

Project Plan for the AI-Powered Student Learning Platform

Group Leader: Thabang Molemane

Group Members: Gift Tau, Mielie Baloy, Liyabona Dungayezi, Busisiwe Lunga, Kenosi Mokoka, Phineus Maepa

1. Project Overview

The AI-Powered Student Learning Platform is a system designed to help students improve their academic performance through personalized feedback. It leverages machine learning to analyse student test results, predicts areas where students need improvement, and provides learning resources. The platform will include a softbot for student interaction, backend services to manage data, and a machine learning model to generate feedback.

This plan outlines the roles and responsibilities of the group members, with Thabang leading and contributing across all aspects of the project: backend, frontend, and database.

2. Team Roles and Responsibilities

Thabang Molemane (Group Leader)

Role: Thabang will be responsible for the entire project, including backend development, frontend (softbot) integration, and database management.

Responsibilities:

Oversee project progress and facilitate coordination between all team members.

Contribute directly to the backend services, frontend (softbot), and machine learning integration.

Manage the database for student records, test results, and machine learning data.

Busisiwe (Frontend & Softbot Development)

Role: Busisiwe will focus on developing the frontend interface, particularly the softbot that interacts with students.

Responsibilities:

Collaborate with Thabang to ensure seamless softbot integration with the backend.

Implement user interaction flow, enabling students to enroll, log in, and receive feedback.

Gift Tau & Liyabona (Backend Team)

Task: Backend services development using Python.

Responsibilities:

They will be work on API development for handling student data, login, test submissions, and fetching results.

Collaborate with Thabang on the integration of backend APIs with the frontend and the machine learning model.

Kenosi, Mielie & Phineas (Machine Learning & Database Team)

Task: Machine learning model development and database management.

Responsibilities:

This team will build and train machine learning models to analyse student test data and predict weak areas.

Manage the database for storing student test results, personal data, and predictions.

Work with Thabang to ensure smooth database integration with both the backend and machine learning components.

3. Project Phases

Phase 1: Project Setup & Planning (Week 1-2)

On this time frame we will establish project repository, set up the architecture, and decide on the technology stack.

Thabang leads the initial planning and defines the workflow for database, backend, frontend, and machine learning.

Deliverables:

Project structure and repository setup.

Defined development plans for each component.

Phase 2: Backend & Database Development (Week 3-4)

Gift, & Liyabona: They will develop core backend functionalities, including student authentication and test handling.

Kenosi, Mielie, Phineas : They will set up the database schema and connect it to the backend for efficient data storage.

Deliverables:

Functional backend with API endpoints.

Connected and working database.

Phase 3: Frontend (Softbot) Development (Week 3-5)

Thabang & Busisiwe: They will be Designing and developing the softbot frontend to handle user interactions.

Deliverables:

Softbot that interacts with the backend for login, test-taking, and feedback.

Initial user interface and experience setup.

Phase 4: Machine Learning Integration (Week 5-6)

Kenosi, Mielie, Phineus : They will Develop the machine learning model to analyse student data and integrate it with the backend.

Deliverables:

Fully integrated machine learning model providing real-time feedback.

Phase 5: Testing & Quality Assurance (Week 7)

Thabang & Busisiwe: They will be Performing system-wide testing to ensure proper integration between the frontend, backend, and machine learning components.

Deliverables:

Debugged and optimized platform ready for deployment.

Phase 6: Final Integration & Presentation (Week 8)

All members: We will be Finalising integration of all components, with Thabang overseeing the overall system performance.

Prepare for the final presentation and demonstrate the working platform.

Deliverables:

Fully functional system.

Final project presentation and documentation.

4. Timeline Overview

Week	Task Responsible	Team
Week 1-2	Project Setup & Planning	All members
Week 3-4	Backend & Database Development	Gift, Liyabona, Kenosi, Mielie, Phineus
Week 3-5	Frontend (Softbot) Development	Thabang, Busisiwe
Week 5-6	Machine Learning Integration	Kenosi, Mielie, Phineus
Week 7	Testing & Quality Assurance	Thabang, Busisiwe
Week 8	Final Integration & Presentation Preparation	All members

5. Risk Management

Integration Challenges

Risk: Difficulty in integrating the backend, frontend (softbot), machine learning models, and database could delay the project or result in performance issues.

Mitigation:

Early Integration Testing: Start integration between components as soon as individual modules are partially completed, rather than waiting for full completion.

Collaboration: We need to form a clear communication between the backend, machine learning, and frontend teams. Regular integration meetings between Gift, Liyabona, Kenosi, and Phineus to ensure that the APIs, database, and machine learning components are working well together.

Machine Learning Model Performance

Risk: The machine learning model may not provide accurate or meaningful predictions, which could reduce the platform's effectiveness in giving personalized feedback.

Mitigation:

Data Quality: We need to ensure that the dataset used for training the model is cleaned, representative, and large enough to provide meaningful predictions. Validate the data throughout the development process.

Team Communication Breakdown

Risk: Miscommunication between team members could lead to duplicated work, missed deadlines, or integration issues.

Mitigation:

Regular Check-ins: Hold weekly meetings led by Thabang to discuss progress, blockers, and any changes to the project scope.

6. Conclusion

Thabang is the leader and he is involvement in all aspects of the project which include backend, frontend, and database this will ensure seamless integration of the system components. The plan is structured to allow the team to collaborate effectively, delivering a high-quality AI-Powered Student Learning Platform.