This project aims to investigate how various factors collectively influence student exam scores. Utilizing a simulated dataset with approximately 6607 observations, we will employ a series of statistical hypothesis tests to uncover significant relationships and contribute to a deeper understanding of student performance.

Our analysis will systematically explore the key determinants of student exam performance, specifically examining how individual efforts (study habits, and the foundational role of prior academic performance which, while beneficial, does not significantly amplify the effectiveness of study hours), home support (parental involvement), external aids (extracurricular activities, tutoring sessions), and institutional factors (school type) contribute to or moderate academic outcomes. We will conduct five distinct hypothesis tests, each with defined null and alternative hypotheses, using statistical methods such as Pearson Correlation Coefficient, One-Way ANOVA, and independent samples t-tests.

The project will provide insights into the multi-layered picture of academic success, aiming to empower students to optimize their study strategies, guide parents in providing effective support, and inform educational institutions in designing interventions that address diverse student needs.