Student Performance Predictor - ML Project

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Project Overview

This Machine Learning project aims to predict whether a student will pass or fail based on personal and academic behaviors.
Features include: study hours, attendance rate, sleep hours, internet usage, and family support.

Algorithm Used: Logistic Regression
Evaluation Metrics: Accuracy, Confusion Matrix, Classification Report
Tools: Python, Pandas, scikit-learn, Matplotlib, Jupyter Notebook

The dataset was custom-created for this project and includes 100 students' realistic study patterns.

ML Workflow Steps

1. Load the dataset (student_data.csv)
2. Visualize feature distribution (study hours, attendance, etc.)
3. Encode categorical variables (family support, passed)
4. Split data into training and testing sets (70/30)
5. Train a Logistic Regression model
6. Evaluate the model using accuracy score and confusion matrix
7. Save the model to a .pkl file
8. Predict new student results based on input features

Conclusion

This project is ideal for showcasing foundational machine learning skills.

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It is practical, easy to explain during interviews, and based on an original idea.

You can further extend this project by adding a Streamlit UI or deploying it via Flask.