MLG : Assignment 1 : BrightPath Academy

Problem Statement

BrightPath Academy is a high school learning institution that prioritises the well-being of their students by catering student learning needs ,extra-curricular activities as well as pushing their student's personal growth. However , their efforts in implementing these supportive strategies have resulted in a few challenges hindering them from achieving these goals fully. The challenges include delayed identification of at-risk students (grades = D or F) , lack of targeted student support strategies , unclear impact extracurricular activities and data overload.This project aims to address these issues through the development of a predictive model for GradeClass making use of the given Student_performance_data dataset. This model will provide solutions the institution faces currently through early identification of at-risk students , providing the factors that influence student performance and providing the necessary insights through user-friendly dashboards for educators.

Hypothesis Generation

The following hypotheses are proposed on the factors influencing student performance at BrightPath Academy , they include :

1. Hypothesis 1 : Students who have higher study hours per week(StudyTimeWeekly>10) are more likely to have higher grades (GradeClass = A or B[0 or 1]).
2. Hypothesis 2 : Students with higher absences (Absences>15) are associated with lower grades (GradeClasses = D or F[3 or 4]).
3. Hypothesis 3 : Students who receive Tutoring have higher grades (GradeClass = A or B[0 or 1]).
4. Hypothesis 4 : Students with higher support from parents (ParentalSupport = 3 or 4 [High or very high]) are associated with a better grade (GradeClass = A or B[0 or 1]).
5. Hypothesis 5 : Students who participate in extracurricular activities (Extracurricular = 1) have better grades (GradeClasses = A or B [0 or 1]).