

SUCCEEDING IN SIN CITY

SIN CITY STATISTICIANS

**TRINH DIEP, CARLOS MOLINA,
RODRIGO SUAREZ, PRITHVIRAJU
VENKATARAMAN, BRANDON CHANG**

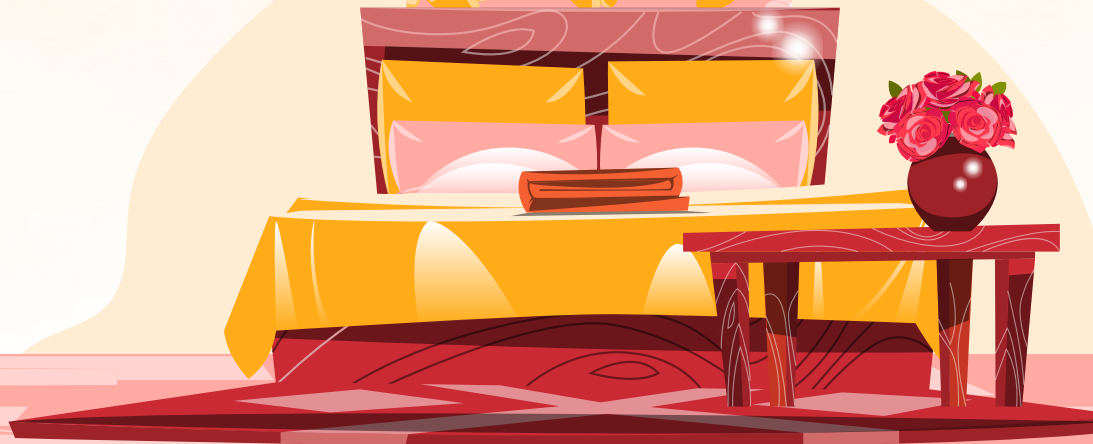


TABLE OF CONTENTS



01

**PROBLEM
STATEMENT**

02

**ANSWERING
THE PROBLEM**

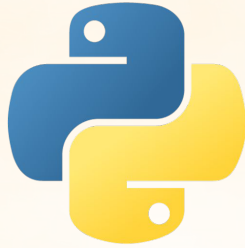
03

**CONCLUSIONS
& SUMMARY**

TOOLS



- Data Understanding
- Clean - Missing values, duplicates



- EDA - Correlated variables, visualizations
- Feature engineered
- Multiple Linear Regression for hotel reviews & score

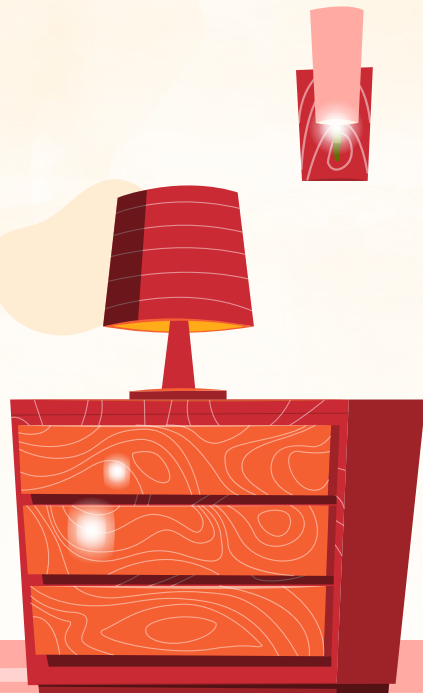
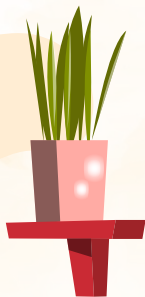


- Interactive Dashboard
- Presenting our findings



01

PROBLEM STATEMENT



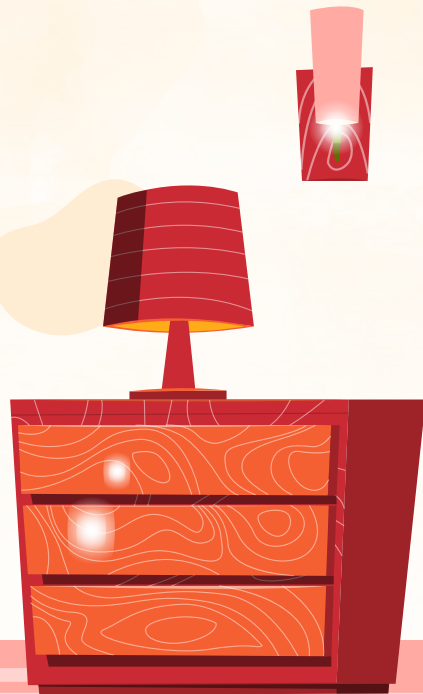
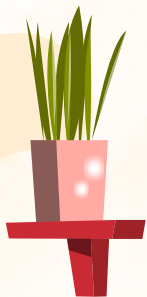


PROBLEM STATEMENT

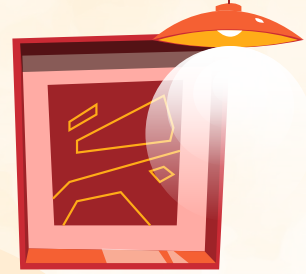
- (1) How can hotels predict a Tripadvisor review,
AND
- (2) what amenities should hotels prioritize in order to ensure the highest review (score)?

02

ANSWERING THE PROBLEM



How can hotels predict a Tripadvisor review?



All Columns on Hotel Reviews :

Using OLS Regression Model in Python

DV = Nr Hotel Reviews; IVs= all columns
Split test data at 30%

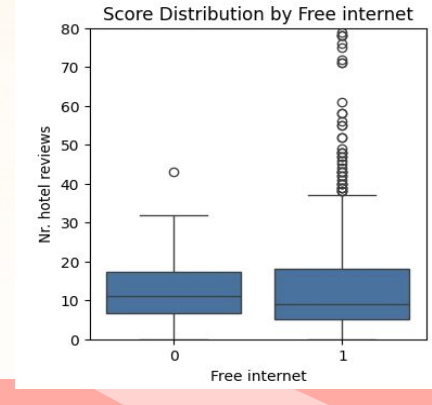
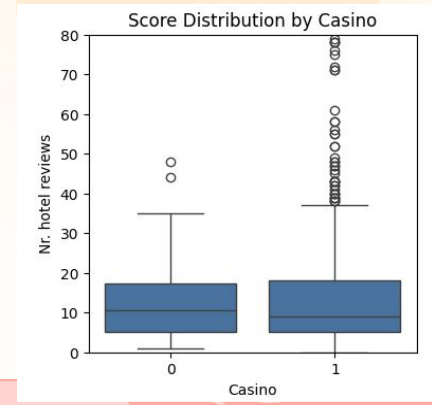
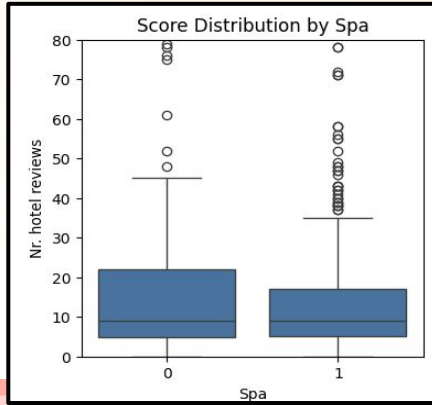
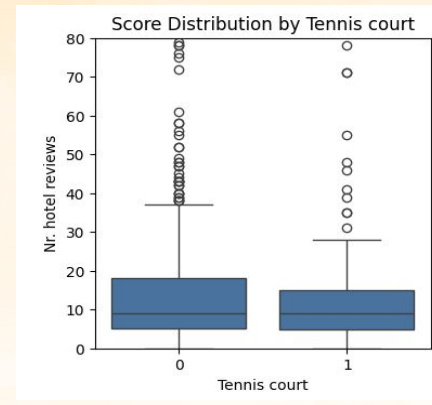
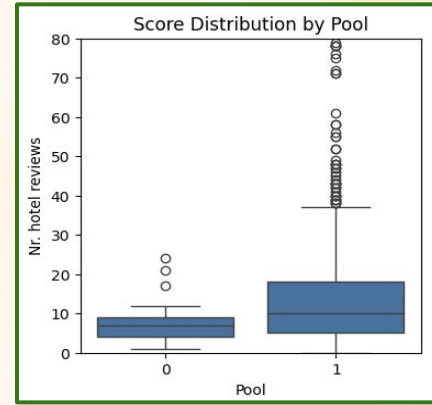
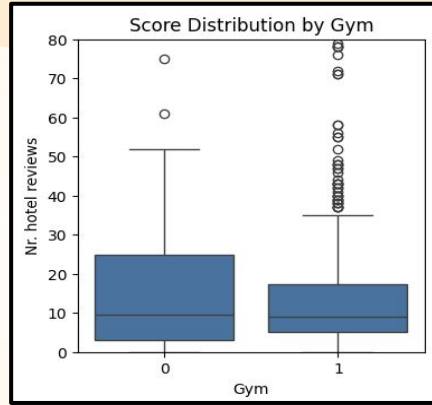
R-squared: 0.612

Only key findings

	Coeff	std err	p-val
-----	-----	-----	-----
const	-2.0182	1.065	0.059
Nr. reviews	0.0707	0.019	0.000
Helpful votes	0.2472	0.028	0.000
Member years	0.9276	0.271	0.001
Review month_August	5.5019	2.609	0.036
Hotel stars_5	-4.2852	1.474	0.004
Pool_0	-5.1325	2.625	0.050
Tennis court_1	-2.3623	1.171	0.045
Casino_0	-4.3202	1.911	0.024
Casino_1	2.3020	1.397	0.100

Hotels want more
More Reviews so:

- No gym
- No Spa
- Yes Pool

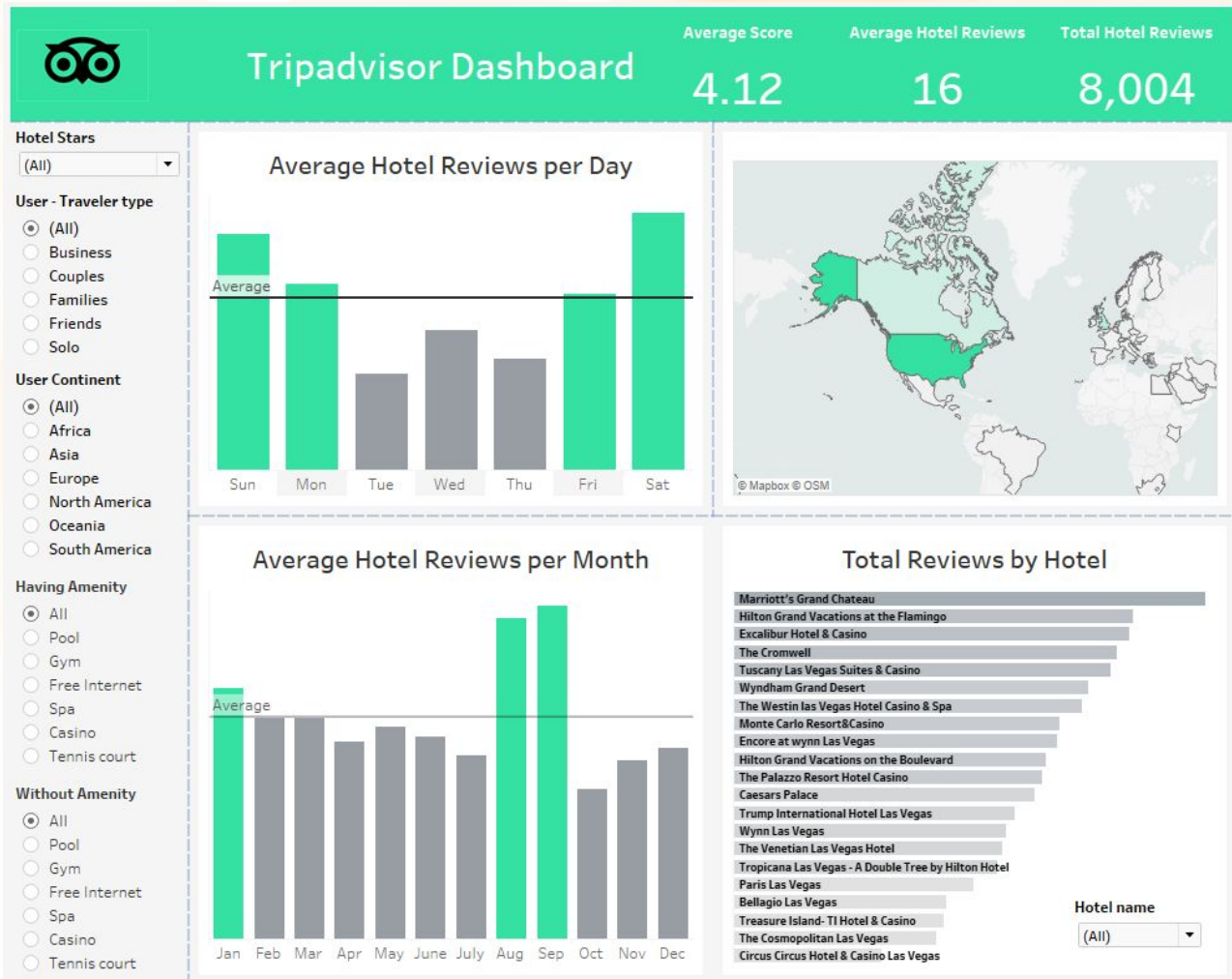


0 - No

1 - Yes

TABLEAU

DASHBOARD



Insights: On Hotel Reviews

- **Weekday:** Saturday and Sunday had the highest amount of hotel reviews (combined 35% of total) and customers leave roughly 25% more hotel reviews on average on Sat and Sun.
- **Review Month :** August, and September receives roughly 44% more hotel reviews on average than the rest of the months combined.
 - Aug is also statistically significant to higher hotel reviews according to OLS
- **Traveler Type :** Although Couples have left the highest number of hotel reviews, Business travelers by far leave the most on average (40% more)!
 - Be wary thought because business travelers are the most critical leaving the lowest scores out of all traveler types.
- **Continent :** Although North America had the highest number of hotel reviews, **Asia on average leaves about 25% more hotel reviews**
- **Hotel Stars :** Notably, hotels with 3.5 or 4.5 stars have the highest hotel reviews on average although only making up about 25% of all hotel reviews.
- **Amenities :** Similarly to the boxplots, no pool drops hotel reviews by 50%. If we want to increase hotel reviews by 35-45% exclude spa, gym and (to my surprise) casino.

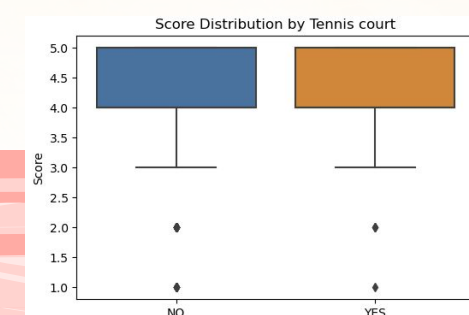
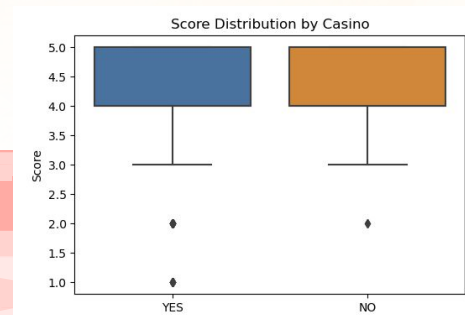
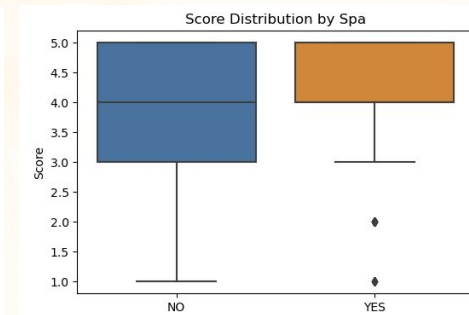
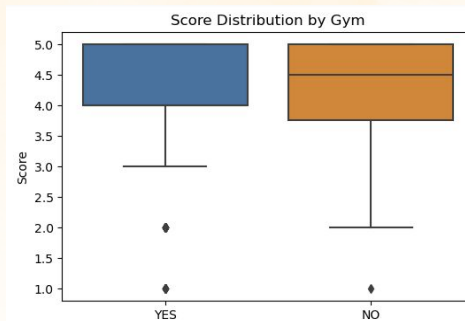
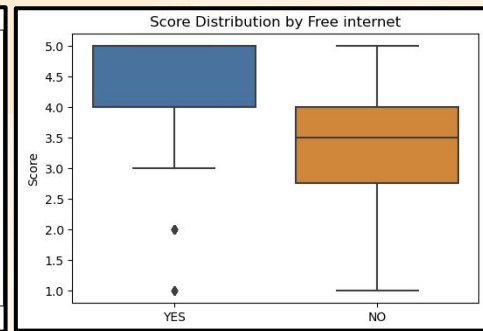
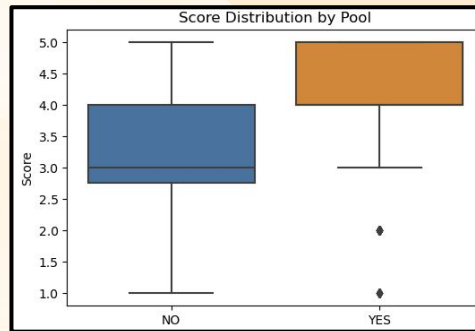
**What amenities should hotels
prioritize in order to ensure the
highest review?**



Amenities Influence on Score:

Using Box Plots

- Pool and Free Internet (**bolded**) showed significant decrease in scores when excluded
- Remaining 4 amenities showed little to no difference in scores if included or excluded
 - *Spa and casino showed no difference*
 - *Gym and spa had somewhat lower score medians*



Amenities Influence on Score:

Using OLS Regression Model in Python

DV = Score; IVs= Amenities

Split test data at 30%

R-squared: 0.099

	Coeff	std err	p-val

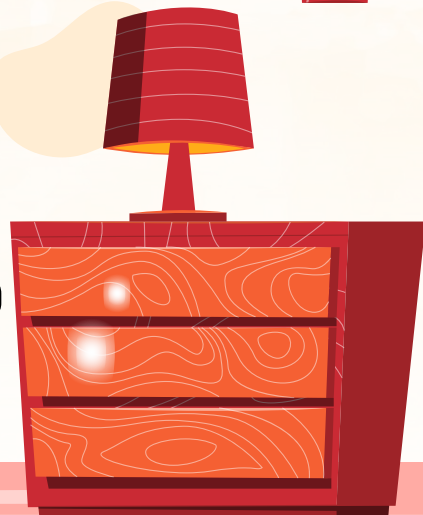
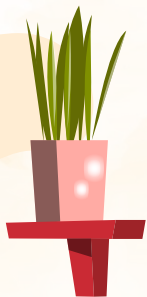
const	0.6527	0.087	0.000
Pool_0	-0.3308	0.217	0.129
Pool_1	0.9835	0.151	0.000
Gym_0	0.0558	0.208	0.789
Gym_1	0.5970	0.143	0.000
Tennis court_0	0.3204	0.074	0.000
Tennis court_1	0.3324	0.080	0.000
Spa_0	0.5269	0.106	0.000
Spa_1	0.1259	0.164	0.443
Casino_0	0.0925	0.192	0.630
Casino_1	0.5603	0.131	0.000
Free internet_0	-0.3065	0.152	0.045
Free internet_1	0.9592	0.122	0.000

Insights: On Score

- **Weekday:** Saturday and Friday received on average higher review scores.
- **Review Month :** Despite having one of the lowest total number of reviews, March has the highest review score.
 - Among the highest reviewed, Aug comes in with the second highest reviews score.
- **Traveler Type :** Friends and Couples leave the highest review scores at 4.25 (avg = 4.12).
- **Period of Stay :** Those that stay between Dec-Feb leave the highest review scores.
- **Continent :** Despite Asia being very active in leaving reviews they leave the second lowest scores. South America on the other hand, leave the highest scores with 4.43 (avg = 4.12).
- **Hotel Stars :** To no surprise, 5 star hotels receive the highest review scores but 3.5 star hotels receives the second highest.
- **Amenities :** Having certain amenities influence reviews score but a stronger influence are when amenities are excluded!
 - When pool is excluded 77% decrease in average score. When free internet is excluded 80% decrease in average score. Gym sees about 1% decreases when excluded.
 - Spa and Tennis court are interesting because excluding it drops scores by a <1% but including increases scores by 1% and 3% respectively.

03

CONCLUSIONS & RECOMMENDATIONS



Key Recommendations

1. Maximize Review Volume

- **Encourage Weekend Stays:** Saturdays and Sundays generate 35% of total reviews, with customers leaving 25% more reviews on average.
- **Focus on Peak Months:** August and September see a 44% increase in reviews. Enhance marketing efforts during these months two months but prioritize August.

2. Target High-Impact Traveler Segments

- **Business Travelers:** Drive more reviews by engaging business travelers, who leave 40% more reviews on average but be careful as they leave lower scores.
- **Couples and Friends:** Foster positive experiences as they leave higher scores and more reviews.

3. Leverage Location Insights

- **Capitalize on High-Performing Regions:** Although North America and EU leads in review volume, focus on strategies to attract travelers from Asia, who leave 25% more reviews on average.
- **Targeting South Americans:** Develop tailored experiences for South American guests as they leave the highest scored reviews but are among the lowest review givers.

Key Recommendations

4. Optimize Hotel Star Rating

- **Promote 3.5 and 4.5-Star Hotels:** These ratings yield the highest average review volume. Consider strategies to enhance hotels standing in these categories.
- **5 Star Hotel Excellence:** Continue delivered great service and encourage visitors to leave more reviews!

5. Enhance Amenities for Higher Scores

- **Prioritize Essential Amenities:** Ensure **Pool** and **Free Internet** are always available! Excluding these amenities drastically lowers scores (up to 80% decrease) but increase reviews significantly.
- **Reconsider Other Amenities:** **Spa** and **Tennis Court** have minimal impact, but consider their inclusion based on overall guest experience rather than score alone.

6. Maintain Quality Service Year-Round

- **High Ratings in Winter:** Capitalize on the higher scores received between December and February to boost off-season occupancy and ratings. Perhaps offer special promotions for stays between Dec-Feb and target Friends and Couples for high scores

FUTURE ANALYSIS



- See what combinations of amenities are best.
 - EX: pool + free internet brings the most reviews and scores!
- Examine combinations of traveler type and continent or period of stay.
- See which star hotels certain traveler types most stay at.
- See how factors influence reviews and score on weekday and month!

THANK YOU!

Does anyone have any
questions?