**Impact of Study Hours and Parental Support on Academic Performance**

**Overview**

Our project focuses on predicting students' academic grades based on various factors, including previous grades, parental support, study hours, extracurricular activities (ECA) participation, and attendance.

By leveraging these factors, we aim to gain insights into how study hours and parental support influence academic performance.

**Methodology**

To predict academic performance, we employed a linear regression model.

The features used for prediction include:

* Previous academic grades
* Parental support
* Study hours
* Number of ECAs participated in
* Attendance

**Data Preprocessing**

For data preprocessing, we utilized:

**LabelEncoder**: To convert categorical text data into numeric values.

**StandardScaler**: To normalize the training data for better model performance.

**Challenges and Solutions**

1. **Data Shortage**:   
   **Challenge**: A significant shortage of training data.  
   **Solution**: To address this, we generated synthetic training data using the Faker library. This approach allowed us to create a more robust dataset for model training.
2. **API Creation:  
   Challenge**: Difficulties in creating an API for model response due to limited knowledge of FastAPI and request protocols.  
   **Solution**: We tackled this challenge through extensive research and consultations with AI chatbots. Additionally, we sought guidance from our trainer to enhance our understanding and effectively develop the API.

By addressing these challenges, we were able to successfully implement our prediction model and provide insights into the impact of study hours and parental support on academic performance.