

Project Title: Predicting Student Success with BI/AI

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Summary:

We analyze the Student Performance (Maths) dataset, from 2 portuguese secondary schools, to understand and predict academic outcomes. Using a BI/AI pipeline, we (1) ingest and clean data (creating a binary **Pass** label from final grade **G3**), (2) explore patterns with visual analytics, (3) train predictive models (classification of Pass/Fail and regression of G3), and (4) deliver an interactive Streamlit application for non-technical users. Key findings: study time correlates positively with G3, while past failures and absences correlate negatively. Our classifier predicts pass/fail with **ACCURACY = [0.675]**, our regressor estimates final grades with **R² = [-0.0872]**, and clustering with **k=3** yields **silhouette = [0.568]**, revealing distinct student profiles. This demonstrates an end-to-end BI solution that can help schools identify at-risk students and target interventions.

GitHub: <https://github.com/montif16/exam-bi-project>