Analysis of U.S. Hotel Room Rates

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Industry Background

Hotels market to two general categories of customers:

- Leisure travelers consist of individuals or groups of fewer than 10 people who typically book rooms on a short-term basis
- Group travelers consist of 10 more people who book farther in advance

Hotel pricing is dynamic:

- Hotels use yield management strategies to optimize revenue and occupancy
- Unlike leisure travel, group rooms cannot be booked online
- No transparency for group pricing – negotiated directly with hotels

My Project

Originated with my company - Groups360:

- Online platform for meeting planners to source and book hotels for group travel based on specified criteria
- Enables hotels to market directly to meeting planners at a lower cost

Motivation for project:

- To understand how room rate pricing varies in different regions over time

Data:

- 2018 daily room pricing and demand for 58 U.S. regions for upscale hotels

Data Questions

- How can you assess value when comparing room rates for different destinations? *“Am I getting a good deal?”*

- How do rates vary by region over time?

- Is there a relationship between group and leisure room rates?

Assessing the value of hotel room rates

- Aggregated the daily data by month and region for group revenue/demand
- Ranked all group rates by month – highest to lowest
- Separated each region into 4 Tiers (highest to lowest) and calculated the benchmark rate for each Tier
- Compared each region’s group rate to the benchmark Tier rate
- > 100 means a region’s rate is higher than the benchmark Tier rate; < 100 means the region is pricing under the benchmark rate for that Tier
- Regions change tiers based on the monthly rate and rank

Dashboards

Key Observations from Analysis

- A benchmark rate made it possible to assess the relative value for a region and observe a change in value over the year
- A benchmark rate is a useful tool to plan travel by making the destination variable or by making travel dates flexible
- Marquee events can cause a region’s rate to spike above its normal range and the benchmark tier rate
- Leisure and group rates had a correlation of .70 or greater for 51 of the 58 regions – they appear highly correlated

Next Steps

1. Create other ratings benchmarks:
   - Coastal areas: FL, CA, NC
   - Destination cities: San Francisco, San Diego, Chicago, New York, Washington, D.C., New Orleans, Miami, Boston, Savannah, Charleston, Nashville, Austin
   - Vacation Destinations: Colorado, Orlando, Anaheim, Myrtle Beach
2. Create an index weighted by price or supply
3. Analyze rates for weekday / weekend separately
4. Include more years

Workflow and Tools

Data provided as Excel files; imported into Pandas for EDA

Aggregated data by month and region

Ranked all regions by rate for each month

Created a benchmark rate for 4 rate tiers by month

Created interactive dashboards