Solving Mysteries with Code

A Sentiment and Topic Analysis of Mobile Detective Games (2023–2025)
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1. Executive Summary

This study analyzes player reviews from seven popular mystery and detective mobile games on the Google Play Store (2023–2025). The dataset contains **10,173 reviews**. Using **lexicon-based** and **machine-learning** approaches, the analysis provides a descriptive and predictive examination of:

- Player sentiment
- Temporal trends
- Relationships between ratings and sentiment
- Dominant user concerns via topic modeling
- Performance of supervised classifiers for automated sentiment prediction

Key numerical highlights:

- **Total reviews analyzed:** 10,173
- **Sentiment counts (lexicon-derived):** Positive = 8,086; Negative = 1,334; Neutral = 753
- **Agreement between lexicons (TextBlob & VADER):** 71.81%
- **Classification results (test set):**
  - Logistic Regression: accuracy **0.84**, F1 ≈ 0.92 (Positive)
  - Random Forest: accuracy **0.82**
  - SVM: accuracy **0.85**
- Topic modeling produced interpretable themes (saved for Tableau visualization)

2. Research Questions

RQ1 – Overall Sentiment

- What is the distribution of Positive, Neutral, and Negative reviews for each game?
- Which games are most positively received?

RQ2 – Sentiment Trends Over Time

- How has player sentiment evolved (2023–2025)?
- Are there spikes or drops corresponding to updates or events?

RQ3 – Ratings vs Sentiment

- How do star ratings align with sentiment labels?

- Are there systematic gaps (e.g., high ratings with negative text)?

RQ4 – Topic Modeling (LDA)

- What major themes appear in player reviews (story, bugs, ads, difficulty)?
- Which topics are associated with positive or negative sentiment?

RQ5 – Predictive Modeling

- How well can classifiers (Logistic Regression, Random Forest, SVM) predict sentiment?
- Which model balances precision and recall best across sentiment classes?

3. Findings

RQ1 – Overall Sentiment

- Positive: 8,086 reviews (≈79%)
- Negative: 1,334 reviews (≈13%)
- Neutral: 753 reviews (≈7%)
- Positive skew is consistent across all games, indicating **overall favorable reception**.

RQ2 – Sentiment Trends Over Time

- Time-series plots show **episodic declines** tied to updates or user complaints.
- Positive sentiment remains dominant across 2023–2025.

RQ3 – Ratings vs Sentiment

- Ratings generally align with sentiment, but **mismatches exist**.
- Identifies reviews where star ratings may misrepresent user experience.

RQ4 – Topic Modeling (LDA)

- Major themes: **story/narrative, bugs/crashes, ads/monetization, difficulty/gameplay**
- Positive sentiment often linked to story/puzzles; negative sentiment linked to bugs and monetization.

RQ5 – Predictive Modeling

- **Logistic Regression:** accuracy 0.84, strong F1 for Positive (≈0.92)
- **Random Forest:** accuracy 0.82
- **SVM:** accuracy 0.85, balanced performance across classes
- Neutral reviews are **hardest to classify**, requiring human oversight.

4. Practical Implications & Summary

- Player sentiment is predominantly **positive**, indicating strong user satisfaction.
- Topic modeling identifies **actionable themes** for QA/product improvements.
- ML classifiers are effective for **large-scale review triage**, with Neutral reviews flagged for manual review.
- Temporal analysis provides insights on **update-driven sentiment changes**, supporting release planning and community management

5. Closing Statement

This analysis demonstrates a complete pipeline for converting raw Google Play reviews into actionable insights:

- Sentiment breakdowns
- Topic-driven user concerns
- Temporal trend detection
- Automated classifiers for scalable review processing

The studied titles enjoy **strong positive reception**, with clear guidance on issues that matter most to players.