Degree Prediction Web Application - Functionalities

Student Data Input

Input academic and demographic data through a web form. Fields include: SHS GPA, College GPA, Age, Sex, Boarding, Living Status, Province, Scholarship, Parental Education, Financial Status, Feedback text.

CSV Upload

Allows admin or staff to upload multiple student records in bulk via CSV file. The data is parsed and saved into the database.

Academic Performance Prediction

Utilizes a Decision Tree Classifier trained on student features to predict whether a student is likely to graduate with a degree.

Sentiment Analysis on Feedback

Performs sentiment classification (Positive, Neutral, Negative) on student feedback using an SVM model with TF-IDF vectorizer.

Hybrid Prediction (Ensemble)

Combines predictions from both the academic and sentiment models to offer a more robust hybrid prediction with weighted confidence.

Dropout Risk Analysis

Highlights specific risk factors such as low GPA, low parental education/income, or lack of scholarship that contribute to potential dropout.

Model Accuracy Display

Shows the prediction accuracy of both the Decision Tree and SVM models directly on the result page for transparency.

Prediction Result Display

Displays the final predictions and risk factors in a Bootstrap modal or separate page for user-friendly interaction.

Database Storage (Optional)

Optionally saves student data and prediction results for future reference or retraining.

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Security and Validation

Implements CSRF protection and input validation to maintain application integrity.