Case Study: The Impact of Social Media on Students' Academic Performance.

INTRODUCTION:

In recent years, social media has become a major part of daily life. One of the most frequently asked questions is whether students are affected by social media use or not. Today, many students spend a large amount of time on social media platforms such as Instagram, TikTok, Snapchat, and Facebook, which offer entertainment and communication. However, excessive use has raised concerns about addiction, reduced academic focus, disrupted sleep patterns, and declining mental health.

This case study investigates **whether** social media addiction affects university students and **how,** by analyzing a dataset containing key behavioral, social, and academic variables. The dataset includes indicators such as daily usage hours, sleep duration, mental health scores, relationship conflicts, and the impact on academic performance.

By applying a structured, research-based approach **Ask, Prepare, Process, Analyze, Share, Act.** This study aims to identify meaningful patterns and provide evidence-based recommendations. Ultimately, we seek to answer the key question:

Does social media usage significantly affect students' academic performance?

ASK:
The problem we want to solve.

Ask
Key Questions 1. Are students spending excessive hours on social media platforms? 2. Does high daily usage correlate with poor academic performance? 3. Does social media addiction contribute to a decline in mental health? 4. Do sleep disturbances and relationship conflicts occur due to social media use? 5. Which platforms are most addictive among students?

Problem Statement:

Students today are increasingly dependent on social media platforms like Instagram, TikTok, and Facebook, integrating them into their daily routines for communication, entertainment, and social interaction. While social media offers benefits, excessive usage can negatively affect academic performance, mental health, and lifestyle habits. Overuse may disrupt sleep patterns, increase stress, reduce concentration, and limit time for studies and personal responsibilities. Psychologically, it can heighten emotional reactivity, contribute to interpersonal conflicts, and foster reliance on digital interactions over real-life engagement. This study aims to explore whether social media addiction significantly contributes to academic decline and to examine how behavioral, psychological, and lifestyle factors collectively influence students' well-being and educational outcomes.

PREPARE:

Collect, understand, and organize the dataset.

Prepare
Dataset Collection: Collect the dataset from Kaggle (source link: https://www.kaggle.com/datasets/adilshamim8/social-media-addiction-vs-relationships)
Dataset Columns & Their Purpose: ● **Avg_Daily_Usage_Hours:** Measures time spent on social media (important for estimating addiction levels). ● **Affects_Academic_Performance:** Indicates whether social media impacts academic performance (Yes/No). ● **Addicted_Score:** Shows how addicted students are based on multiple factors. ● **Sleep_Hours_Per_Night:** Helps examine sleep disturbances due to late-night usage. ● **Mental_Health_Score:** Identifies stress, anxiety, or depression related to online activity. ● **Conflicts_Over_Social_Media:** Shows real-life problems caused by digital behavior. ● **Most_Used_Platform:** Helps identify which platform is most problematic.
Scope & Coverage ● **Population:** Students aged 18–24 enrolled in high school, undergraduate, or graduate programs. ● **Geography:** Multi-country coverage (e.g., Bangladesh, India, USA, UK, Canada, Australia, Germany, Brazil, Japan, South Korea). ● **Timeframe:** Data collected through a one-time online survey administered in Q1 2025. ● **Volume:** Sample size may vary (e.g., 100, 500, or 1,000 records) based on research requirements. **Data Collection & Methodology** 1. **Survey Design:** Questions adapted from validated scales on social media addiction (e.g., Bergen Social Media Addiction Scale) and relationship conflict indices. 2. **Recruitment:** Participants recruited through university mailing lists and social-media platforms, ensuring diversity in academic level and country. 3. **Data Quality Controls:** ● **Validation:** Mandatory fields and range checks (e.g., usage hours between 0–24). ● **De-duplication:** Removal of duplicate entries via unique Student_ID checks. ● **Anonymization:** No personally identifiable information collected. **Organizing dataset:** ● Correct number formats. ● Sort the data by country name in ascending order. ● The data does not contain any missing or duplicate value

PROCESS:

Clean and prepare the data for analysis.

Process
Processing steps: • The data is already cleaned. • Each row and column of the dataset has been verified using Excel. • No errors remain.

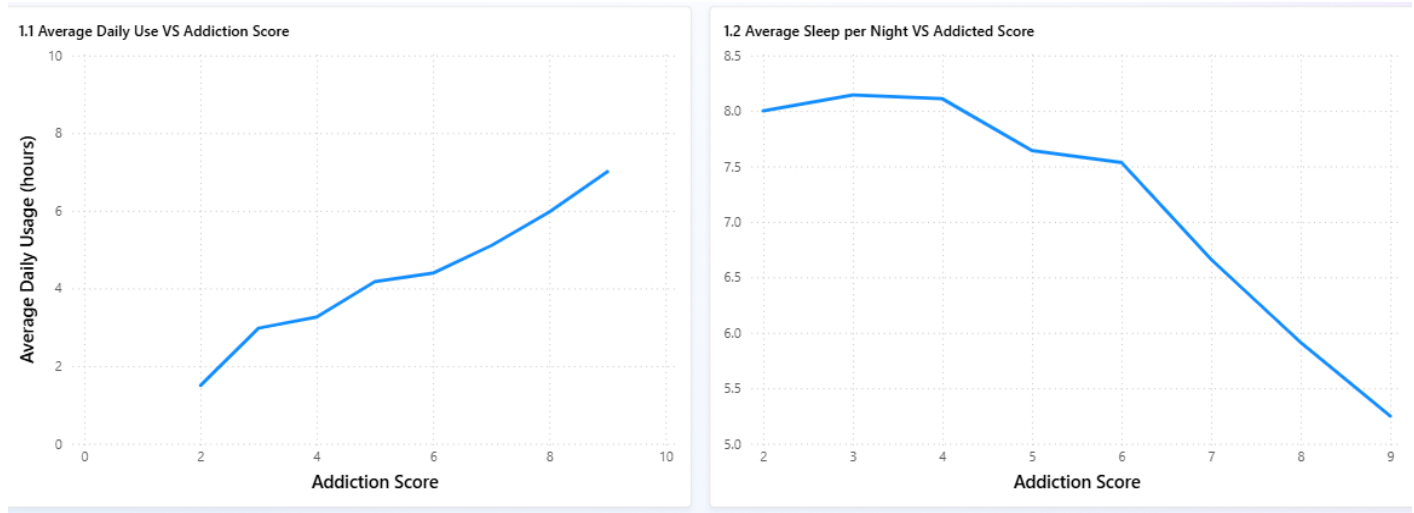# ANALYZE:

Evaluating patterns, relationships, and insights from the cleaned data.

Here is the summary of the data:

When the Students Social Media Addiction score is compared with their Average Daily Usage (1.1) and their Average Sleep per night (1.2), the data shows a consistent pattern: as addiction score **increases**, daily usage **rises**, while sleep duration **decreases**. This suggests a strong correlation between higher levels of social media addiction and negative lifestyle effects.

1.1 Average Daily Use vs. Addiction Score

Trend

- The line increases steadily as addiction score rises.

Interpretation

- **Daily usage is a strong predictor of addiction**: heavier users tend to score higher on addiction scales.

- The sharp jump between low and moderate addiction scores suggests early-stage behavioral escalation.

1.2 Average Sleep per Night vs. Addiction Score

Trend
• Sleep stays around 8–8.2 hours cause low addiction scores.
• Sleep duration decreases as addiction scores increase.

Interpretation
• Mild addiction has little effect on sleep.
• High scores show 2.5–3 hours less sleep, affecting mood, focus, and health.

Higher addiction clearly leads to increased use and reduced sleep, supporting the view that digital addiction disrupts healthy routines.

2.1 Impact of Daily Usage On Mental Health

2.2 Impact of Daily Usage On Conflicts Over Social Media
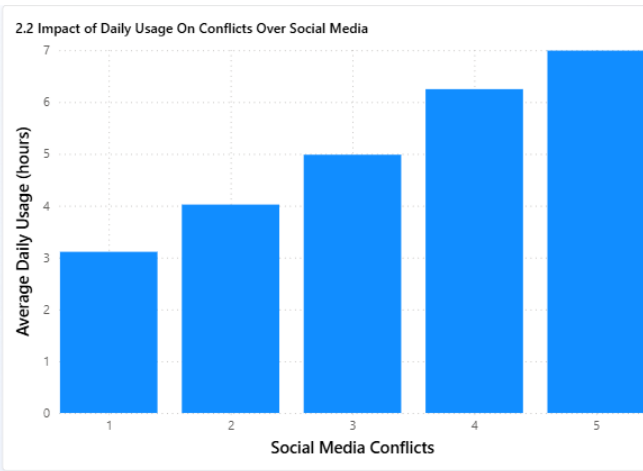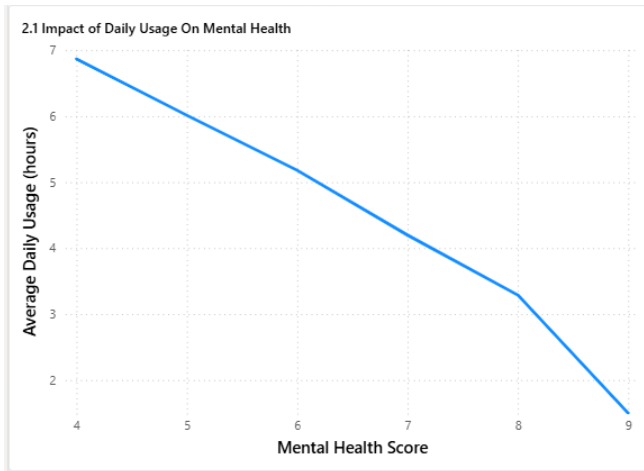
When the Students Average Daily Use is compared with their Mental Health (2.1) and their Conflicts Over social media (2.2), the data shows: as average daily use **increases**, mental health **decreases** and **raises** conflicts over social media**.** This suggests a strong correlation between higher levels of social media usage and low metal health scores and higher conflicts.

**2.1 Impact of Daily Usage on Mental Health**

- **Trend:** Lower mental health scores correspond with higher daily usage.

- **Interpretation:** Heavy screen time links to poorer mental health, stress, and low mood.

**2.2 Impact of Daily Usage on Social Media Conflicts**

- **Trend:** Conflict increases with higher daily usage.

- **Interpretation:** More time online causes higher risk of arguments and emotional reactivity.

Excessive screen time worsens mental health and increases social media conflicts, impacting emotional and social well-being.
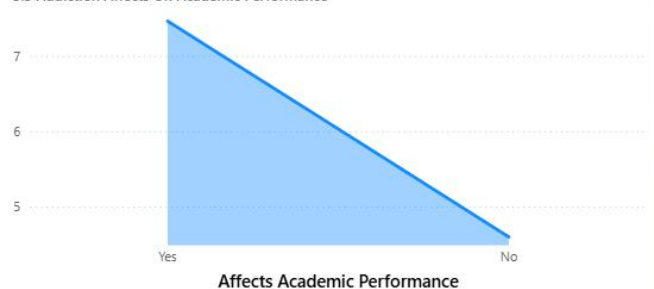

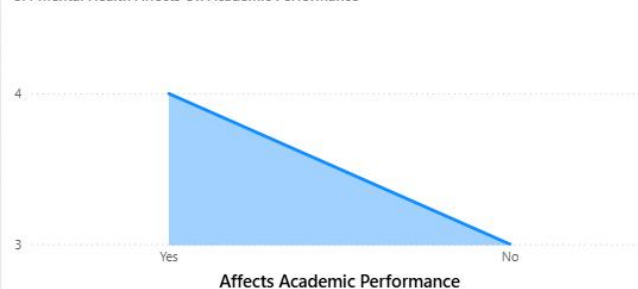3.1 Heavy Screen Time Linked With Academic Decline
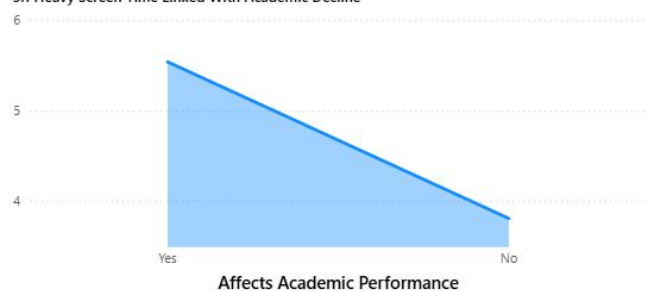
3.2 Sleep Hours Affecting Academic Performance
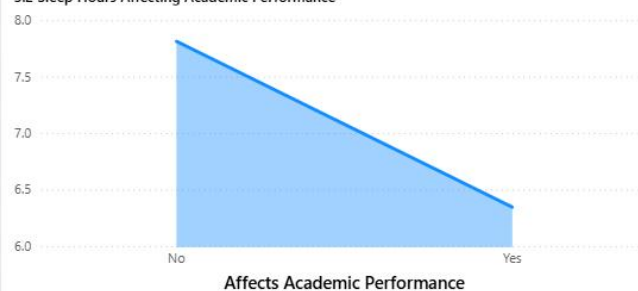
3.3 Addiction Affects On Academic Performance

3.4 Mental Health Affects On Academic Performance

When students' **academic performance** is compared with **screen time, sleep, addiction, and mental health**, the data shows that higher screen use, less sleep, higher addictive behaviors, and poorer mental health are linked to academic decline. This highlights how lifestyle and behavioral factors together impact learning and productivity.

3.1 Heavy Screen Time Linked with Academic Decline

- **Trend:** Students reporting academic decline have higher daily screen time.

- **Interpretation:** Excessive screen time negatively impacts academic performance, likely due to distraction, reduced study time or lack of focus.

3.2 Sleep Hours Affecting Academic Performance

- **Trend:** Students experiencing academic decline sleep fewer hours.

- **Interpretation:** Reduced sleep correlates with poorer academic outcomes, impairing focus, memory, cognitive function and energy recovery.

3.3 Addiction Affecting Academic Performance

- **Trend:** Students affected by addiction score higher on addiction measures compared to unaffected peers.

- **Interpretation:** Higher addiction levels are linked to academic decline, indicating compulsive habits interfere with studies.
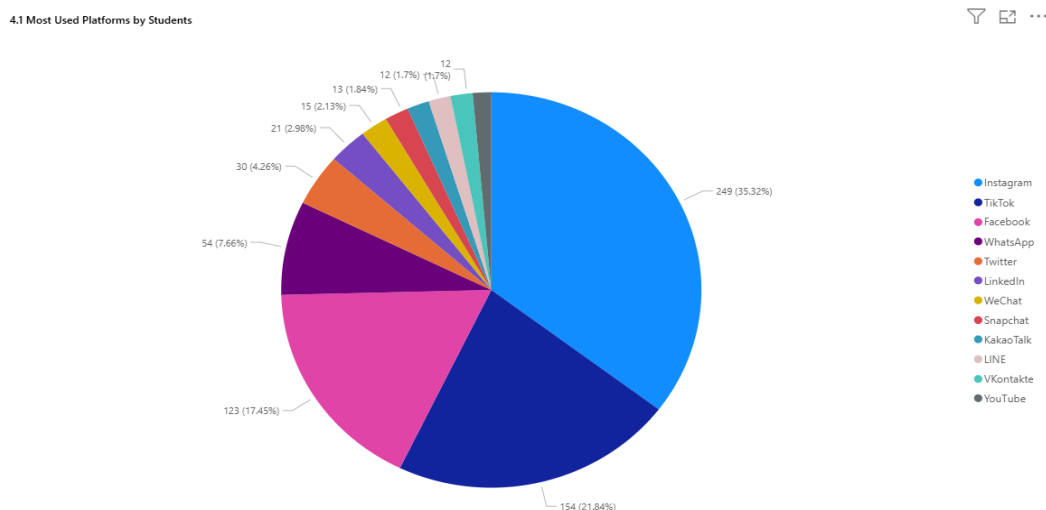
3.4 Mental Health Affecting Academic Performance

- **Trend:** Students with academic decline have lower mental health counts.

- **Interpretation:** Poor mental health correlates with lower academic performance, suggesting stress, anxiety, or depression impact learning and productivity.

Combined Insights:

- Heavy screen time, low sleep, high addiction, and poor mental health all contribute to academic decline.

- These factors may reinforce each other: e.g., screen time and addiction reduce sleep and mental well-being, which further harms academics.

When the students' most used platforms are examined (4.1), the data shows that most students heavily prefer visual and short-form content platforms such as Instagram, TikTok, and Facebook. This indicates strong trends toward entertainment-focused, image-driven digital engagement among students.

4.1 Most Used Platforms by Students

Instagram 249 (35.32%)
TikTok 154 (21.84%)
Facebook 123 (17.45%)
WhatsApp 54 (7.66%)
Twitter 30 (4.26%)
LinkedIn 21 (2.98%)
WeChat 15 (2.13%)
Snapchat 13 (1.84%)
KakaoTalk 12 (1.7%)
LINE 12 (1.7%)
VKontakte 12 (1.7%)
YouTube 12 (1.7%)

4.1 Most Used Platforms by Students

Trend

- Instagram (35%) is the most used platform, followed by TikTok (22%) and Facebook (17%).

- These three make up almost **75%** of mostly used platforms.

Interpretation

- Students prefer **visual and short-form platforms** like Instagram and TikTok.

- Facebook remains relevant for community and communication.

- Very low usage of platforms like WeChat, LINE, and VKontakte reflects regional preferences.

- LinkedIn's low share aligns with students limited professional engagement.

Student social media habits are dominated by image- and video-focused apps, which shape their online behavior and relate closely to the screen-time and addiction patterns seen in earlier analyses.

SHARE:

Communicating key findings in a clear and actionable way for students, parents, educators, and policymakers.

Share
1. Social Media Addiction & Lifestyle Impact ● Higher addiction scores are consistently linked with **more daily usage** and **less sleep**. ● Even moderate addiction reduces sleep by **half an hour**, while severe addiction cuts **2–3 hours**. ● **Implication:** Digital addiction disrupts healthy routines and negatively affects mood, focus, and overall well-being.
2. Screen Time & Mental Health ● Increased daily usage is associated with **lower mental health scores**. ● Heavier users report **more conflicts** and emotional reactivity on social media. ● **Implication:** Excessive screen time contributes to stress, low mood, and social tension.
3. Academic Performance Influences Academic decline is strongly connected to: - **High screen time** - **Reduced sleep** - **Higher addiction levels** - **Lower mental health scores**
These factors reinforce each other, forming a cycle that harms students' focus, productivity, and learning outcomes. **Implication:** Addressing digital habits is essential for improving academic success.

Audience Specific Messaging:

For Students:

Manage your screen time, prioritize quality sleep, and seek support if social media starts feeling addictive.

For Parents & Educators:

Promote balanced digital habits and provide support for students' sleep, mental health, and time management.

For Policymakers:

Implement digital well-being awareness programs and consider structured guidelines for healthy technology use.

ACT:

Translating the analysis into actionable strategies that improve students' digital habits, mental health, and academic performance.

Act
1. Screen Time Management • Set daily limits. • Encourage screen free time, especially before sleep.
2. Improve Sleep Habits • Promote 7–8 hours of sleep. • Reduce device use at night to improve sleep quality.
3. Reduce Social Media Addiction • Use surveys to identify students' risks. • Provide digital detox activities and awareness sessions.
4. Support Mental Health • Offer stress-management activities and mindfulness. • Provide easy access to counseling for low mental health scores.
5. Strengthen Academic Support • Monitor students with high screen time or addiction risk. • Provide study-skills workshops and structured routines.
Long-Term Steps • Regularly track screen time, sleep, and mental health. • Develop school-wide programs promoting balanced tech use and healthy daily habits.

Conclusion:

The data clearly demonstrates that **social media** has a **significant impact** on **students' well-being and academic performance**. Students who:

- Spend more hours per day on social media

- Score higher on addiction measures

- Sleep less

- Have lower mental health scores

are more likely to **experience academic decline** and **heightened emotional difficulties**.

Excessive social media use creates a cycle of poor sleep, diminished mental health, increased interpersonal conflicts, and reduced academic performance. Breaking this cycle requires managing screen time, promoting healthy routines, supporting mental health, and fostering balanced digital habits.

By implementing these strategies, students can improve focus, productivity, and overall well-being while maintaining healthier relationships and academic outcomes.