Analysis of Airbnb Guest Experience in Melbourne

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What is Airbnb?

- A peer-to-peer platform for short-term lodging.

- Relies on guest reviews to maintain service quality.

- Numeric ratings lack detail on *why* guests are satisfied or not.

Why Melbourne?

- One of the top Airbnb cities globally.

- Dataset includes 480,000+ reviews from Kaggle

The Challenge

- Airbnb reviews are rich but unstructured.
- Star ratings miss emotional information.
- Hosts lack insight into guest concerns.

Our Goal

- Use Aspect-Based Sentiment Analysis (ABSA) to:
  - Identify what guests talk about (*aspects*).
  - Understand how they feel about each aspect (*sentiment*).
  - Highlight both strengths and problem areas in service.

1) Preprocessing

- Cleaning, tokenization, lemmatization, stopword removal

2) Aspect Extraction

- Rule-based keyword matching
- LDA (Latent Dirichlet Allocation)
- BERTopic (transformer-based topic modeling)

3) Sentiment Analysis

- VADER (lexicon-based)
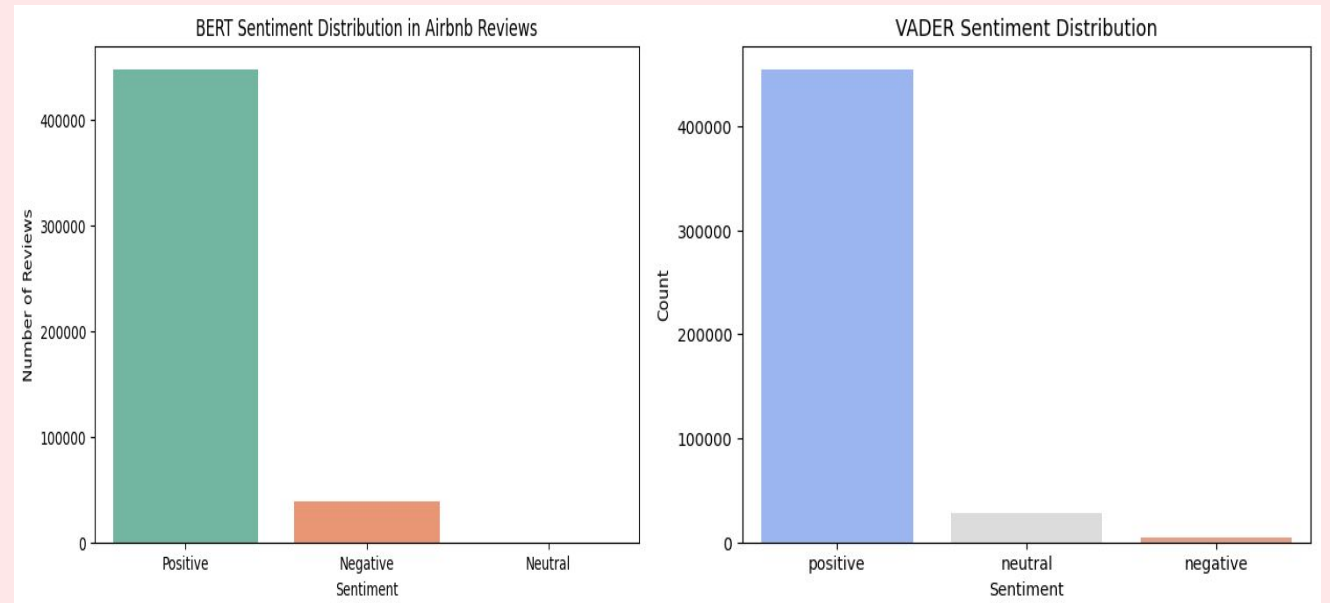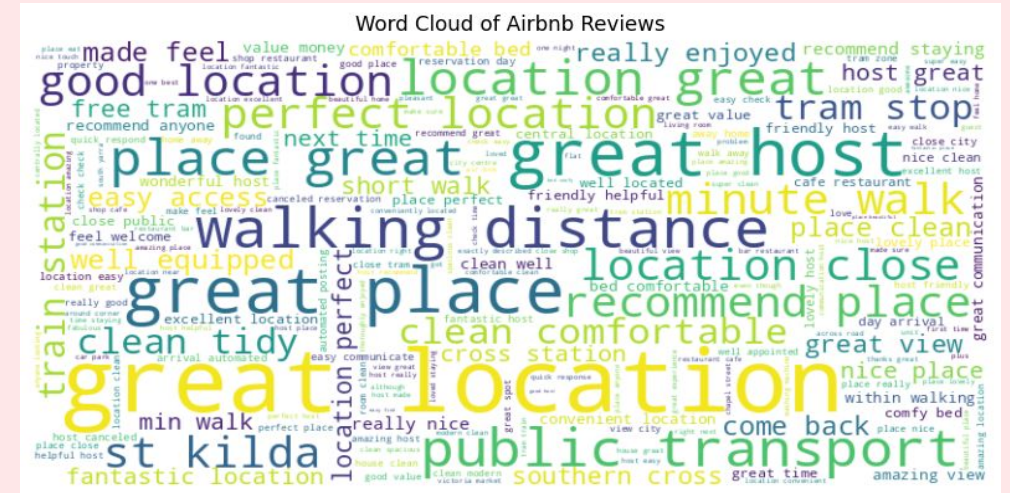- BERT (contextual sentiment model)

4) Cross-analysis

- Linked aspects to sentiment for deeper insights

Key Aspects Identified

● Location, cleanliness, and communication were most frequently mentioned across all methods.

Sentiment Overview

● 90%+ reviews are positive (both VADER & BERT)

● A few topics (e.g., **booking** and **cleaning fees**) stand out as sentiment outliers, revealing specific issues not reflected in numeric ratings.

Word Cloud of Airbnb Reviews

BERT Sentiment Distribution in Airbnb Reviews

VADER Sentiment Distribution

Conclusions

- Most reviews are positive, highlighting location and host interation.
- Some topics (e.g. booking, cleaning fees) show higher negativity.
- ABSA helps uncover nuanced guest concerns at scale.

Recommendations

- Improve **booking experience** and **clarify fee structures** to reduce negative feedback.
- Monitor aspect-level feedback to improve service.

airbnb