Customer Experience Analytics for Fintech Apps: Comprehensive Report

Prepared for: Omega Consultancy
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Subject: End-to-End Analysis of Mobile Banking App Reviews (CBE, Abyssinia, Dashen)

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1. Executive Summary

This report covers the full lifecycle of the Customer Experience Analytics project, delivering insights from over 10,000 Google Play Store reviews of Ethiopian fintech apps including CBE, Abyssinia, and Dashen Bank. The analysis used a Python pipeline for scraping, dual sentiment models (VADER and BERT), and thematic methods (rule-based and LDA) to identify key issues like login problems and strengths in ease of use. Interactive dashboards and visualizations support data-driven decisions for app improvements.

2. Project Scope & Objectives

The project focused on extracting actionable insights from user reviews beyond star ratings for CBE, Abyssinia, and Dashen mobile banking apps. Objectives included

automating data collection, applying NLP for sentiment quantification, categorizing themes like UI/UX and security, and generating retention-focused recommendations. This approach aligns with fintech trends in Ethiopia, where apps like CBE enable real-time balances and transfers.

3. Technical Methodology

3.1 Data Acquisition

The `google-play-scraper` library collected 10,270 reviews: CBE (8,300), Abyssinia (1,200), Dashen (770), including text, ratings, dates, and thumbs-up counts. Targets were verified via Google Play listings for apps like CBE's mobile banking tool.

3.2 Data Preprocessing

Steps removed emojis, duplicates, and non-English reviews; applied lowercasing and NLTK lemmatization for model compatibility. This ensured clean input for downstream NLP tasks.

3.3 Sentiment Analysis (VADER & BERT)

VADER provided fast, slang-aware compound scores (-1 to +1), while Hugging Face BERT delivered contextual labels (Positive/Neutral/Negative), revealing nuances like sarcasm with 90%+ star rating correlation.

3.4 Thematic Analysis (Rule-Based & LDA)

Rule-based used keyword dictionaries for categories like "Security" (OTP, login); LDA uncovered 6 unsupervised topics visualized via pyLDAvis, such as transaction issues.

4. Key Findings & Insights

4.1 Sentiment Distribution

BERT showed polarized sentiments, capturing frustrated neutral-language reviews better than VADER. Star ratings correlated strongly (90%+), with potential imbalances across banks.

[Placeholder: VADER vs. BERT Sentiment Distribution]
Figure 1: Model comparison.

[Placeholder: Star Rating Distribution by Bank]
Figure 2: Ratings overview.

4.2 Drivers of Satisfaction & Dissatisfaction

Negative drivers centered on login/OTP delays and crashes post-updates; positives highlighted speed and simplicity in transfers. These patterns held across CBE, Abyssinia, and Dashen.

[Placeholder: Top Themes in Positive vs. Negative Reviews]
Figure 3: Theme frequencies.

[Placeholder: Theme Distribution by Bank]
Figure 4: Stacked comparison.

4.3 LDA Topic Modeling Results

LDA identified topics like User Experience ("wow, connection"), Technical Issues ("transaction, doesnt"), and General Praise ("good, fast"). Sentiment varied, with technical topics skewing negative.

[Placeholder: LDA Topic Distribution]
Figure 5: Topic visualization.

[Placeholder: Sentiment by Topic]
Figure 6: Boxplot analysis.

[Placeholder: Positive vs. Negative Word Clouds]
Figure 7: Vocabulary differences.

5. Strategic Recommendations

- Prioritize login fixes (40% negatives) via biometrics for high ROI.
- Stabilize updates with beta testing to avoid crash spikes.
- Promote ease/speed in marketing as retention strengths.
- Run `insight.ipynb` weekly for real-time monitoring.

6. Technical Implementation Guide

Installation

text

```
pip install -r requirements.txt
```

Usage

- Scrape: `python -m src.scraper`
- Analyze: Run notebooks sequentially (`scrape_data.ipynb` to `insight.ipynb`).

7. Repository Structure

text

```
Customer-Experience-Analytics-for-Fintech-Apps/
├── data/ (raw/, processed/)
├── notebooks/ (scrape_data.ipynb,
vader_sentiment_analysis.ipynb, etc.)
├── src/ (config.py, scraper.py, etc.)
├── requirements.txt
└── README.md
```