Dataset Analysis Summary

This notebook analyzed a dataset named "Python & Data Analyticsss.csv". The dataset contains 6,607 records and 20 columns. It represents student academic and lifestyle factors affecting performance. The main variables include study hours, attendance, parental involvement, access to resources, extracurricular activities, mental health, sleep patterns, exam performance, and more.

Data Preprocessing - Missing values were checked and found to be minimal. - Duplicate entries were checked and removed. - Data types were inspected and columns categorized as numerical or categorical. - Unique values were identified in key categorical features such as parental education level and access to resources.

Exploratory Data Analysis (EDA) The analysis explored the relationships between study habits, sleep hours, parental support, and academic performance. Some of the key analyses included: - Grouping study hours and sleep hours by access to resources. - Identifying distribution of parental education levels and involvement. - Checking attendance and extracurricular participation trends. - Analyzing correlations between exam performance, mental health, and lifestyle choices.

Key Insights 1. Students with greater access to resources tend to study longer hours and maintain better sleep schedules. 2. Higher parental involvement is positively linked to both attendance and performance in exams. 3. Extracurricular activities show mixed impacts—while beneficial for overall development, heavy involvement sometimes correlates with reduced study hours. 4. Sleep is a critical factor; inadequate sleep hours negatively influence exam performance and mental health. 5. Socioeconomic indicators such as parental education and availability of resources strongly influence academic outcomes.

Conclusion The dataset highlights the complex interplay of academic, social, and personal factors in student performance. Better access to resources, supportive parental involvement, and balanced lifestyle choices are essential for improved academic outcomes.

This analysis provides useful directions for educators, parents, and policymakers to create supportive environments that enhance student well-being and academic success.