

Hotel Pricing Intelligence for Amsterdam

Booking.com Case Study



Data-driven detection of overpriced and underpriced hotels

Problem Statements

Business Context

- Booking.com hotel partners struggle to set competitive, value-aligned prices
 - Mispricing reduces visibility, conversion, and revenue
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Pricing Conflict

- Guests expect fair, transparent pricing
- Hotels aim to maximize revenue
- Booking.com must balance both interests using objective, data-driven pricing insights that ensure fairness for guests and partners.

Analysis Overview

Goal

Identify which factors influence hotel pricing and detect hotels that appear overpriced or underpriced compared to their competitive peer group.

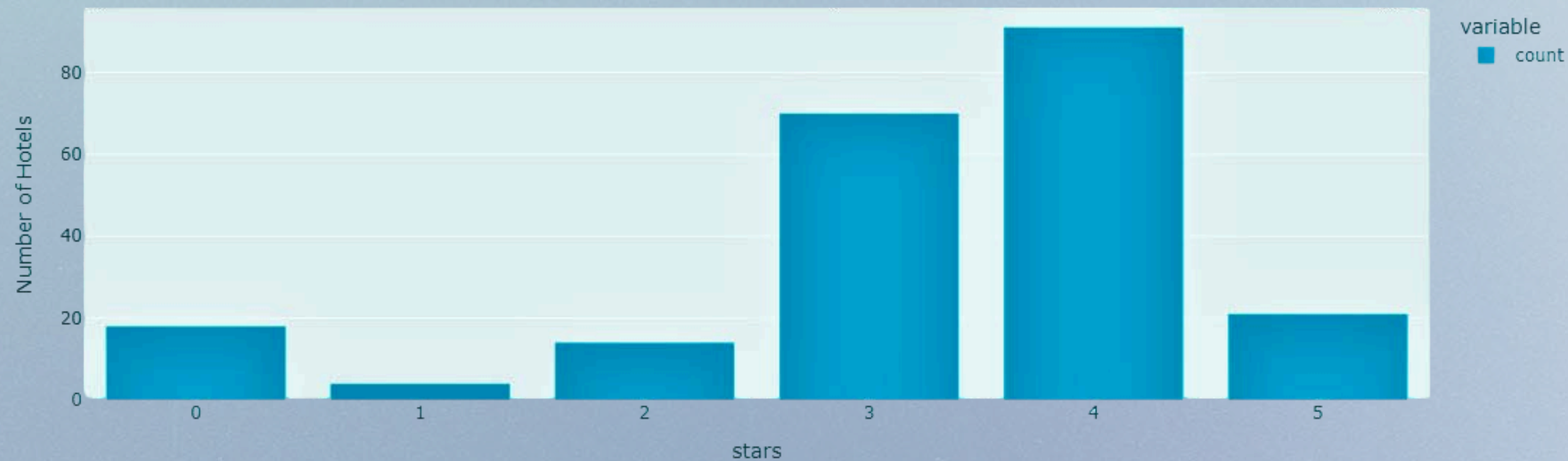
Step-by-step Analysis

- Define typical price ranges per star category
- Examine star category vs review score (guest satisfaction)
- Examine price vs review score and review count (trust/popularity)
- Analyze location influence on pricing
- Build mispricing criteria and examples
- Recommendations for balanced pricing

Data Overview

- 0☆ hotels are unrated hostels, apartments, and boutique stays.
- 1☆ and 2☆ hotels are rare, while 3☆–4☆ dominate the market.
- Hotel density is highest in Old Centre, Historic Canal Belt, Museum Quarter
- Amsterdam's market is mid-to-upper range heavy with main range of \$200-\$500.

Star Rating Distribution

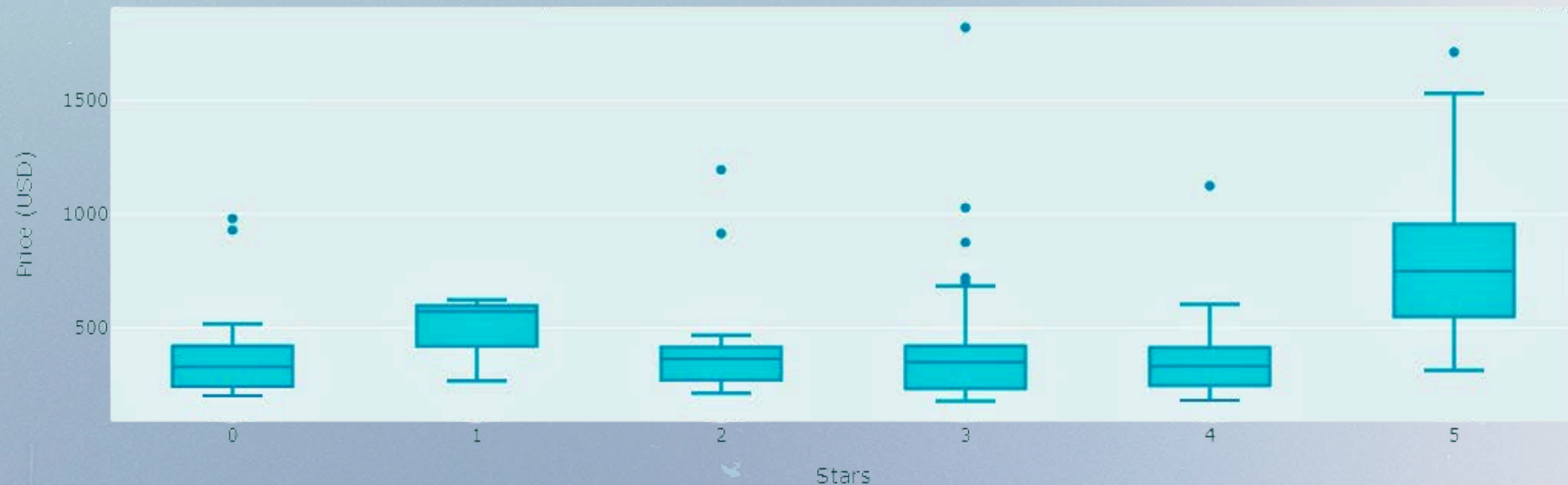


- 220 hotels in Amsterdam
- Stars: 1–5 (+0☆ unrated)
- Price: \$177–\$1820
- Review score: 6.0–9.7
- Review count: 15–20 800

Price range per star category

- 0 ☆ – 4☆ hotels cluster in the same \$200–\$500 range.
- 3 ☆ hotels show the widest spread, reaching \$1,200+ (one at \$1,800).
- 5 ☆ hotels form a premium band (\$600–\$900, range \$250–\$1,700+).
- 1 ☆ hotels are surprisingly pricey, likely due to small sample size.
- Several outliers suggest possible mispricing.
- Star rating alone doesn't predict price – categories heavily overlap.

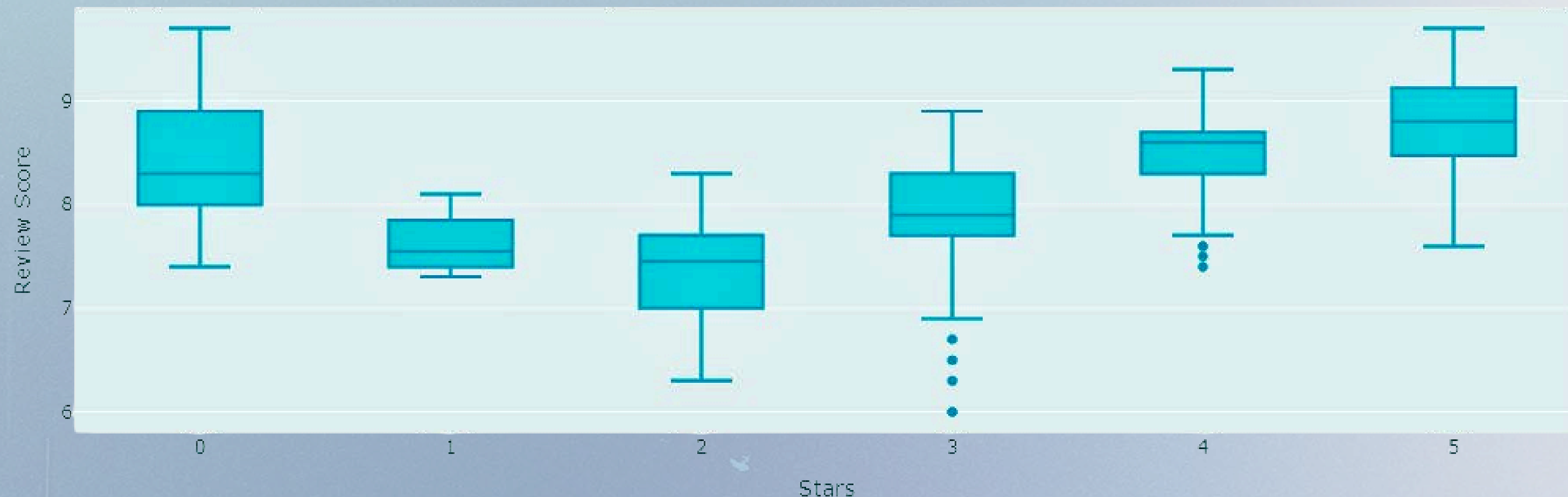
Price Distribution by Star Rating



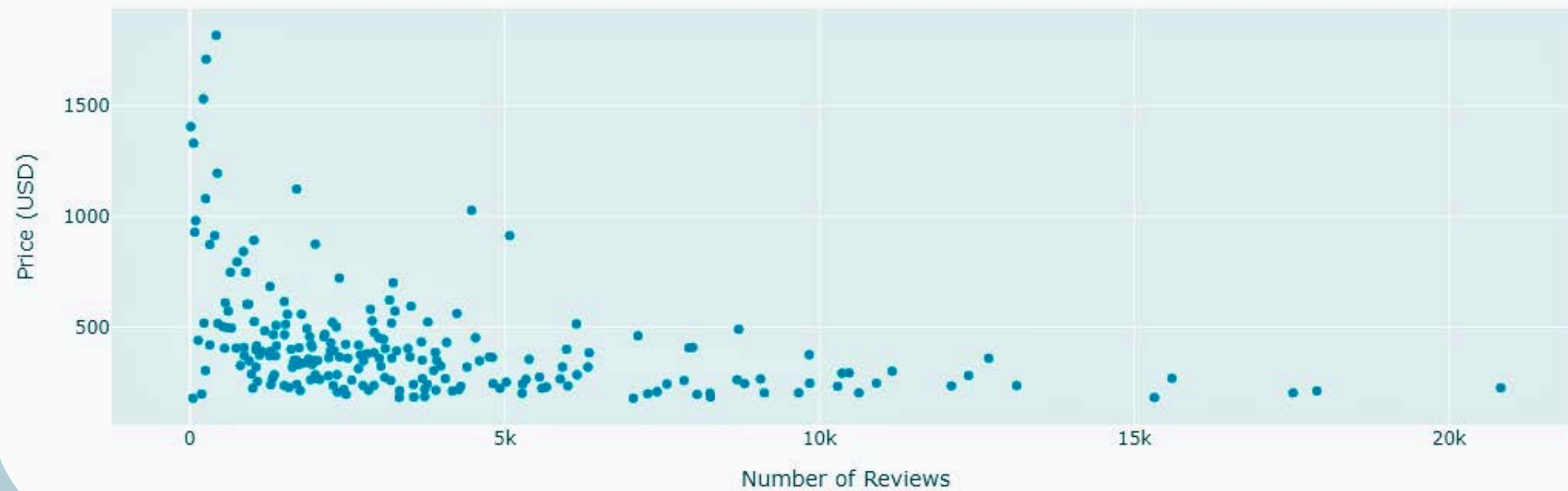
Review score vs star category

- Review scores generally increase with star rating, but variation is high in 0☆, 2☆, and 3☆ groups.
- Some 0☆ hotels score above 9.0, matching top 5☆ properties.
- 1 ☆ hotels outperform 2☆ hotels on average, indicating higher guest satisfaction than their classification suggests.
- 4☆ and 5☆ hotels show the most consistent (narrow) score ranges.
- Overall, review scores broadly align with star categories, making them a useful signal for validating price levels.

Review Score Distribution by Star Rating



Price vs Review Count



Price vs Review Count

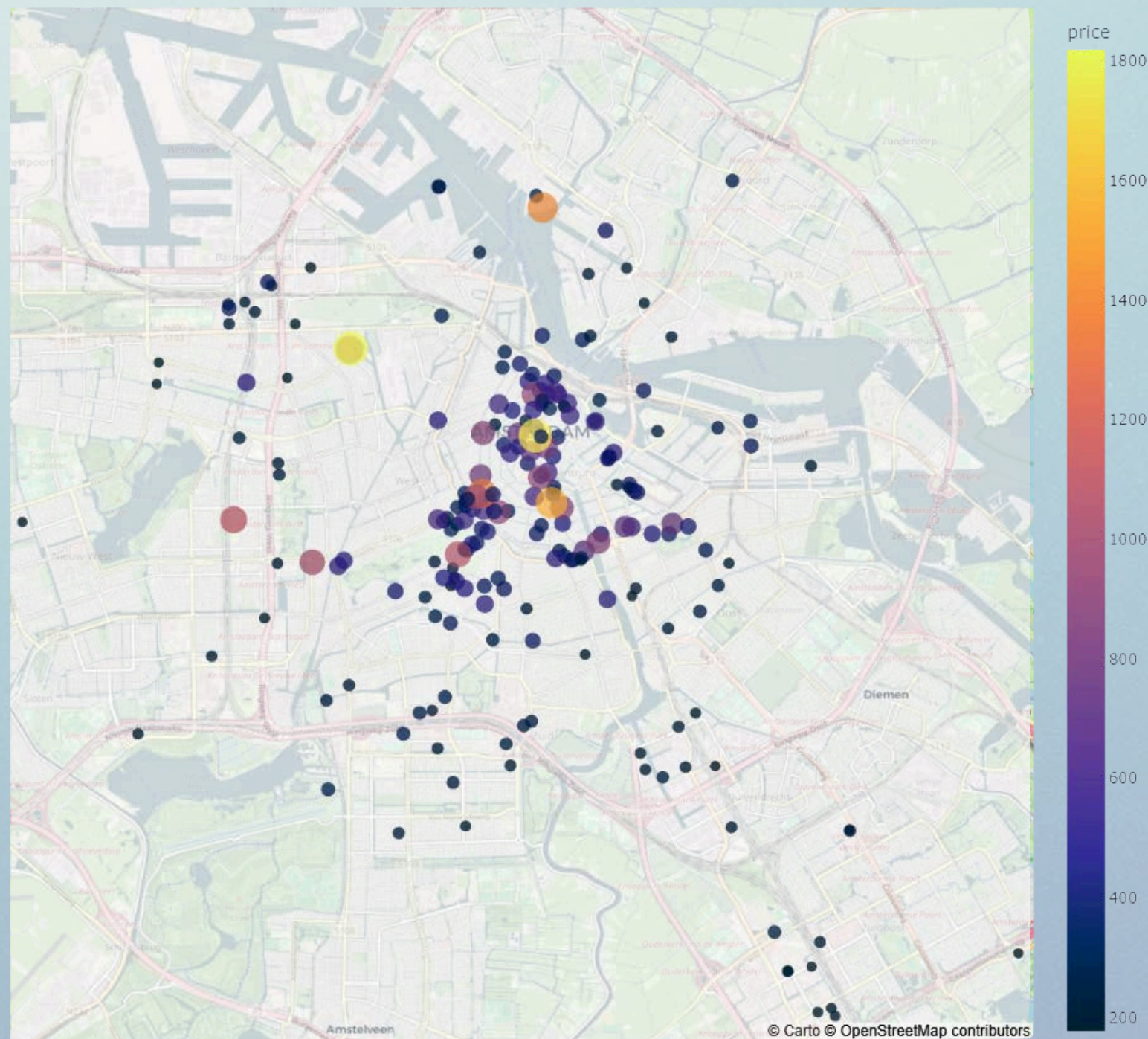
- Highest-priced hotels tend to have very few reviews, indicating exclusivity or possible mispricing.
- Hotels with thousands of reviews cluster in the \$200–\$400 mid-market range.
- As review count rises, price variation narrows, showing more stable, trust-driven pricing.

Price vs Review Score



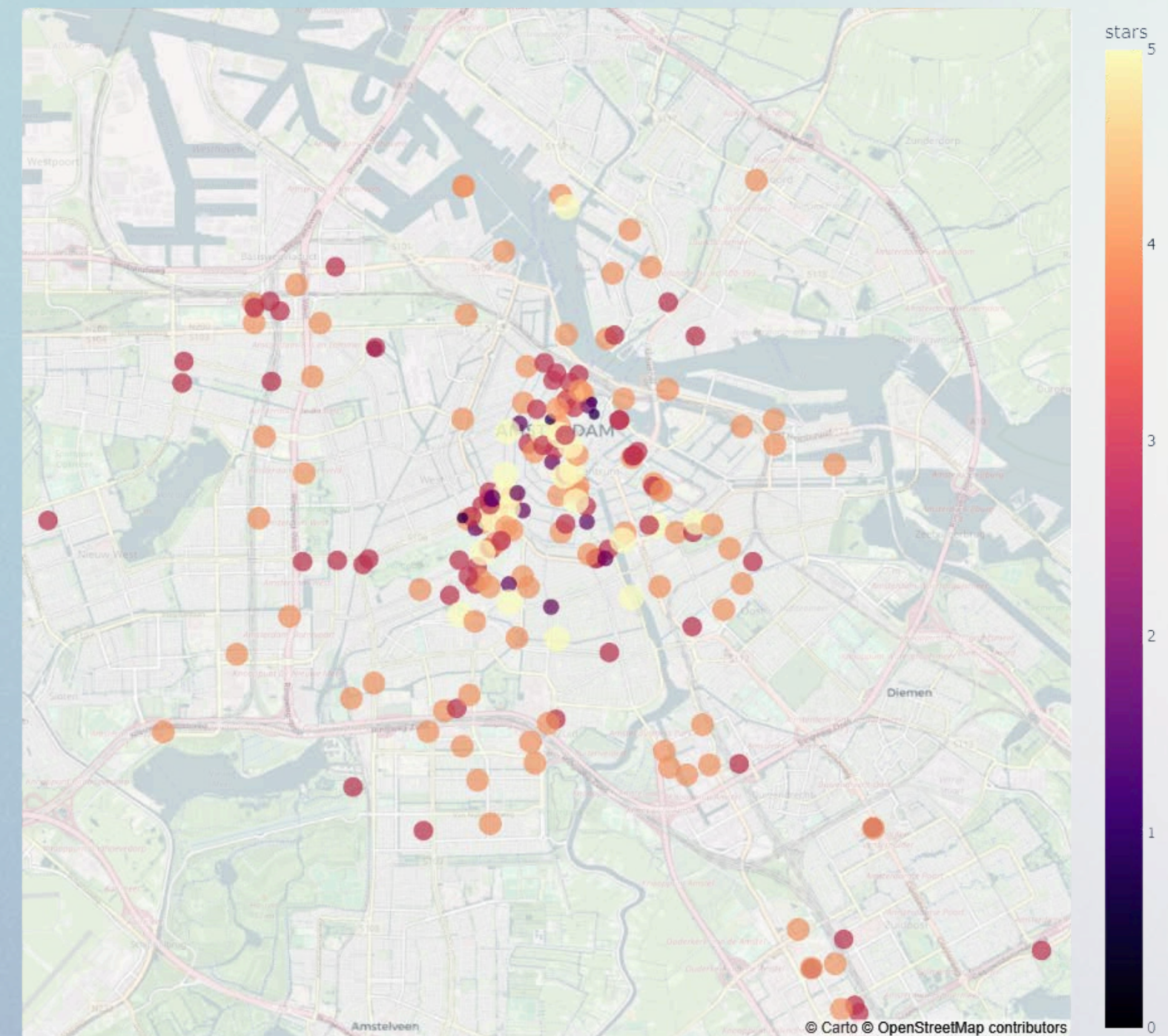
Price vs Review Score

- Higher scores can support higher pricing, but the correlation is weak — high-rated hotels exist at all price levels.
- Some low-scoring hotels charge premium prices, indicating potential mispricing.
- Most hotels cluster between 7.5–8.8, forming Amsterdam’s typical satisfaction range.



Location by Price

- Highest prices cluster in the Old Center, Museum Quarter, and De Pijp.
- Some premium hotels also appear in the North, West, and South-West areas.
- Mid-range hotels (\$200–\$500) are spread widely across the city.
- Lower-priced hotels dominate the outer districts.



Location by Star category

- 5★ hotels cluster in the Old Center, Museum Quarter, South Amsterdam, and along the Amstel River.
- 3★–4★ hotels are widely distributed across all districts.
- Budget hotels cluster mainly in the Old Center and Museum Quarter.
- The historic center has the highest hotel density overall.

Mispricing Patterns

Overpriced hotels

- Price far above typical range for their star category
- Low review score despite premium pricing
- Few reviews, meaning weak trust signals
- Location does not justify the high price (outside main premium zones)

Overpriced Example

Triple G Hotels

Stars: 3★

Price: \$1,820.46 (far above 3★ range)

Review Score: 6.7 (low)

Review Count: 420 (moderate, not strong)

High price not supported by score, trust, or location

Underpriced hotels

- High review scores (strong guest satisfaction)
- Many reviews, indicating trust and popularity
- Very good location, often near key attractions
- Price well below peers in the same star category

Underpriced Example

XO Hotels Infinity

Stars: 3★

Price: \$178.27 (below 3★ norm)

Review Score: 7.8 (strong)

Review Count: 7,044 (very strong trust)

High satisfaction and strong demand at very low price.

Pricing recommendations

These recommendations allow Booking.com to increase conversion, improve partner satisfaction, and strengthen marketplace fairness.

For Overpriced hotels

Insight: Many overpriced hotels charge 40–200% above category norms without strong reviews, trust, or premium location.

Recommendations:

- Reduce prices by 15–35% to return to competitive range for category & district.
- Avoid premium pricing when review score or review count is weak – stay below the upper quartile.
- Correct price–location mismatch: hotels outside premium zones (Old Center, Museum Quarter, De Pijp, Amstel) must not price as luxury, unless they provide exclusivity.
- Improve value perception (photos, amenities, service quality) if maintaining higher pricing.

Outcome: Higher conversion, fewer drop-offs, restored competitiveness.

Pricing recommendations

These recommendations allow Booking.com to increase conversion, improve partner satisfaction, and strengthen marketplace fairness.

For Underpriced hotels

Insight: Several high-performing hotels sit 10–30% below peer pricing, causing revenue loss.

Recommendations:

- Increase prices by 10–25% to reach peer median, justified by strong reviews & location.
- Apply dynamic pricing for weekends, events, and peak tourism (upper quartile pricing).
- Highlight strong social proof (reviews, badges, popularity indicators) to support higher pricing.
- Raise prices gradually while monitoring demand elasticity.

Outcome: Higher revenue per room while remaining competitive.

Thank You :)