Applicant: Jackline King'ori
School: Open University of Kenya
Stage: Idea Development
Category: AI for Financial Crime Prevention

1. Problem Statement

Mobile money has transformed financial access in Kenya, with millions of people relying on platforms such as M-Pesa, bank-to-mobile (online transfers), bank-to-M-Pesa, and Airtel Money for their daily transactions.
However, this convenience has led to a surge in fraudulent activities e.g, reversals, impersonation, SIM swap scams, and false confirmation messages.
Current detection systems are manual and reactive leading to huge financial losses and declining user trust.

2. The Need for the Solution

- Kenyan adults use mobile money services.
- Thousands fall victim to fraud each year, often losing unrecoverable funds.
- There is no adaptive AI system capable of identifying real-time mobile money fraud before funds are lost.

Hence, an AI-powered system is needed to automatically **detect, flag, and prevent** suspicious transactions and scam messages.

3. Proposed Solution

AI Scam Shield for Mobile Money
A machine learning–based system that:

1. Learns user transaction behavior to detect unusual patterns (e.g., amount, frequency, timing). This will personalize each user
2. Uses **Natural Language Processing (NLP)** to detect fake SMS confirmations or scam messages.
3. Provides real-time alerts to users or financial institutions when fraudulent activity is suspected.
4. Leverage reporting to keep learning from new scam trends.

4. Technology Stack

- Component: Tools/Frameworks
- Data Analysis: Python, Pandas, NumPy
- Data Visualization: Matplotlib, Plotly
- Machine Learning: Scikit-learn, TensorFlow
- NLP (message analysis): Hugging Face Transformers, NLTK

5. Proof of Experience

I have hands-on experience building machine learning models, including a **data-driven oil pricing prediction model** available on GitHub:

https://github.com/jackie-wk/BreastCancer_dt/blob/main/oil_pricing_df.ipynb

This project demonstrates my ability in data cleaning, analysis, and model creation skills I will apply to this AI fraud detection concept.

6. Expected Impact

- Protect users and agents from mobile money scams.
- Build trust in Kenya's digital finance ecosystem.
- Support financial institutions and regulators with real-time fraud insights.

7. Future Vision

Once a working prototype is ready, the solution can be integrated with telecom APIs or mobile banking apps to provide end-user protection and reporting dashboards for fraud monitoring.