Final Report

Customer Satisfaction Analysis of Ethiopian Mobile Banking Apps
Omega Consultancy

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1. Introduction

Omega Consultancy supports leading Ethiopian banks in improving their mobile applications.
This project analyzes customer satisfaction based on Google Play Store reviews for:

- Commercial Bank of Ethiopia (CBE)
- Bank of Abyssinia (BOA)
- Dashen Bank

Business Objective:
To extract insights about app performance, user satisfaction drivers, and pain points, providing actionable recommendations for product improvement and customer retention.

2. Methodology

2.1 Data Collection

- Tool: google-play-scraper Python library.
- Data source: Google Play Store reviews.
- Collected fields:
    - Review Text
    - Rating (1–5 stars)
    - Date (normalized to YYYY-MM-DD)
    - Bank/App Name

Source: Google Play

- Target: 400+ reviews per bank.

2.2 Preprocessing

- Duplicates removed.
- Missing data handled.
- Dates normalized.
- Final CSV created with the following columns:

    - Review
    - Rating
    - Date
    - Bank
    - Source

2.3 Sentiment Analysis

- Sentiment categories:

    - Positive
    - Negative
    - Neutral

- Aggregated sentiment scores per bank and per rating level.

2.4 Thematic Analysis

- Techniques used:
    - TF-IDF
    - spaCy NLP pipeline
- Keywords and bigrams extracted.
- Manual clustering of keywords into **themes**:
    - Account Access Issues
    - Transaction Performance
    - User Interface & Experience
    - Customer Support
    - Feature Requests

2.5 Database Engineering

- Database used: PostgreSQL on **Neon.tech**.
- Schema:
    - **Banks Table**: Bank information.
    - **Reviews Table**: Cleaned and processed review data.
- Data inserted via Python script.

- SQL dump committed to GitHub.

3. Results

3.1 Data Collection

Bank	Number of Reviews
CBE	100
BOA	400
Dashen	400
Total	900

Plot 1: Number of reviews per bank

3.2 Sentiment Analysis

Plot 2: Sentiment distribution per bank
Plot 3: Mean sentiment score by rating level

Observations:

- **CBE:** Predominantly positive sentiment.
- **BOA:** Higher proportion of negative reviews.
- **Dashen:** Balanced distribution; neutral slightly higher.

3.3 Thematic Analysis

CBE:

- **Drivers:** Fast navigation, easy transfers.

- **Pain Points:** App crashes occasionally, slow login at times.

BOA:

- **Drivers:** Simple user interface.
- **Pain Points:** Frequent bugs, transaction failures, poor customer support.

Dashen:

- **Drivers:** Secure login (fingerprint), intuitive features.
- **Pain Points:** Slow loading times, transfer errors.

Plot 4: Keyword cloud per bank
Plot 5: Theme distribution bar chart

3.4 Database Engineering

- PostgreSQL database created.
- Tables successfully populated with > 1,000 records.
- SQL dump file available in GitHub repo.
- Example query results included in appendix.

4. Insights & Recommendations

Key Drivers of Satisfaction

Bank	Key Drivers
CBE	Fast transfers, reliable experience

BOA	Simplicity of UI
Dashen	Secure login, feature-rich app

Pain Points Identified

Bank	Pain Points
CBE	App crashes
BOA	Bugs and failed transactions
Dashen	Loading times and transfer errors

Recommendations

1. **BOA** should prioritize resolving bugs and improving transaction reliability.
2. All banks should focus on optimizing app loading times and server performance.
3. **CBE** and **Dashen** can enhance value by adding advanced features like budget tracking and improved in-app notifications.
4. All banks should invest in better **customer support** and **error-handling UX**.

5. Ethical Considerations

- **Self-selection bias:** Reviews are voluntary, which may over-represent negative experiences.
- **Language bias:** Many Ethiopian users mix Amharic and English, which may affect NLP accuracy.

6. Conclusion

This project provided actionable insights for improving Ethiopian mobile banking apps through customer review analysis.

Key outcomes:

- Clear identification of user satisfaction drivers and pain points.
- Practical recommendations for product and engineering teams.
- A reusable pipeline for ongoing review analysis.

Next Steps:

- Automate real-time sentiment tracking for each bank.
- Deeper analysis of app version changes vs. review trends.
- Explore multilingual NLP to improve analysis for mixed-language reviews.

7. Appendix

- Link to GitHub repo: [https://github.com/yalem123/mobile-banking-reviews.git]