

AI Development Workflow Assignment

PLP Academy
AI for Software Engineering
Week 5 Assignment

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Introduction

This report presents the workflow for developing an AI system for detecting fraudulent transactions in mobile money platforms. It covers problem definition, data collection and preprocessing, model development, and performance evaluation. The aim is to provide a clear, reproducible approach for handling real-world transaction datasets.

1. Problem Definition

Problem: Fraud Detection in Mobile Money Transactions

Objectives:

- Detect fraudulent transactions in real-time.
- Reduce financial losses caused by fraud.
- Build trust in mobile money platforms.

Stakeholders:

- Mobile Money Users
- Financial Institutions

Key Performance Indicator:

Average Precision Score (AUPRC)

2. Data Collection and Preprocessing

Data Sources:

- Historical mobile money transaction records.
- User account and behavioral data.

Potential Data Bias:

Fraud cases are rare, leading to class imbalance.

Preprocessing Steps:

- Handle missing values (timestamp, amount) appropriately.
- Convert timestamps into useful features such as hour and day of week.
- Normalize transaction amounts using log transformation.

3. Model Development

Model: Logistic Regression

This model is interpretable, fast to train, and suitable for binary classification tasks.

Data Splitting Strategy:

80% of data is used for training and 20% for testing, using stratified sampling to handle class imbalance.

Hyperparameters Tuned:

- Regularization strength (C).
- Maximum number of iterations.

Conclusion

This report demonstrates a complete workflow for developing a fraud detection AI system using mobile money transaction data. By carefully defining the problem, collecting and preprocessing data, and selecting an appropriate model, we achieve a reproducible methodology that can be extended to real-world datasets.