Amazon Review Sentiment Analysis

ARTI 402 - PROGRAMMING FOR AI

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Project Goal & Problem Statement

- **The Problem**: E-commerce sellers face thousands of reviews. Manually reading them to find product defects is impossible.
- **The Objective**: Build an AI tool to automatically classify sentiment (Positive, Neutral, Negative) and extract actionable quality control insights.
- **Target Product**: Apple iPhone 4s (Certified Refurbished).

The AI Solution

01 TOOLS

- **Python**
- **Pandas**
- **TextBlob**

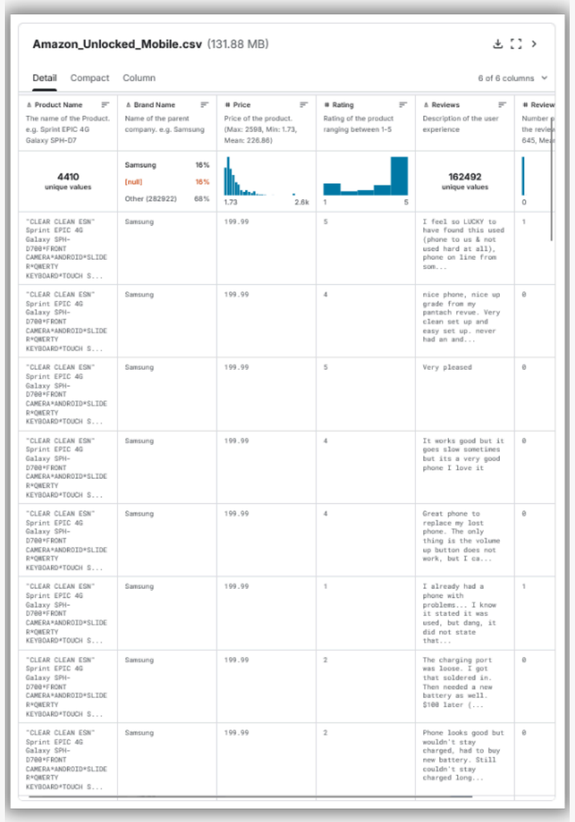
02 CLASSIFICATION LOGIC

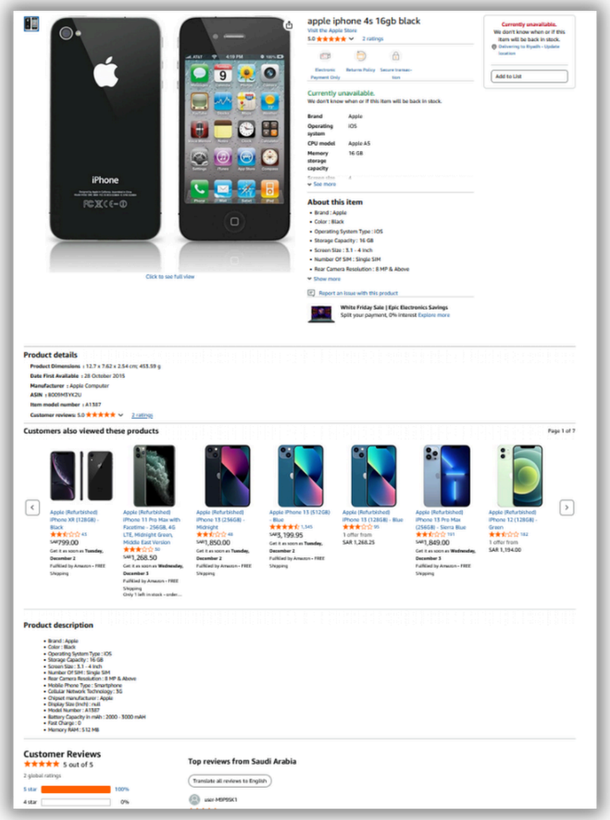
- **Negative:** Polarity Score < -0.2
- **Neutral:** Polarity Score between -0.2 and 0.2
- **Positive:** Polarity Score > 0.2

03 PROCESS

Imported dataset → Filtered for iPhone 4s → Applied Sentiment Analysis → Visualized Results.

Data Overview



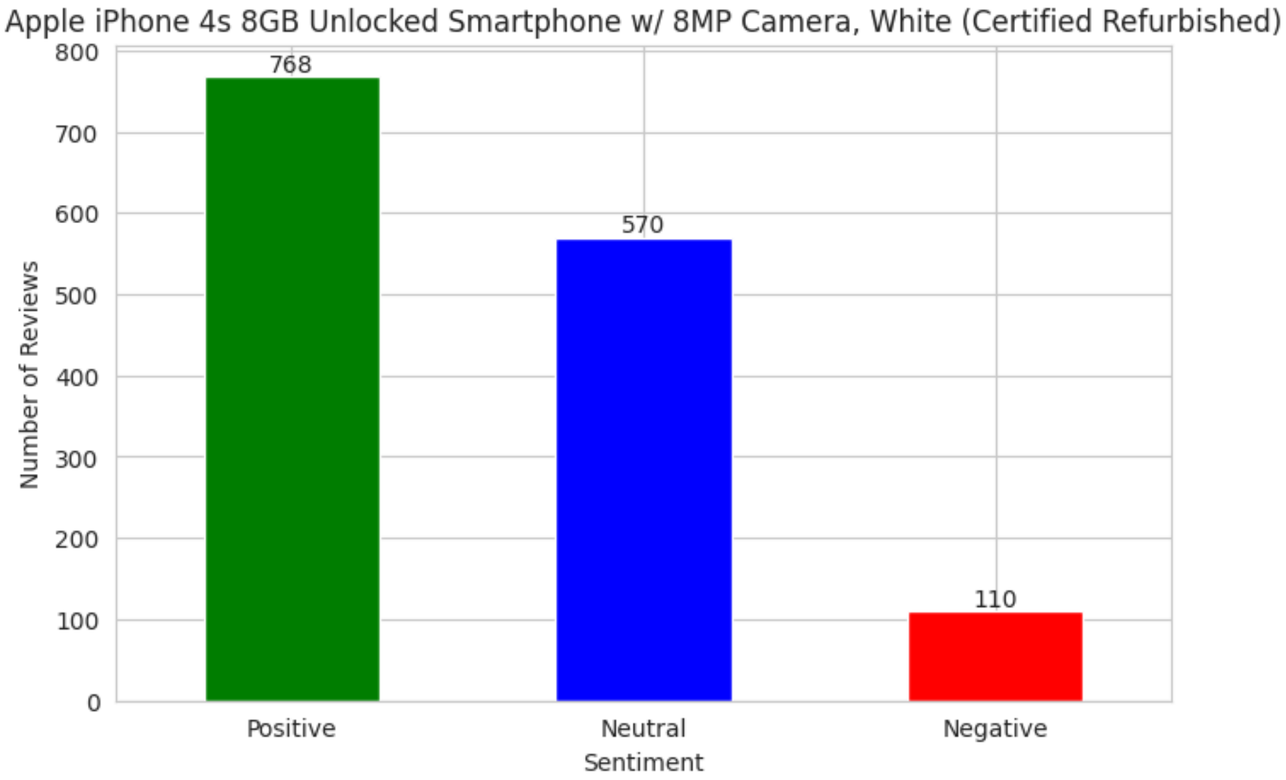


DATASET

PromptCloud Amazon Unlocked Mobile Phones

VOLUME ANALYZED

1,448 Reviews of iPhone 4s



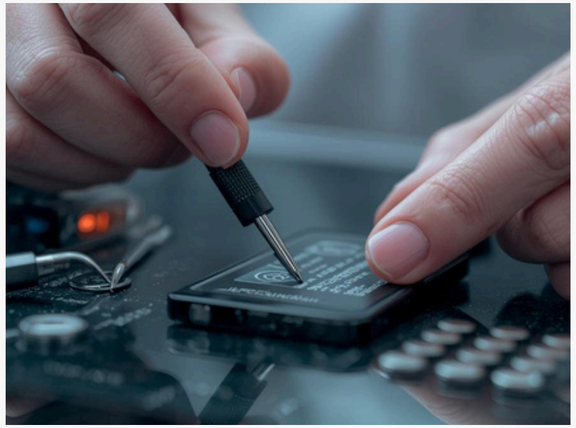
Analysis Results

SENTIMENT DISTRIBUTION:

- Positive: 53% (768 reviews)
- Neutral: 39% (570 reviews)
- Negative: 8% (110 reviews)

While the product is generally well-received, the high "Neutral" block is suspicious and warrants investigation.

Key Insights & Recommendations



BATTERY FAILURES

"Negative" reviews consistently report dead or bad batteries.

- **Action:** Implement strict battery health testing before shipping.

HIDDEN DEFECTS

The AI missed broken phones (e.g., "not working") and labeled them "Neutral".

- **Action:** Manually check "Neutral" reviews for functional failures.

Conclusion & Limitations

SUMMARY

The AI successfully identified a specific quality control issue (Batteries) in the refurbished stock.

LIMITATION

TextBlob is Lexicon-based. It struggles with Sarcasm and context.

FUTURE WORK

Use deep learning models (like BERT) to better catch context and "hidden" negative sentiment.

ANY QUESTION ?