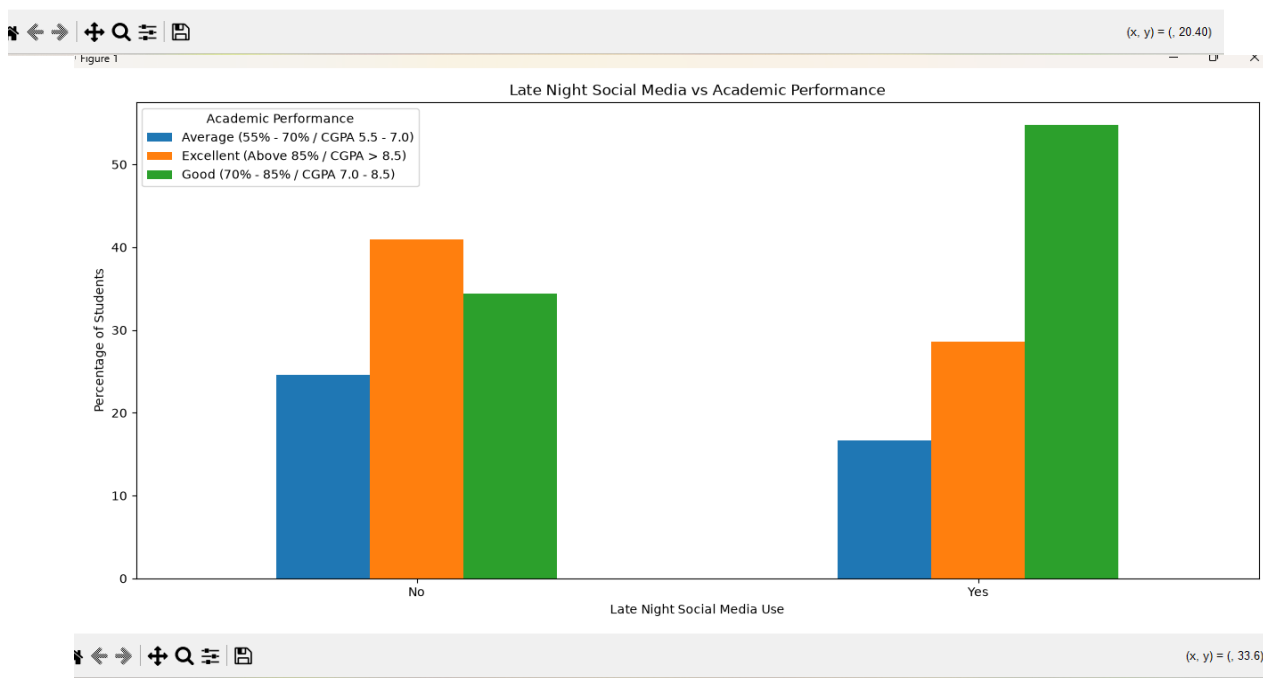
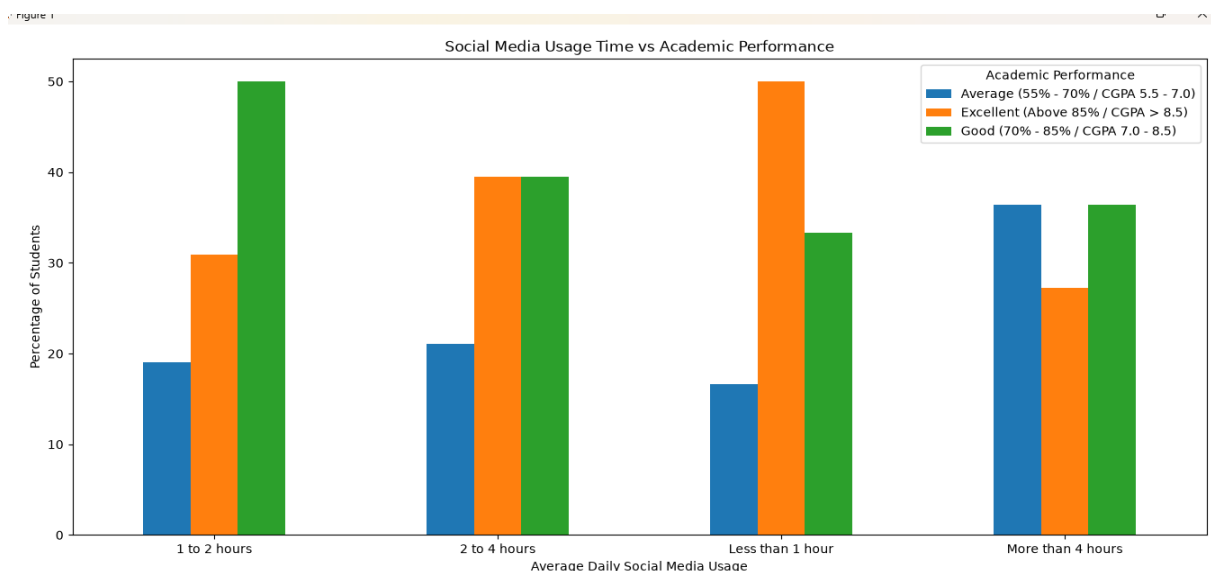
Different classification techniques were used to analyze the data and predict academic performance of students. The models were based on linear classification, kernel-based classification, tree-based classification, and ensemble learning techniques. The input factors included social media usage, study hours, sleep hours, late-night social media use, and social media distraction.

The students were classified into three categories: Average, Good, and Excellent.

The models were evaluated using accuracy, confusion matrix, and cross-validation to check their performance.



10. RESULTS AND DISCUSSION



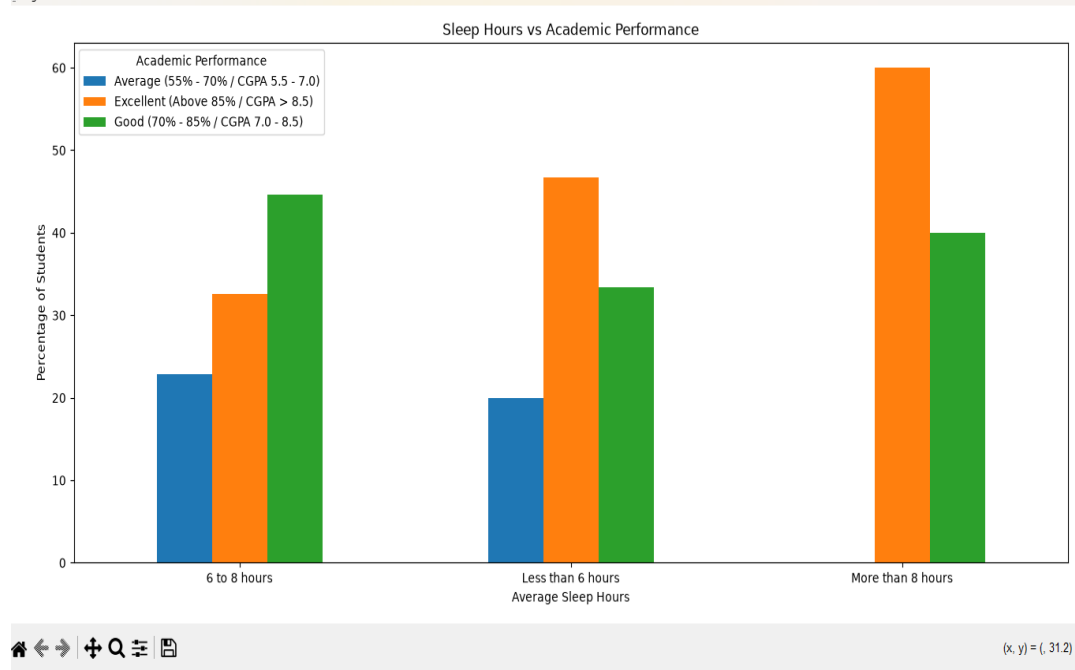
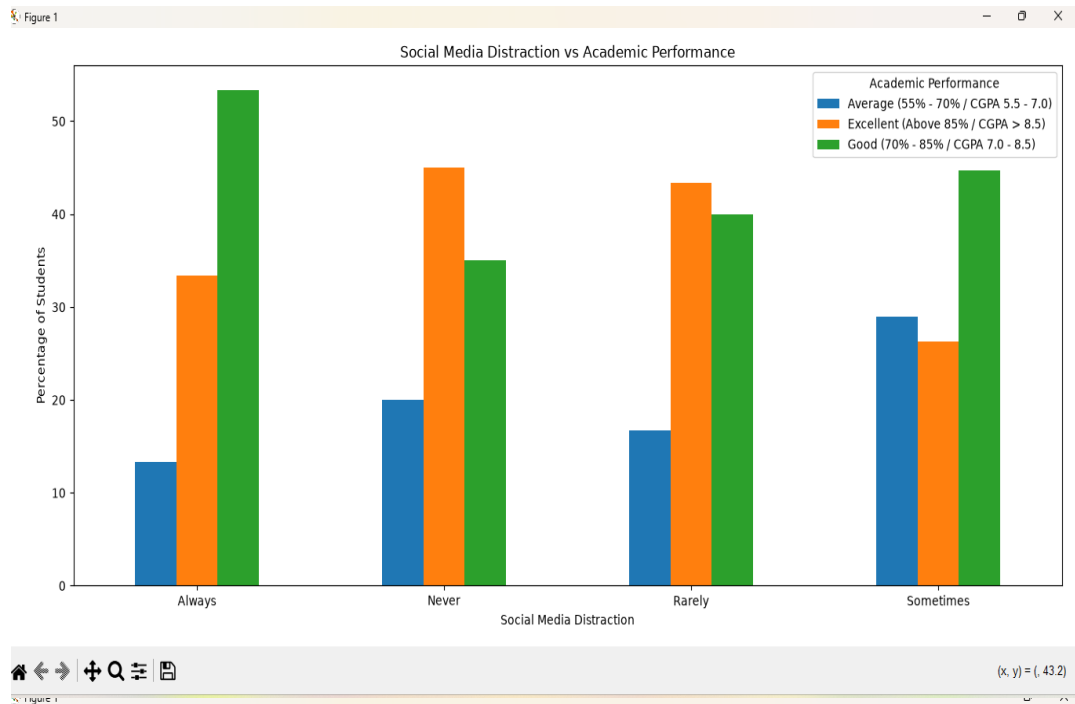




Figure 4: Power BI Analysis





Figure 2: Machine Learning Model Accuracy

Model	Accuracy
Linear Classification Model	80.48%
Tree based classification Model	82.38%
Ensemble Learning Model	82.62%

11. CONCLUSION

This research studied the effect of social media on students' academic performance. Data was collected from 103 students using a Google Form. Different factors like social media use, study hours, sleep hours, and distraction were studied.

Machine learning was also used to understand students' academic performance.

Overall, the study shows that social media use can affect students' study habits and academic performance. Students should use social media in a proper way and give enough time to their studies and sleep.

12. LIMITATIONS AND FUTURE SCOPE

Limitations

This research has some limitations. The data was collected from a limited number of students. The answers were based on students' own responses. The accuracy of machine learning models was also limited.

Future Scope

In the future, more student data can be collected. More factors can be added to the research. More machine learning models can also be used to get better results. This research can help in understanding students' social media habits and academic performance.

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