

Airbnb Cape Town Business Analysis.

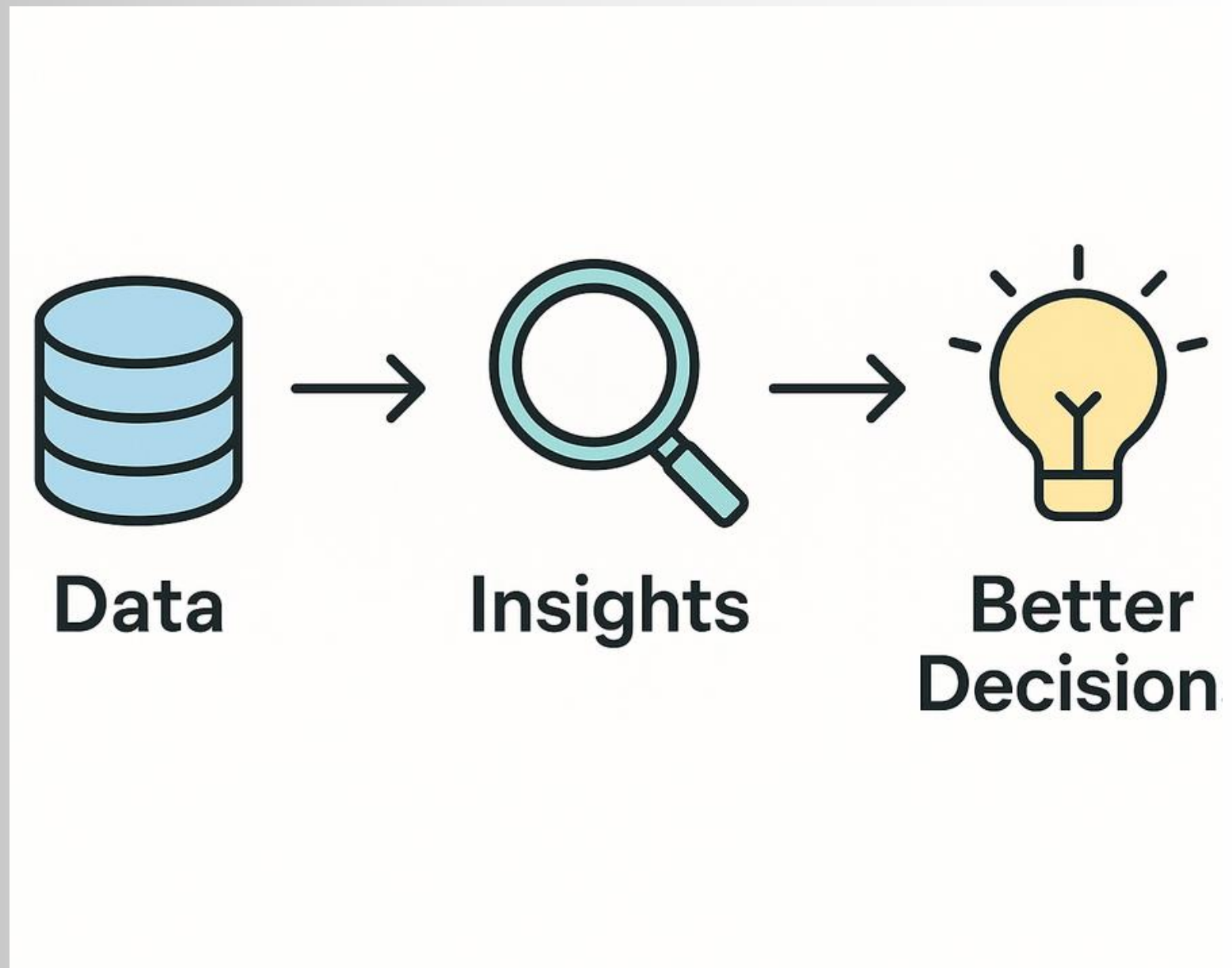
A data-driven guide for Airbnb hosts

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OVERVIEW

- Cape Town's Airbnb market is competitive and fast-growing.
- Many hosts—especially new ones—struggle to set prices and estimate revenue.
- We built a data-driven tool to help hosts:
 - Predict expected revenue.
 - Suggest improvements to increase earnings.



BUSINESS UNDERSTANDING

The Problem:

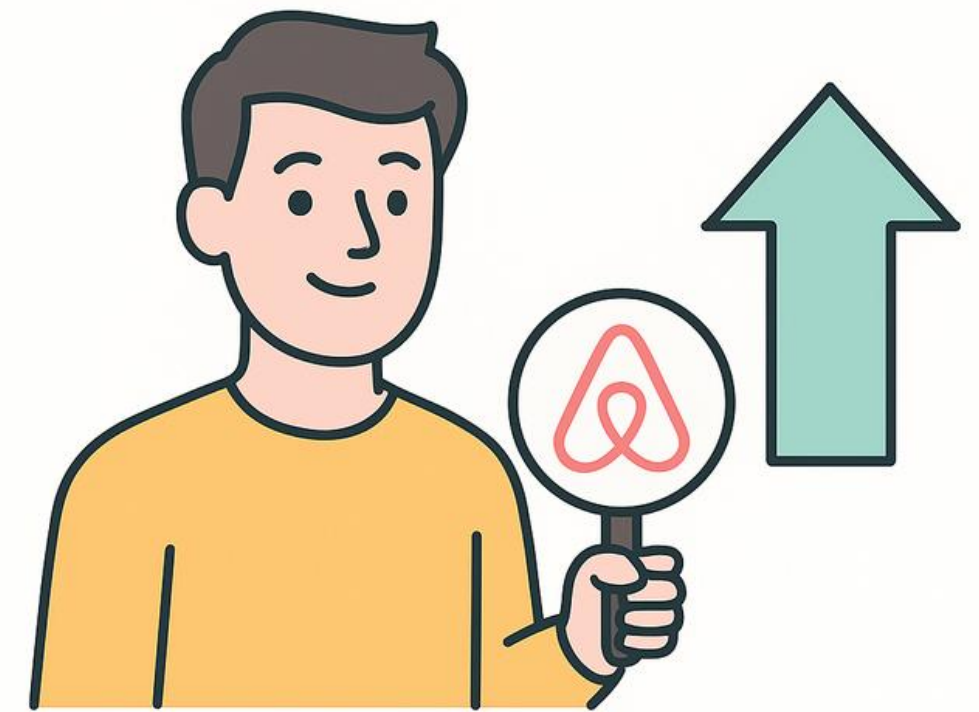
Hosts risk losing bookings or undervaluing their property without good pricing and availability strategies.

Our Solution:

A Revenue Recommender System that learns from past Airbnb data and gives clear, actionable tips.

Goals:

Identify drivers of revenue, understand guest satisfaction factors and Forecast occupancy and pricing trends



Revenue



Data Understanding

Data Sources

We used Airbnb's public Cape Town datasets:



Listings.csv – Property details (location, room type, amenities)



Calendar.csv – Daily prices and availability



Reviews.csv – Guest ratings and comments



Neighbourhoods.csv – Mapping of areas in Cape Town

Data Preparation



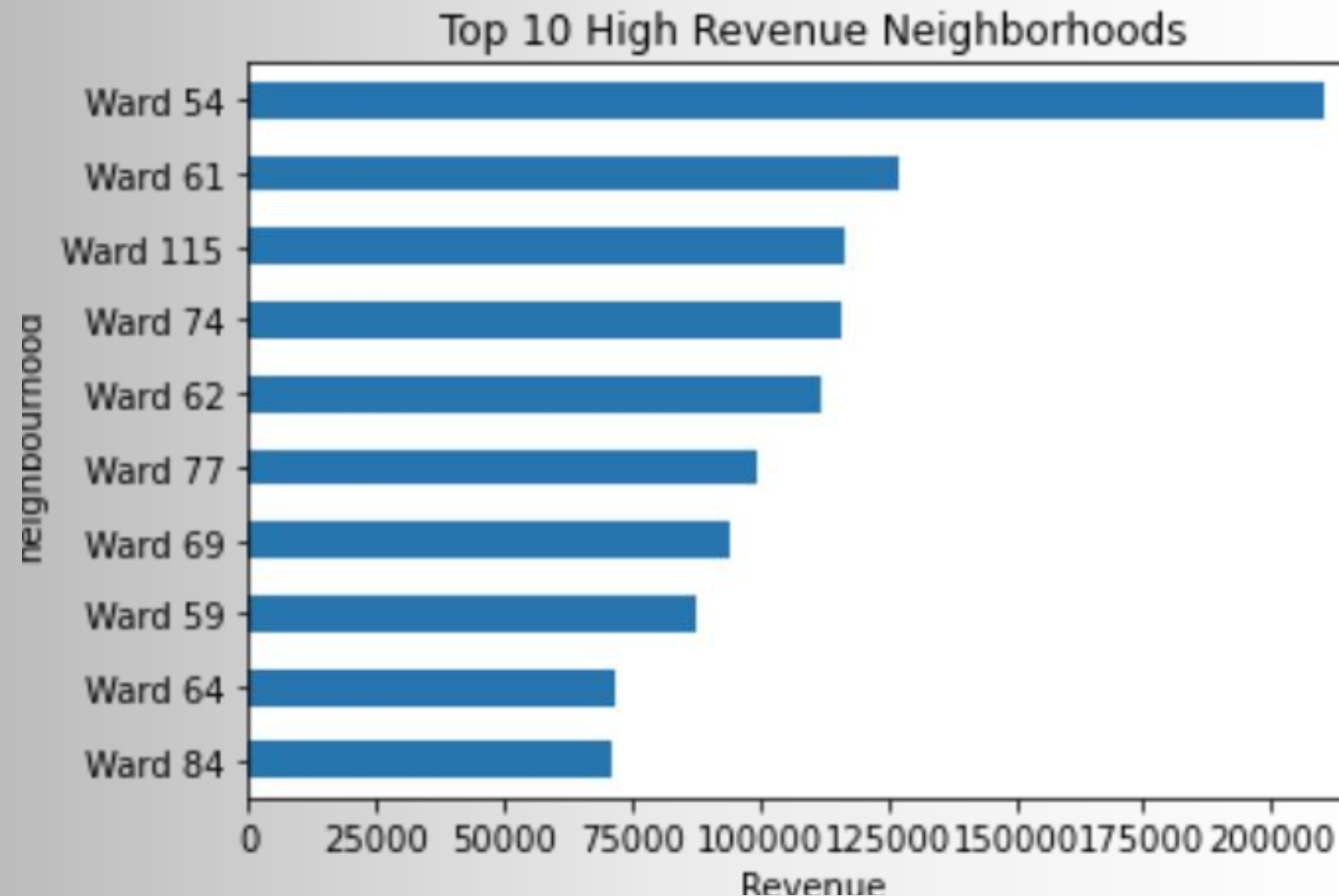
To make sure our analysis was accurate, we:

- Removed outliers (e.g., listings charging \$10,000 per night).
- Filled missing values in reviews and availability.
- Converted categories to numbers so models can understand them.
- Created new features like seasonal availability trends.

Key Data Insights

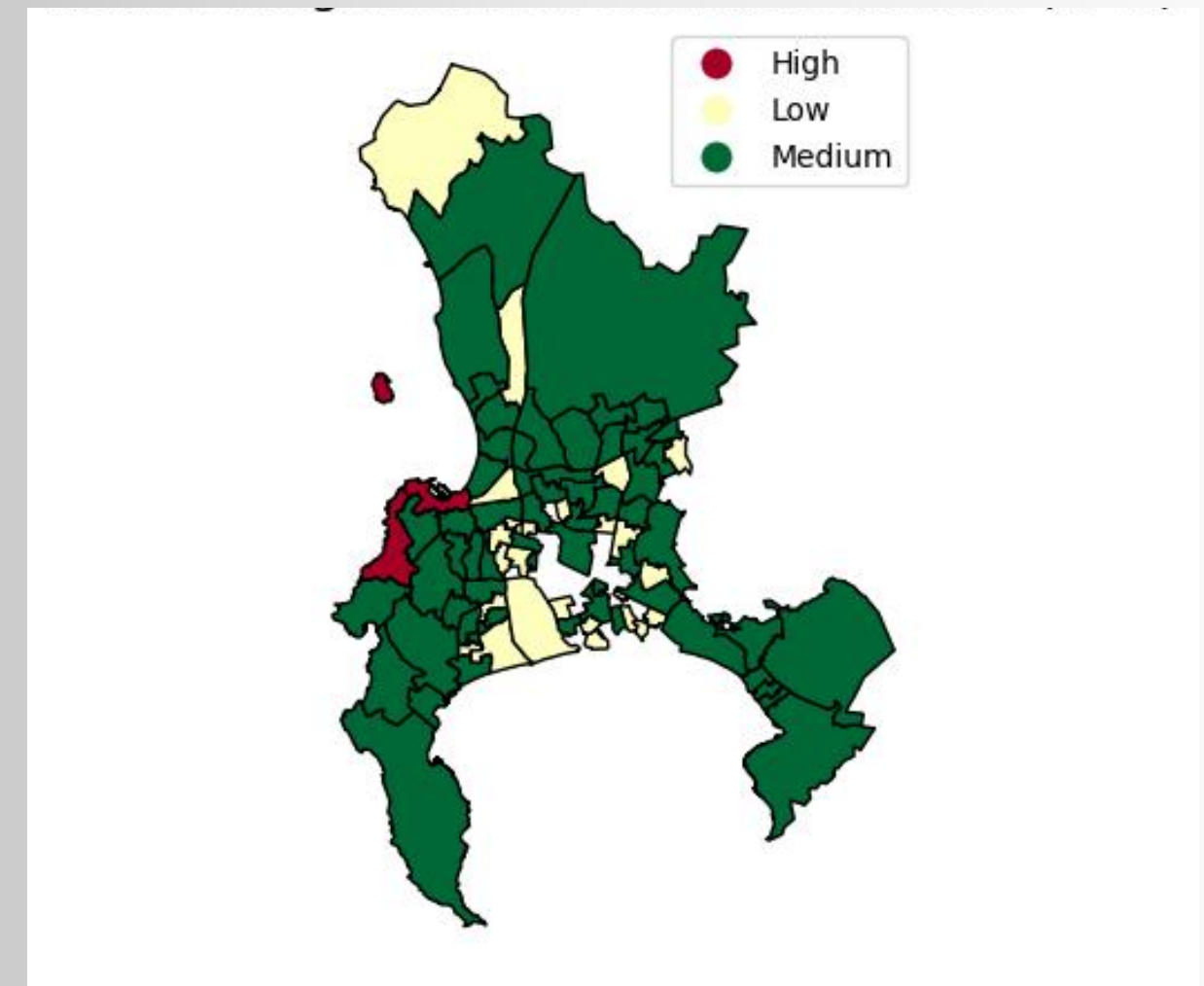
Certain neighbourhoods consistently outperform others in revenue.

- Ward 54 is the top-earning neighbourhood, with revenue far exceeding other areas.
- Other high-revenue areas include Ward 61, Ward 115, Ward 74, and Ward 62.
- Revenue differences between wards suggest location plays a major role in Airbnb success.



GEOGRAPHIC INSIGHTS

- Listings in tourist hotspots like the Waterfront and Camps Bay have higher prices.
 - Central locations attract business travelers, boosting occupancy.
- Distance from attractions influences revenue.



Modelling

We tried several “smart tools” to see which predicts revenue best:

- Simple Trend Finder (Linear Regression) – Looks for straight-line relationships between factors like price, location, and revenue.
- Pattern Finder (Random Forest) – Handles complex situations where many factors work together.
- High-Accuracy Predictor (Gradient Boosting) – Combines many small models to make very accurate predictions.
- Group Finder (Clustering) – Groups similar listings together so we can compare performance within each group.



Findings

- Price, location, and room type are the biggest drivers of revenue
- Higher review scores boost revenue potential
- Availability patterns (especially during peak season) matter a lot





Recommendations

To boost revenue, hosts should:

- Offer entire homes if possible
- Increase booking availability
- Maintain high review scores
- Optimize pricing using our model's feedback



Next Steps

We plan to:

- ✓ Launch a prototype dashboard using Streamlit
- ✓ Allow host input + instant feedback
- ✓ Deploy model as an API for future apps
- ✓ Share with local host communities



A black and white photograph of two modern, black leather armchairs with rounded backs and wide armrests, positioned in a minimalist room with a white wall and floor. The chairs are arranged in a row, with the foreground chair being more prominent. In the top right corner of the image, there are two small white circles, one slightly larger than the other, resembling a minimalist logo or a decorative element.

Limitations

- Data may not reflect recent Airbnb trends
- Sparse reviews or availability can reduce accuracy
- External events (e.g., travel bans) not accounted for

Real-World Impact

- Helps hosts make smarter, data-informed decisions
- Increases revenue potential, especially for new or struggling hosts
- Can scale to other cities in the future





THANK YOU

Questions and feedback

We are ready to discuss Further