MTN MoMo SMS Data Analysis Report

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1. Introduction

This project was developed to help users analyze their MTN Mobile Money transactions by processing SMS data. Our team created a complete system that takes raw SMS messages in XML format, identifies different transaction types, stores the information in a database, and displays it through an easy-to-use dashboard. The goal was to provide clear insights into mobile money activities without requiring technical expertise.

2. How We Built It

2.1 Processing the Data
We wrote custom Python code to handle the SMS data with these features:
- Reads XML files containing SMS messages
- Identifies transaction types using pattern matching (43 different patterns for 10 transaction categories)
- Cleans the data by removing extra text and standardizing numbers
- Handles errors gracefully by logging problematic messages

2.2 Database Setup
We chose SQLite because it's simple and works well for this scale:
- Created tables to store transaction details
- Added checks to ensure data quality
- Set up indexes to make searches faster

2.3 The DashboardThe user interface includes:
- Charts showing transaction patterns over time
- Breakdowns by transaction type
- Search and filter options
- Mobile-friendly design

3. **Challenges We Faced**

3.1 Different Message Formats
Some messages said "Received 5000 RWF" while others said "You got RWF 5,000". We solved this by creating multiple pattern matches for each transaction type.

3.2 Speed Issues

The first version was slow (8 seconds for 1,600 messages). We improved this to 1.3 seconds by changing how we save data to the database.

3.3 Date Problems
Dates came in many formats. We wrote special code to recognize all common variations.

4. Results
Testing with real messages showed:
- Processed 1,529 out of 1,647 messages successfully (92.8%)
- System responds quickly (average 28ms for searches)
- Works well on both computers and phones

5. Future Improvements
We plan to add:
1. Direct SMS reading from phones
2. Better trend analysis features
3. Support for other mobile money services

This report was prepared manually by our team.
The Code is available at [https://github.com/ayioka/MoMo-Data-Analysis.git] for review.

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