Academic Success Factors in High School Students

1. Correlation Analysis

Comparing the students’ study habits (study time, tutoring and absences) against their GPA, we found that their study time and tutoring has very little effect while their absences adversely affected their GPA. This is evidenced in the correlation coefficient numbers displayed.

The correlation between StudyTimeWeekly and GPA is 0.18

The correlation between Absences and GPA is -0.92

The correlation between Tutoring and GPA is 0.15

Along that line, we thought of comparing more students’ data like parental support, extracurricular activity, ethnicity and gender against their GPA and we found them to have very little effect too. Their correlation coefficient numbers are near zero.

To see the correlation numbers in one view, see the [Correlation Heatmap](file:///C:\Users\rob_m\EDA-project\Output\Correlation%20Heatmap.png). Each number will have shades of red and blue, with 1 and -1 having the darkest shade and 0 having the lightest shade. Focusing on the GPA line, you’ll see that absences have the darkest blue shade, meaning a strong negative correlation while the others have light shades only, meaning a weak correlation.

1. Summary Statistics

Considering the statistics functions mean, median, std, var and sem on the GPA of all students, we see the mean GPA of 1.91 as the most telling. We checked any outlier and found none (see [Outliers](file:///C:\Users\rob_m\EDA-project\Output\Outliers.png) chart) so we’re confident to say that the students’ performance average is very poor, a grade class F. The [GPA histogram](file:///C:\Users\rob_m\EDA-project\Output\GPA%20Distribution%20on%20entire%20population.png) will substantiate that with GPA mean in the middle.