



HOTEL REVIEW TOPIC MODELING

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INTRODUCTION



HOTEL MANAGEMENT

Aggregate hotel reviews
with similar topics for
easy review

USERS

Filter on the relevant
reviews they are most
interested in reading



BOOKING AGENCY

Build hotel recommender
based on user-provided
preference



DATA

VIA HOTELS.COM API

50

HOTELS



1

LOCATION
TIMES SQUARE

50

LATEST REVIEWS

8391

SENTENCES

2497

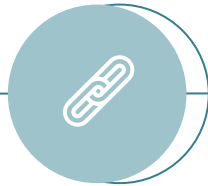
REVIEWS

TRAINING WORKFLOW



Stemmer

Snowball Stemmer



Vectorizer

- CountVectorizer
- TfidfVectorizer



Topic
Modeling

- NMF
- LSA



Sentiment
Analysis

VADER



Score
Aggregation

Average score
over sentences
by topic for each
hotel

TOPICS - KEYWORDS

NMF

LSA

CountVectorizer



0: Room, bed, bathroom, view
1: Location, Times Square, convenience
2: Hotel, stay, Times Square, recommend
3: Staff, friendly, front desk, welcome

0: Room, location, staff
1: Location, staff, Times Square
2: Hotel, stay, Times Square

TfidfVectorizer

0: Location, Times Square, staff
1: Staff, friendly, welcome
2: Room, bed, bathroom
3: Stay, hotel, recommend, night

0: Location, staff, room
1: Staff, room, welcome
2: Room, stay, hotel

FINAL TOPICS - NMF + CountVectorizer



TOPIC 0: ROOM

Room, bed, comfort,
bathroom, view, size



TOPIC 1: LOCATION

Location, Times Square,
walk, close, convenient,
central, Broadway



TOPIC 2: VIBE

Hotel, stay, night,
NYC, Times Square,
recommend, book



TOPIC 3: STAFF

Staff, friendly, help,
desk, accommodate,
welcome, profession

TOPIC 0: ROOM

“The room was freezing, there was not anything to heat the room so it’s s**ked being cold walking around and coming back to a cold room.”

- Square Hotel in Times Square

“The room is spacious, new and clean, The bed was really nice I slept like a baby. There is a mini fridge in the room too.”

- Executive Hotel Le Soleil New York

TOPIC 1: LOCATION

“Our stay was awesome. It truly is all about location, location, location.”

- Room Mate Grace Boutique Hotel

“I will continue to stay at the Homewood Suites whenever I’m in a location where one is located; just not this location.”

- Homewood Suites by Hilton New York Midtown
Manhattan Times Square

TOPIC 2: HOTEL VIBE

“Overall, it was a beautiful hotel in a perfect location so I would definitely stay again & I would recommend this hotel for those who are on a budget visiting the big apple.”

- Row NYC

“The hotel is an older hotel with rooms smaller than today's hotels and motels, but because of its age, it has character.”

- Radio City Apartments

TOPIC 3: STAFF

“Guest staff at check in were friendly however the restaurant staff that I went one time to visit to get a morning coffee were rude.”

- The Time New York

“Restaurant staff, housekeeping and hotel staff were super friendly and welcoming.”

- InterContinental - New York Times Square

SENTIMENT ANALYSIS

POSITIVE

0.96

"Staff was **great**, very clean, felt safe with all of the security, **beautifully** decorated, **perfect** location."

0.39

"Room was a lot smaller than expected but that was **okay** considering we didn't spend much time in there!"

NEGATIVE

-0.96

"Was a **horrible** hotel to stay in just **not worth** the time the room design is **horrible...**"

-0.39

"So it was **inconvenient** to have to lug all your luggage from the parking lot."

RECOMMENDER



1st choice: Room



2nd choice: Vibe

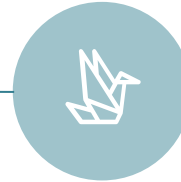


3rd choice: Staff



4th choice: Location

Weighted Score Calculation



Recommendation

CIVILIAN Hotel

3.89

Library Hotel by Library Hotel Collection

3.83

Arlo Midtown

3.82

citizenM New York Times Square

3.81

The Iroquois New York

3.79

"I'm so glad that I chose this hotel! We loved the unique decor and the room was very comfortable. We went to the bar where they had an hour of complimentary drinks! Again, the ambiance was fantastic. It's a hotel that you can hang out at and enjoy yourselves. We want to go again."

- CIVILIAN Hotel

CONCLUSION

TOPIC MODELING

Improve the
efficiency of
reviewing feedback



SENTIMENT ANALYSIS

Aggregate
sentiment from
multiple reviews



RECOMMENDER

Provide personalized
recommendations to
the end-users



BON VOYAGE!



THANKS!

DOES ANYONE HAVE ANY QUESTIONS?

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API: [Hotels.com API](#)

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