Student's Social Media Addiction

1. Dataset Description

1.1 Source: Student's Social Media Addiction dataset obtained from Kaggle (public government dataset).

1.2 Columns:

- Student_ID
- Age
- Gender
- Academic_Level
- Country
- Avg_Daily_Usage_Hours
- Most_Used_Platform
- Affects_Academic_Performance
- Sleep_Hours_Per_Night
- Mental_Health_Score
- Relationship_Status
- Conflicts_Over_Social_Media
- Addicted_Score

1.3 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.

2. Operations Performed

2.1 Data Cleaning & Exploration

- Verified dataset integrity — checked for missing or null values and ensured data consistency across all attributes.
- Ensured correct data types for each column (numeric for scores/hours and categorical for demographic fields).
- Checked for duplicate Student_ID entries and removed if any were found.
- Validated that numerical columns such as Avg_Daily_Usage_Hours, Sleep_Hours_Per_Night, Mental_Health_Score, and Addicted_Score contained valid non-negative values within expected ranges.
- Summarized numerical columns using statistical measures — mean, median, mode, standard deviation, and interquartile range (IQR) to understand central tendencies and spread.
- Analyzed unique values in categorical columns such as Gender, Academic_Level, Country, and Most_Used_Platform to understand dataset composition.
- Generated frequency counts and visual distributions for demographic variables.

2.2 Descriptive Analytics

- Calculated and visualized average daily usage hours across different academic levels and genders using bar charts.
- Analyzed the most used social media platforms among students through bar and pie charts.
- Examined how social media usage affects academic performance using grouped bar charts and percentages.
- Studied the distribution of addiction scores among students using histograms and boxplots.
- Compared average sleep hours and mental health scores across usage intensity categories.
- Created country-wise comparisons of average addiction levels using bar charts.
- Visualized correlation between usage hours, sleep, and addiction score using scatter plots and heatmaps.

2.3 Relationship Analysis

- Explored the relationship between average daily social media usage and mental health score to identify potential stress or anxiety patterns.
- Analyzed how sleep duration impacts the addiction and mental health scores.
- Compared addiction levels among students based on academic level, gender, and relationship status.
- Studied the association between conflicts over social media and academic performance.
- Identified top platforms associated with higher addiction scores.
- Highlighted correlations and visual relationships between behavioural, academic, and psychological attributes using trend, distribution, and correlation plots.

3. Key Insights

3.1 Usage Patterns

- The average daily social media usage among students ranges between 2 to 8 hours, with a significant portion spending over 4 hours daily, indicating potential overuse.
- Instagram and YouTube emerged as the most used platforms, followed by WhatsApp and Snapchat.
- Undergraduate students reported the highest average usage hours, while postgraduates showed relatively balanced usage habits.

3.2 Academic & Behavioral Impact

- A clear negative trend was observed between average daily usage hours and academic performance perception — students spending more than 5 hours daily were more likely to report academic decline.
- Students with higher addiction scores tended to report more frequent conflicts over social media and reduced academic focus.
- Participants reporting adequate sleep (7–8 hours/night) had lower addiction scores and better mental health ratings than those with less than 5 hours of sleep.

3.3 Mental Health & Lifestyle Correlation

- There exists a moderate negative correlation between average daily usage and mental health score, implying that excessive social media use is associated with increased stress and anxiety levels.
- Students in a relationship showed slightly higher addiction levels, potentially linked to social comparison or emotional dependency online.
- Gender-based analysis indicated that female students reported slightly higher average usage, but male students showed greater variance in addiction scores.

3.4 Country-wise Observations

- Students from urbanized or digitally active countries displayed higher average screen time and addiction scores compared to those from less-connected regions.
- However, sleep hours and mental health awareness were comparatively higher in developed regions, indicating a more balanced digital lifestyle.

4. Recommendations

4.1 For Students

- Set daily social media time limits (≤ 2 hours) and use digital wellness tools to monitor screen time.
- Prioritize offline hobbies and physical activities to reduce dependence on social media for emotional satisfaction.
- Practice digital detox — dedicate at least one day per week with minimal online interaction.

4.2 For Educational Institutions

- Integrate awareness programs about digital addiction, time management, and mental health care into the curriculum.
- Encourage academic communities and student clubs to promote healthy social interactions offline.
- Use analytics-based approaches to identify students at risk of digital addiction and provide early counselling interventions.

4.3 For Parents & Guardians

- Monitor and guide students' screen time constructively, without imposing strict bans that may trigger resistance.
- Promote open conversations about the impact of online activities on sleep, concentration, and mood.
- Create family tech rules (e.g., no screens during meals or before bedtime).

4.4 For Policymakers & Developers

- Encourage tech companies to integrate mental health-friendly features — such as break reminders, screen time insights, and reduced engagement-driven algorithms.
- Support initiatives and campaigns that raise awareness about digital addiction and responsible media use among youth populations.