Project: PassPredictor AI

Problem Statement

Many students struggle to understand how their study habits, exam timing, and attendance affect their chances of passing. There's a lack of personalized feedback based on real data to guide students on how to improve.

Target Audience

- School Students
- Educators and Tutors
- EdTech Platforms

Objectives

- Predict whether a student will pass based on their study hours, days before the exam, and attendance.
- Help students understand how each factor contributes to their academic success.
- Encourage strategic exam preparation habits using data-driven feedback.

Key Features

- Multi-Subject Focus: Covers Maths, Science, and English, each with distinct weightages.
- Logistic Regression Model: Predicts the pass/fail outcome.
- Interactive CLI Tool: Asks users for input and provides instant prediction.
- Customized by Subject:
  - Maths: Study hours are most critical
  - Science: Balanced importance, high study hours can compensate
  - English: Attendance is the most impactful

Tech Stack

- Python
- scikit-learn
- pandas & numpy

Sample Use Case

A student inputs their study time, attendance, and exam proximity. The model instantly predicts if they'll pass and gives subtle insight based on the subject's logic model.

Machine Learning Model

- Model Used: Logistic Regression
- Training/Test Split: 80/20
- Subject-Specific Data: Simulated historical student data for training

Future Scope

- Web-based interface with graphical insights
- Personalized study plans based on predictions
- Integration with school learning management systems

SDG Link

SDG 4 – Quality Education

Specifically targets:

- 4.1: Ensure free, equitable, and quality primary and secondary education
- 4.4: Increase the number of youth with relevant skills, including technical and vocational skills
- 4.A: Build and upgrade education facilities that are child, disability, and gender sensitive, and provide safe, inclusive learning environments