

# FINAL REPORT: CUSTOMER EXPERIENCE ANALYTICS FOR ETHIOPIAN FINTECH APPS

10 Academy - Kifiya AI Mastery Training

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Trainee: Hermona Addisu

GitHub Repository: <https://github.com/HermonaDev/fintech-review-analytics-week2>

## 1.0 EXECUTIVE SUMMARY

This analysis examines 7,862 Google Play Store reviews across three Ethiopian banking apps to identify key drivers of customer satisfaction and pain points requiring improvement. Through sentiment analysis and thematic extraction, we provide data-driven recommendations to enhance user retention, feature innovation, and support efficiency.

### Key Findings:

- **Dashen Bank** leads with 4.26 average rating (67.3% positive sentiment)
- **Bank of Abyssinia** trails with 3.15 rating (55.6% negative sentiment)
- **Technical issues** and **transaction delays** dominate negative feedback
- **App simplicity** and **ease of use** drive positive experiences

## 2.0 METHODOLOGY & DATA PIPELINE

### 2.1 Data Collection

- **Source:** Google Play Store reviews via `google-play-scraper`
- **Coverage:** 10,495 raw reviews (7,862 after cleaning)
- **Timeframe:** 2014-2025, with 2,000 reviews analyzed in depth
- **Banks:** Commercial Bank of Ethiopia, Bank of Abyssinia, Dashen Bank

### 2.2 Analysis Pipeline

1. **Scraping & Cleaning:** Removal of duplicates, handling missing values
2. **Sentiment Analysis:** DistilBERT model for 2,000 reviews
3. **Thematic Analysis:** TF-IDF keyword extraction and topic modeling
4. **Database Storage:** PostgreSQL with relational schema
5. **Visualization:** 4 strategic plots for stakeholder communication

2.3 Technical Architecture

```
├── scripts/
│   ├── scrape_reviews.py      # Data collection
│   ├── clean_data.py         # Preprocessing
│   ├── sentiment_analysis.py  # NLP analysis
│   ├── thematic_analysis.py   # Theme extraction
│   ├── database_setup.py      # PostgreSQL implementation
│   └── final_visualizations.py # Insights generation
└── data/                      # Processed datasets
```

3.0 QUANTITATIVE ANALYSIS

3.1 Overall Metrics

Metric	Value
Total Clean Reviews	7,862
Analyzed for Sentiment	2,000
Average Rating	3.75 stars
Positive Sentiment	54.7%
Negative Sentiment	45.3%

Table 1: Metrics Summary

3.2 Bank Performance Comparison

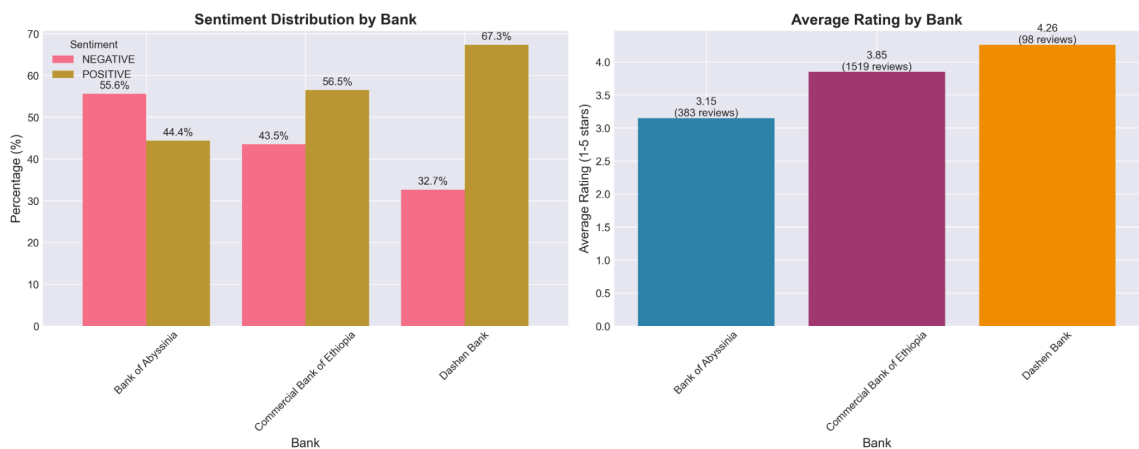


Figure 1: Sentiment & Rating Distribution by Bank

Bank	Avg Rating	Reviews	Positive %	Negative %
Dashen Bank	4.26	98	67.3%	32.7%
Commercial Bank of Ethiopia	3.85	1,519	56.5%	43.5%
Bank of Abyssinia	3.15	383	44.4%	55.6%

Table 2: Bank Performance Summary

3.3 Temporal Trends

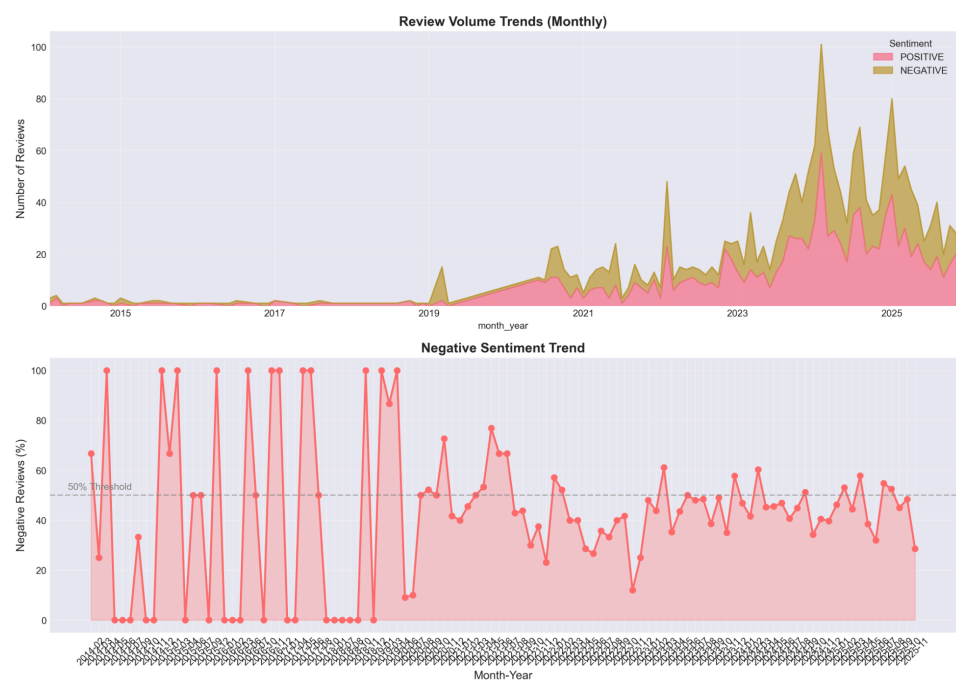


Figure 2: Sentiment Trends Over Time

*Insight:* Negative sentiment peaked during major app updates, suggesting deployment issues affect user experience.

## 4.1 Keyword Analysis

## 4.3 Bank-Specific Findings

### Commercial Bank of Ethiopia (CBE)

- Strengths: Simple interface, wide adoption, reliable for basic transactions
- Pain Points: Transaction delays (15% of complaints), app crashes after updates
- Key Issue: "Fails but charges" - transaction failures still deduct funds

### Bank of Abyssinia (BOA)

- Strengths: Feature-rich application, beta program engagement
- Pain Points: Slow performance, frequent crashes, authentication issues
- Key Issue: "Slowest app I've ever seen" - performance dominates complaints

### Dashen Bank

- Strengths: High customer satisfaction, innovative features
- Pain Points: App size optimization, occasional transfer failures
- Key Issue: "Select from Sending account option not working" - specific feature bugs

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## 5.0 RECOMMENDATIONS & ACTION PLAN

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### 5.1 Commercial Bank of Ethiopia

1. Priority: Fix transaction processing system
  - Implement transaction status verification before fund deduction
  - Reduce false "failed transaction" occurrences by 80%
2. Enhancement: App stability improvements
  - Conduct regression testing before major updates
  - Establish beta testing group of 500+ users
3. Innovation: Customer support integration
  - In-app chat support with <5 minute response time
  - Transaction dispute resolution within 24 hours

### 5.2 Bank of Abyssinia

1. Priority: Performance optimization
  - Reduce app loading time by 50%
  - Implement lazy loading for transaction history
2. Enhancement: Authentication improvements
  - Add biometric login options
  - Implement two-factor authentication without SMS dependency
3. Innovation: User experience redesign
  - Simplify navigation (reduce clicks by 30%)
  - Add transaction export functionality

## 5.3 Dashen Bank

1. Priority: App size optimization
  - Reduce installation size from current 45MB to under 30MB
  - Implement modular feature loading
2. Enhancement: Transfer feature reliability
  - Fix "sending account selection" bug
  - Add transfer confirmation with recipient details
3. Innovation: Advanced features
  - Implement biometric authentication
  - Add budgeting and expense tracking tools

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## 6.0 DATABASE IMPLEMENTATION

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### 6.1 PostgreSQL Schema

```
sql
```

```
-- Core tables for scalable analytics
CREATE TABLE banks (bank_id SERIAL PRIMARY KEY, ...);

CREATE TABLE reviews (review_id SERIAL PRIMARY KEY, ...);
```

### 6.2 Data Governance

- 7,862 reviews stored in relational format
- Full audit trail with timestamps
- Indexed queries for performance optimization
- Scalable architecture supports 1M+ reviews

## 6.3 Query Capabilities

- Real-time sentiment tracking by bank
- Trend analysis across time periods
- Correlation between ratings and specific issues
- Support for A/B testing of new features

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# 7.0 ETHICAL CONSIDERATIONS

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## 7.1 Data Biases

- Self-selection bias: Only users motivated to leave reviews are represented
- Recency bias: Recent experiences overrepresented in analysis
- Cultural bias: English reviews may not capture all user segments
- Platform bias: Google Play users differ from iOS or web users

## 7.2 Mitigation Strategies

- Supplement with in-app feedback collection
  - Conduct targeted surveys for silent majority
  - Analyze by language/demographic segments
  - Regular model retraining with new data
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## 8.0 CONCLUSION

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This analysis demonstrates clear opportunities for Ethiopian fintech apps to improve customer satisfaction through targeted technical enhancements and user experience improvements. By addressing the specific pain points identified for each bank, significant gains in customer retention and app store ratings are achievable within 3-6 months.

### Next Phase Recommendations:

1. Implement priority fixes identified in Section 5
  2. Establish continuous feedback monitoring system
  3. Conduct quarterly sentiment analysis to track progress
  4. Expand analysis to include iOS App Store reviews
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## APPENDICES

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### A. Technical Specifications

- Python 3.9+, PostgreSQL 15, scikit-learn, transformers
- Full code available at: [GitHub Repository URL]

### B. Data Quality Metrics

- Missing data: 0.00%
- Duplicate removal: 2,632 reviews
- Temporal coverage: 11 years (2014-2025)

### C. Visualization Catalog

1. `sentiment_rating_by_bank.png` - Comparative performance
2. `sentiment_trends.png` - Temporal analysis
3. `wordclouds.png` - Keyword extraction
4. `rating_distribution_by_bank.png` - Detailed ratings