METIS

Analyzing Hotel Reviews

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Background

- Hotel review
  - *text* analysis
  - <u>similar hotels based on reviews</u>
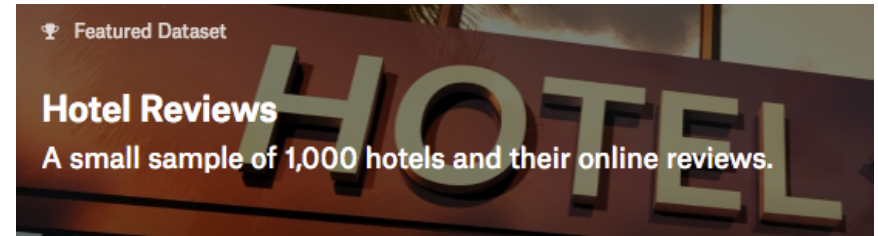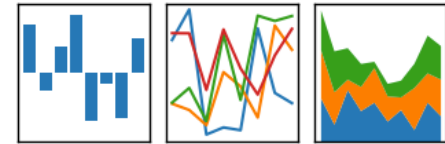
Procedures

Data collection

Data Exploration

Text Analysis

kaggle

🏆 Featured Dataset

Hotel Reviews
A small sample of 1,000 hotels and their online reviews.

pandas
$y_{it} = \beta' x_{it} + \mu_i + \epsilon_{it}$

- **Sentiment analysis**
- **Topic Modeling - recommender**

1) CountVectorizer, TfidfVectorizer
2) TextBlob
3) LSA - Latent semantic analysis
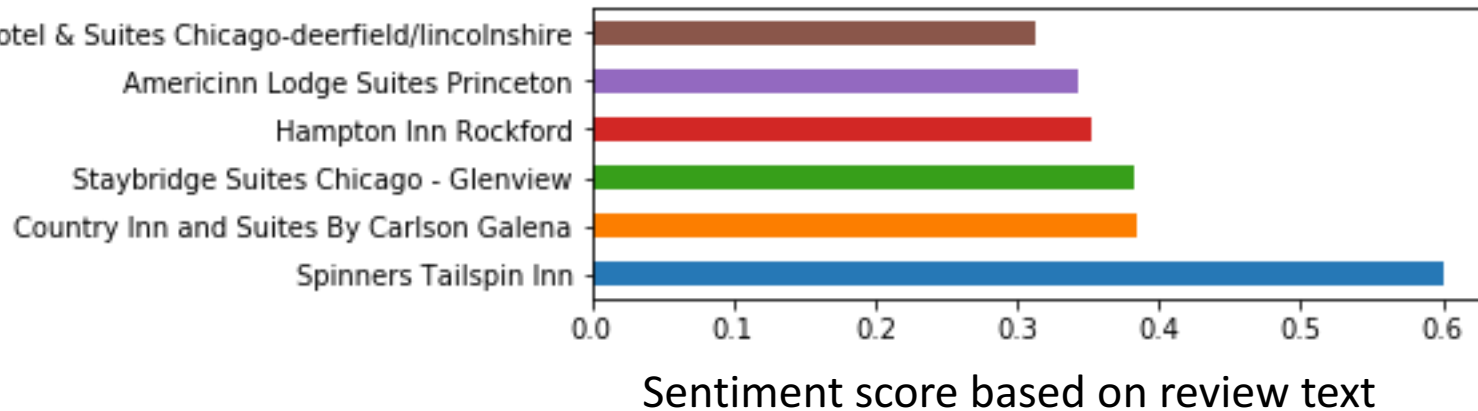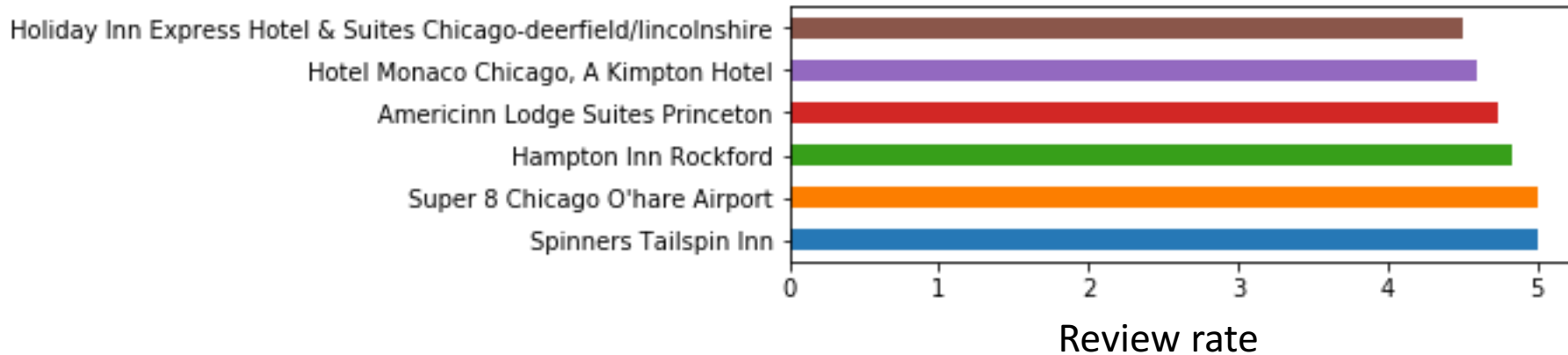4) NMF - Non-Negative Matrix Factorization

https://www.kaggle.com/datafiniti/hotel-reviews
https://www.kaggle.com/harmanpreet93/hotelreviews

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Look at the data

> 35, 000 reviews

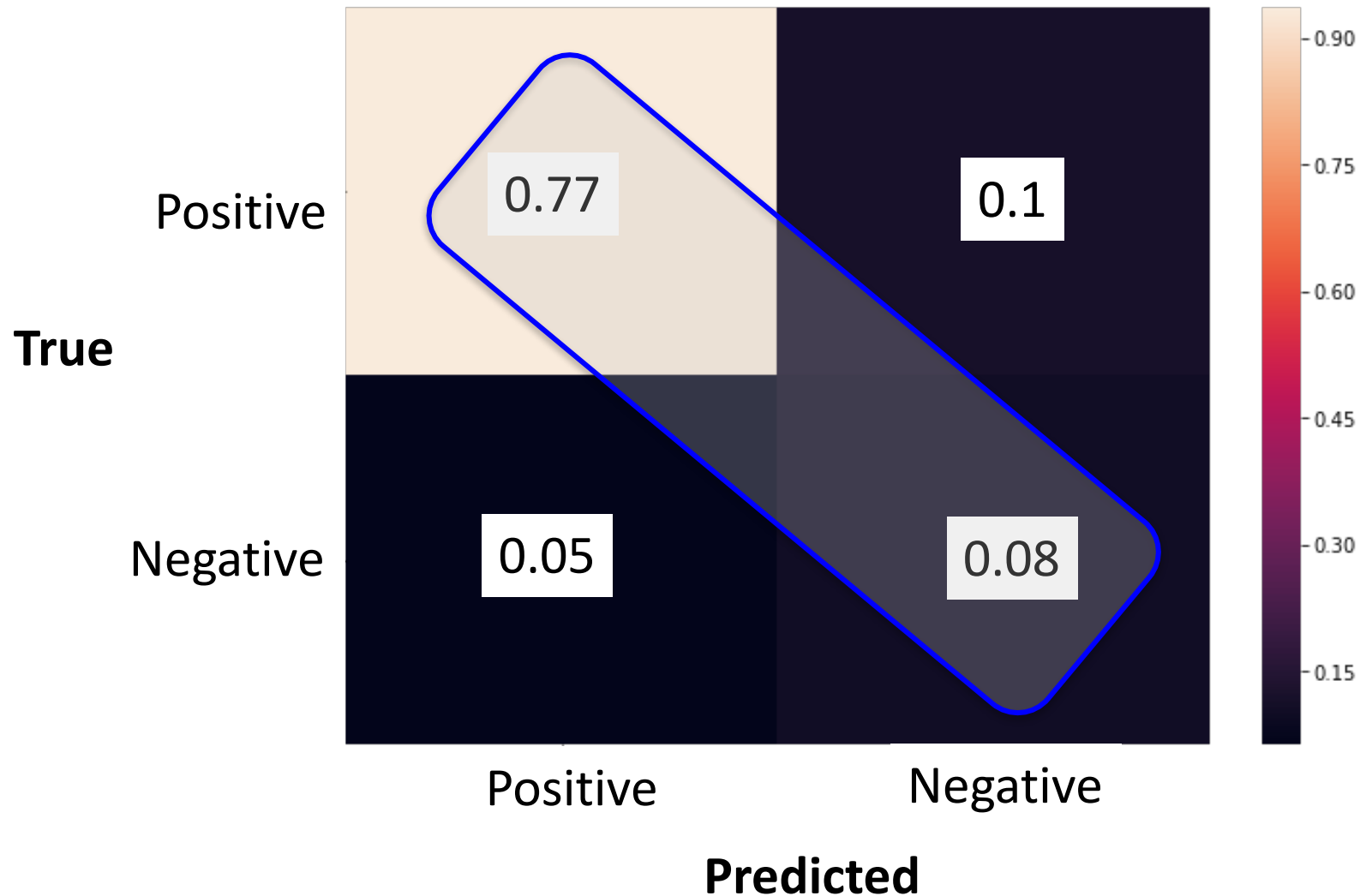|	address	city	hotel_name	province	reviews_rating	review_content
2596	855 Pasquinelli Dr	Westmont	Extended Stay America - Chicago - Westmont - O...	IL	2.0	Hotel amenities are really not good. We took e...
2597	855 Pasquinelli Dr	Westmont	Extended Stay America - Chicago - Westmont - O...	IL	5.0	It was relaxing
2598	855 Pasquinelli Dr	Westmont	Extended Stay America - Chicago - Westmont - O...	IL	2.0	Room smelled really bad. Carpet was really dirty
2599	855 Pasquinelli Dr	Westmont	Extended Stay America - Chicago - Westmont - O...	IL	4.0	nice hotel close to everything. needs somethin...
2600	855 Pasquinelli Dr	Westmont	Extended Stay America - Chicago - Westmont - O...	IL	3.0	This hotel isn't bad per se, it's just very da...

Text analysis – sentiment prediction

Top 6: 4 are correct

Review rate

Sentiment score based on review text

Text analysis – sentiment prediction

Topic modeling

- friendly, staff, staff friendly, helpful, excellent, friendly helpful, pleasant, stay, location, convenient

- new york, york, new, staff, square, times square, stay, times, perfect, wonderful

- bed, bugs, bed bugs, bug, luggage, skirting, infestation, bed bug, health, investigation

Recommend similar hotels

Address	States	Review
Extended Stay America - Chicago - Westmont - Oak Brook	IL	Pleasant experience. Friendly staff and nice, clean hotel.
Holiday Inn Express Hotel and Suites Meadowlands Area	NJ	Very nice and clean hotel with friendly staff
Wingate By Wyndham Pueblo	CO	Nice hotel very friendly staff clean and affordable
Best Western Hartford Hotel & Suites	CT	The hotel was clean and nice. Two things stood out: the staff was extremely friendly and helpful and the free breakfast was amazing.

Conclusions so far

- Sentiment analysis
- Topic modeling - recommender

For more technical details, please refer to the jupyter notebook.

Thank you for your attention!