Student Lifestyle Dataset

Analysis by Humayra Azra

Data Set

This dataset contains 2,000 rows and 8 columns, with no missing values. Below is a summary of the columns:

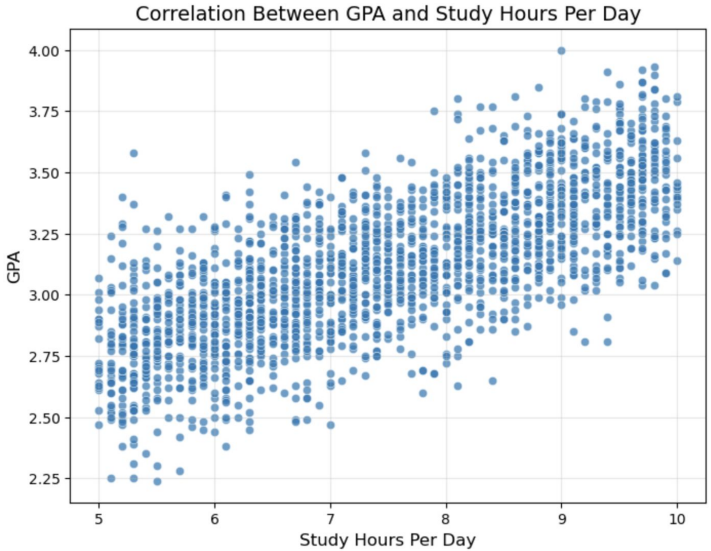
- **Student_ID**: Unique identifier for each student.
- **Study_Hours_Per_Day**: Average hours spent studying per day.
- **Extracurricular_Hours_Per_Day**: Hours spent on extracurricular activities daily.
- **Sleep_Hours_Per_Day**: Average hours of sleep per day.
- **Social_Hours_Per_Day**: Hours spent on social activities per day.
- **Physical_Activity_Hours_Per_Day**: Daily hours of physical activity.
- **GPA**: Grade Point Average (academic performance).
- **Stress_Level**: Categorical data representing stress levels (e.g., Low, Moderate, High).

Trends To Consider

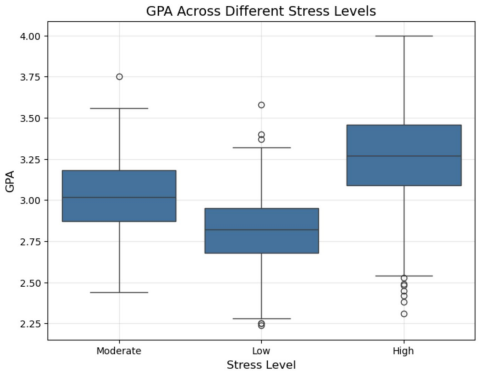
- How do lifestyle factors (e.g., study, sleep, and extracurricular activities) correlate with GPA?
- What is the relationship between stress levels and GPA?
- How does physical activity or sleep influence stress levels?
- Are there trade-offs between social hours and academic performance?

Visualization

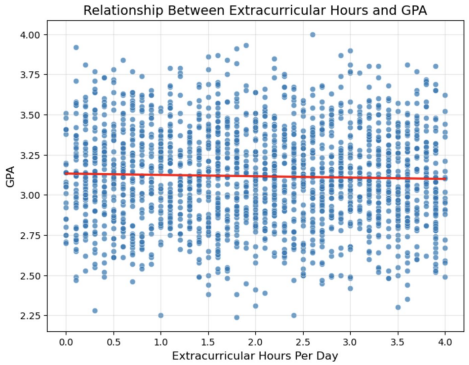
Here we have the common lifestyle activities and how it impacts GPA



Here appears to be a slight upward trend (correlation of 0.73), suggesting a potential positive correlation: students who study more tend to have higher GPAs However, there might be diminishing returns for higher study hours (e.g., beyond ~7 hours



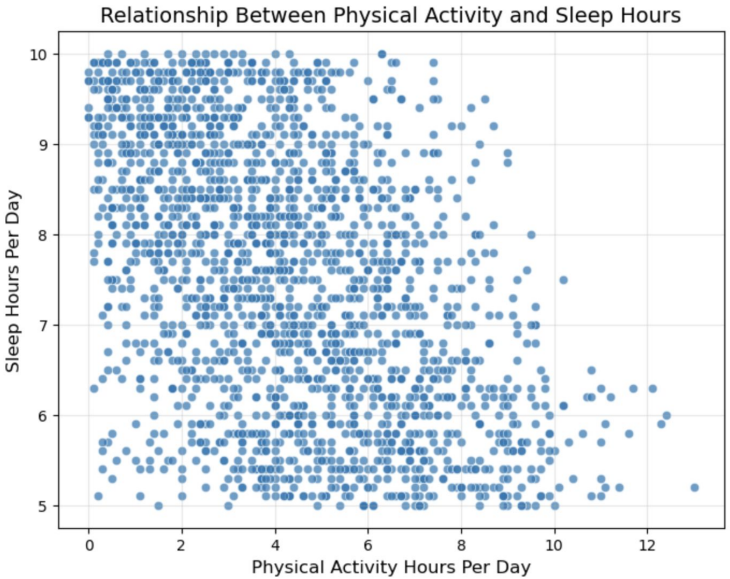
Students with Low Stress seem to have slightly higher GPAs on average compared to those with Moderate or High Stress levels.



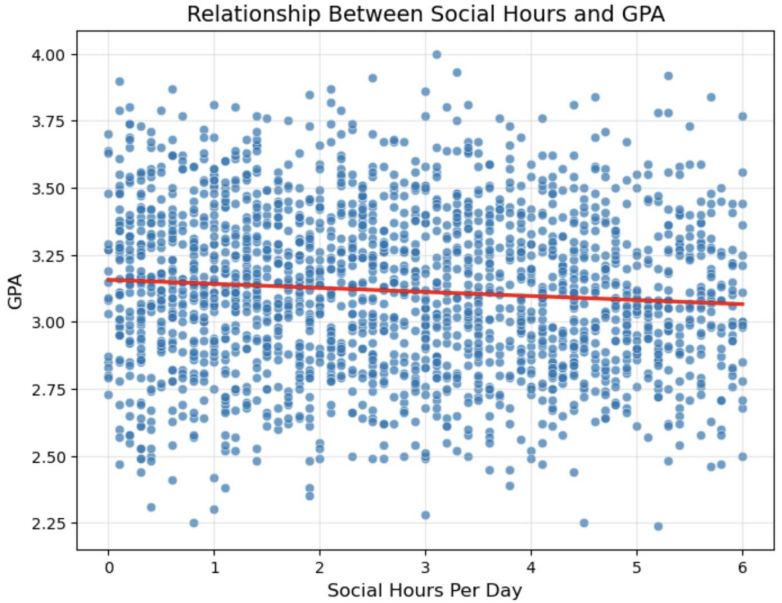
There is little correlation between Extracurricular activities and GPA

Visualization

Visualizations of other factors in students' lifestyles



There is little significance between hours of physical activity and hours of sleep with a correlation of -0.47



Again the hours social per day has little impact on gpa with a correction of -0.09 which is near 0

Summary of Analysis Process

To analyze the relationship between student lifestyle factors (such as study hours, extracurricular activities, sleep, socializing, and physical activity) and academic performance (GPA), focusing on how stress levels—derived from study and sleep patterns—impact GPA. I analyzed a data set of 2,000 student records, with the goal of identifying key lifestyle factors that significantly predict academic outcomes. This will later support recommendations for lifestyle management aimed at improving student well-being and academic success.

Hypothesis

Hypotheses were made for trends that had shown a positive or negative correlation between GPA and lifestyle

GPA vs. Study Hours

Students who study more hours per day tend to have higher GPAs, but excessive study hours may lead to diminishing returns on academic performance.

GPA vs. Stress Levels

Higher stress levels are negatively correlated with GPA, with students experiencing lower stress performing better academically on average.

Extracurricular Hours vs. GPA

Moderate participation in extracurricular activities is positively correlated with GPA, as balanced engagement in such activities promotes better time management and academic outcomes. However, excessive hours may lead to reduced academic performance.