# Frontier Tech Leader Machine Learning BootCamp

## Capstone project – Idea Proposal

### Project Title: AI-Powered Micro-Scholarship Platform for Low-Income Students

|  |  |  |
| --- | --- | --- |
| 1 Gbanyan Sumo | [gbanyansumo25@gmail.com](mailto:gbanyansumo25@gmail.com) | sumo-a11y |
| 2 Havious Wah | [haviouswah22@gmail.com](mailto:haviouswah22@gmail.com) | 231-OPA |
| 3 Archie Quewon | [archiequewon921@gmail.com](mailto:archiequewon921@gmail.com) | edudatahub-db |
| 4 Titus S. Foko | [archiequewon921@gmail.com](mailto:archiequewon921@gmail.com) | titusfoko94 |
| 5 Michael T Butler | [titusfoko94@gmail.com](mailto:titusfoko94@gmail.com) | michael24-byte |
| 6 Jay Sackie Menniboe | [jmenniboe@gmail.com](mailto:jmenniboe@gmail.com) |  |

Group 8 Members :

Due Date August 14,2025

1. Project Idea: AI-Powered Micro-Scholarship Platform for Low-Income Students

This project will develop a web and mobile platform that connects donors to financially disadvantaged students. The system will use AI algorithms to verify student eligibility, match donors to students whose needs and goals align, and predict the potential academic and economic impact of scholarships. Donors can contribute micro-scholarships to cover tuition, books, or learning materials. The platform will also track student progress and provide real-time updates to donors, ensuring transparency and accountability.

2. Relevance to Sustainable Development Goals (SDGs):

SDG 1 – No Poverty: By funding education for low-income learners, the project helps break the cycle of poverty and increase long-term earning potential.

SDG 4 – Quality Education: Improves access to inclusive and equitable education by removing financial barriers for disadvantaged students.

3. Literature Examples

Example 1: UNESCO’s Education for All Fund — Demonstrated how small, targeted financial support significantly improved school attendance and retention rates among marginalized students.

Example 2: ScholarMatch by Dave Eggers — A donor-student matching platform that increased scholarship allocation efficiency and improved transparency in financial aid distribution.

4. Describe Your Data: The project will use:

Student Data: Demographics, financial background, academic performance (CSV/Excel).

Donor Data: Preferences, funding history, donation amounts (CSV/JSON).

Impact Tracking Data: Attendance records, grades, skill development metrics (CSV).

Data preprocessing will include anonymization for privacy, normalization for uniform analysis, and integration from multiple sources.

5. Approach (Machine Learning or Deep Learning)

A machine learning approach will be used:

Recommendation Algorithms (Collaborative Filtering & Content-Based Filtering) to match donors with suitable students.

Predictive Modeling to estimate the potential impact of a scholarship on a student’s academic performance and career prospects.

Machine learning is chosen due to the structured nature of the data and the need for efficient, accurate matching without heavy computational requirements.

### Key Components:

1. **Platform Development**: The web and mobile interface should focus on user experience for both students and donors. It should allow for easy navigation and real-time updates.
2. **AI Algorithms**:
   * **Verification**: You could employ machine learning techniques for verifying student eligibility based on defined financial criteria and other parameters.
   * **Matching Process**: Use recommendation algorithms to pair donors with students based on mutual needs. Both collaborative filtering and content-based filtering would be effective here.
   * **Predictive Modeling**: Build models that predict how different scholarship amounts could impact student academic success and future earnings.
3. **Data Types**:
   * **Student Data**: Ensure that the CSV/Excel files you gather are rich in information (demographics, needs) and regularly updated.
   * **Donor Data**: This data should include historical donations to help create profiles for better matching.
   * **Impact Tracking Data**: Key metrics to track student progress are crucial for both accountability and donor updates.
4. **Data Preprocessing Techniques**: Prioritize data privacy through anonymization, and consider normalization techniques to maintain consistency across datasets.
5. **Machine Learning Approach**: Your decision to use machine learning is sound. It allows for efficient processing of structured data while providing scalability as the platform grows.

### Literature Examples:

The examples you provided, such as UNESCO’s Education for All Fund and ScholarMatch, effectively demonstrate real-world impacts of similar financial aid systems and could serve as valuable case studies for your project.

This structured plan not only outlines the purpose of the platform but also its social impact, making it a compelling project in the realm of educational equity. Good luck with your development!