Project ID: 21

Project Title
Pythonbuddy: An Ai-Powered Python Learning Assistant For First-Year Students

Client Name
Rachid Hamadi

Group Capacity
2 groups

Comment: This client might update or provide more details later or during first client meeting.

Project Background
PythonBuddy is a lightweight, web-based tool designed to support first-year university students learning Python programming. It provides immediate, beginner-friendly feedback on students' code submissions using a combination of AI (via GPT-based explanations) and pattern-based error detection. The goal is to improve understanding, reduce frustration, and help students fix and learn from their coding mistakes.

Project Scope
The goal is to improve understanding, reduce frustration, and help students fix and learn from their coding mistakes.

Project Requirements
Key Features:

1. Python Code Submission Interface

2. AI-Powered Feedback Engine (including student-friendly rewrites of Python tracebacks, for example:
Original: TypeError: unsupported operand type(s) for +: 'int' and 'str'
PythonBuddy: "It looks like you are trying to add a number and a string. Did you mean to convert one to match the other?"

3. Common Error Pattern Detection

4. Feedback History

5. Instructor Dashboard (including, at least, visual summary of common errors across a class)

Required Skills

1. AI/NLP knowledge for designing GPT prompt templates and integrating error explanations
2. Frontend development skills for building user interface for code submission and feedback display
3. Backend development skills for handling APIs, submission storage, and integration
4. Testing/QA and UX skills for usability testing, feedback refinement, and learning design

Expected Outcomes

Source code (with documentation), user manual/guide, evaluation report, demo video, and final project report.

Disciplines

Software Development;Web Application Development;Generative AI (GenAI);Artificial Intelligence (Machine/Deep Learning, NLP);

Other Resources

None