



Yelp Review Sentiment Analysis



The Target

Resort Casinos on the Las Vegas Strip

- Analyze competitor reviews
- Identify important topics
- Create a model for sentiment classification

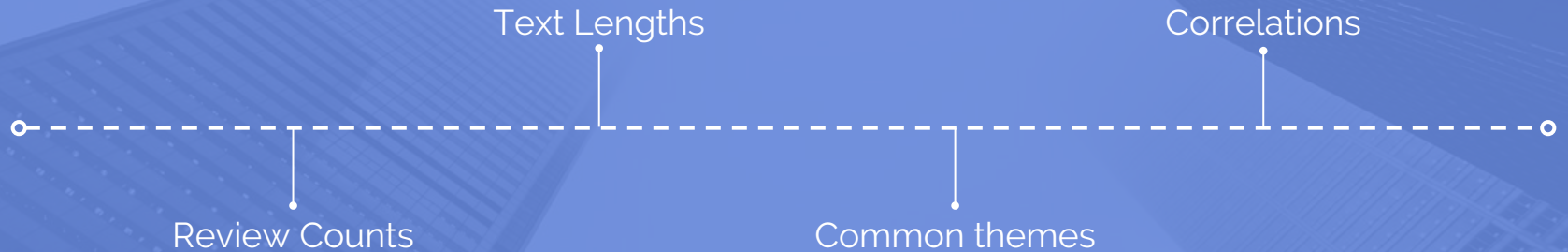


The Data

- Yelp public dataset
- Business file
 - Unique business ID
 - Location
 - Company Star Rating
 - Review Count
- Reviews file
 - Reviews from 2005 - 2018
 - Review Rating
 - Cool, Useful, Funny designation



The Analysis



Review Counts

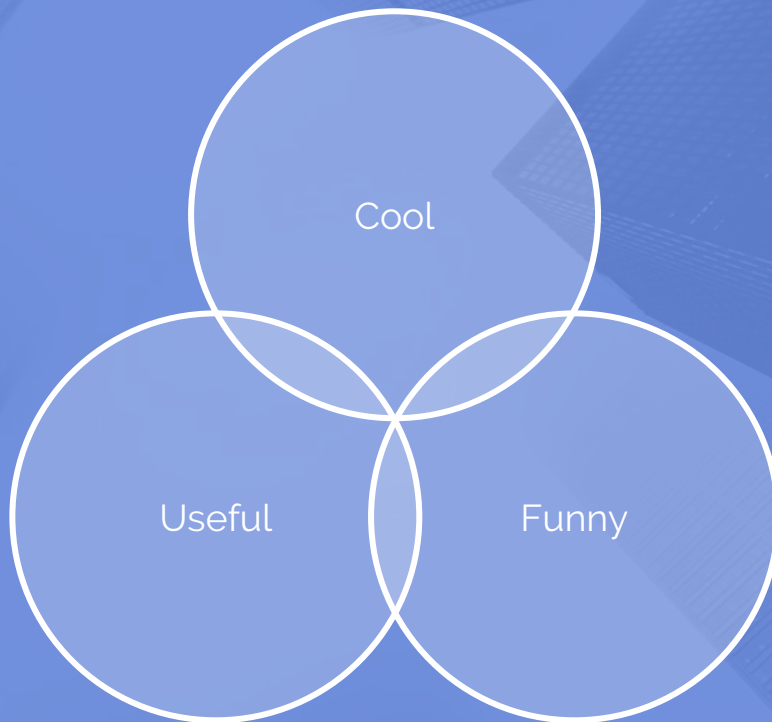
- 1 and 5 star reviews appear most frequently
- Extremely high or low rated companies only have a few reviews





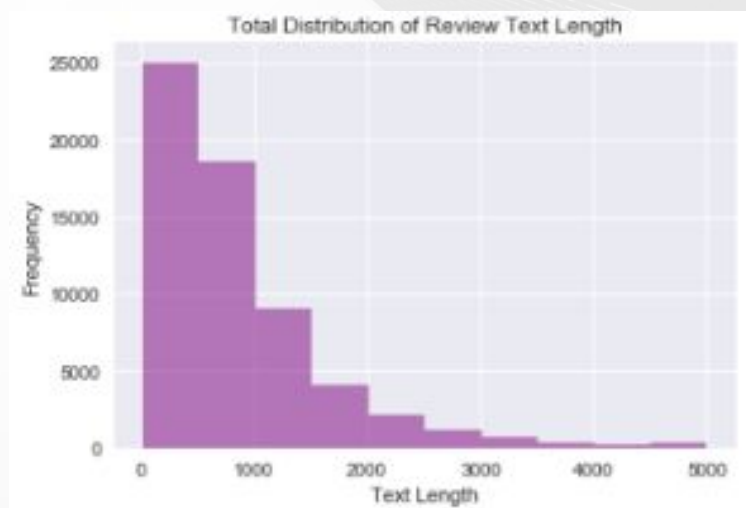
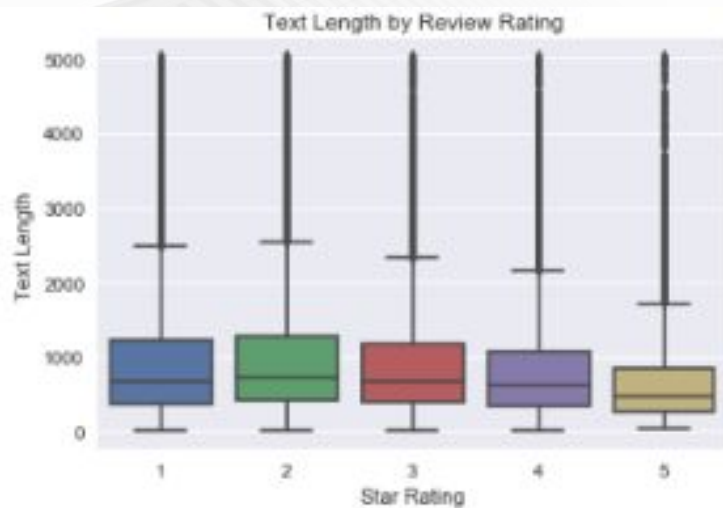
Cool, Useful, Funny

- Useful or Funny reviews are generally negative
- Cool reviews are often associated with high review ratings and highly rated companies



Text Lengths

- Average text length drops as review ratings rise
- Text length distribution holds for high, medium, and low reviews





Common Themes

5 star reviews:

room, time, service,
nice, good, love,
everything, staff,
clean, pool,
restaurant, buffet,
food, and drink

1 star reviews:

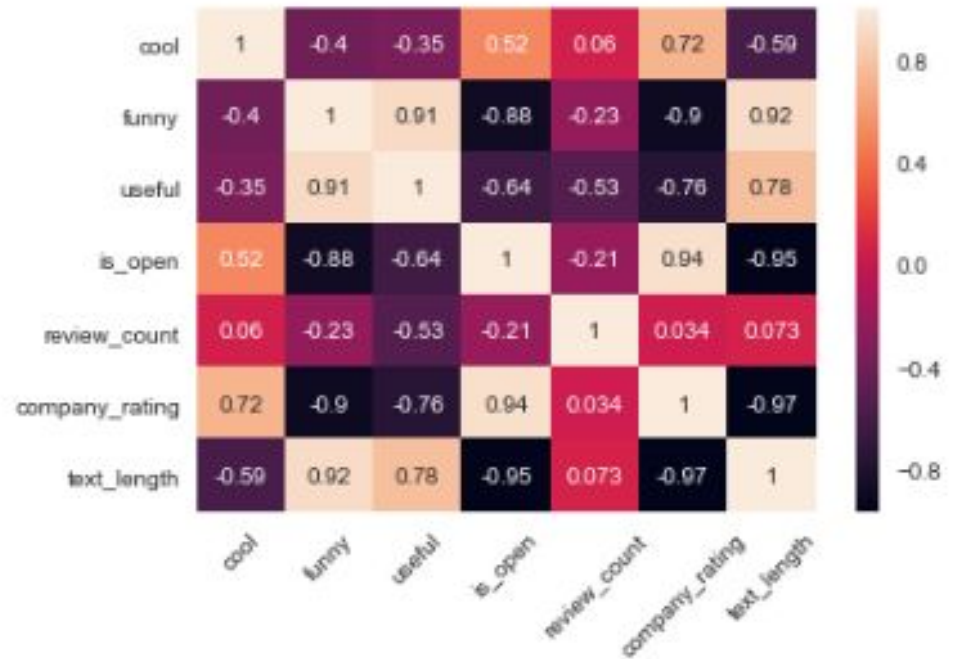
room, time, even,
never, back, could ,
told, service, front,
desk, said, checked,
called, nothing, and
fee

Top rival reviews:

These closely resembled the 5 star reviews, but had restaurant, buffet, food appear more often. They also included bed, spa, and bathroom frequently

Correlations

- Text length is positively correlated with funny and useful reviews, and negatively correlated with company rating
- Funny reviews are positively correlated with useful ones
- Review count has almost no correlation with company rating





The Model

Count Vectorizer

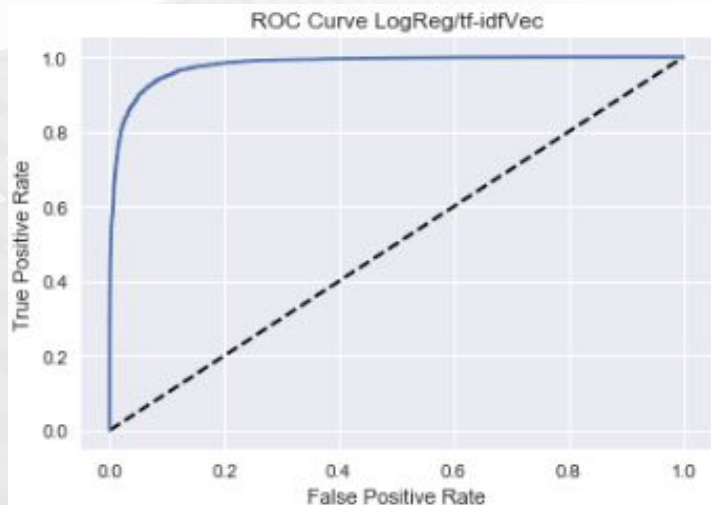
- Multinomial NB
 - Accuracy: 89.80%
 - AUC: .9511
- Logistic Regression
 - Accuracy: 92.59%
 - AUC: .9719

TFIDF Vectorizer

- Multinomial NB
 - Accuracy: 90.55%
 - AUC: .9686
- Logistic Regression
 - Accuracy: 92.67%
 - AUC: .9801

Top Model

Logistic Regression/TFIDF Vectorizer





Recommendations

- Use Logistic Regression Classifier for Yelp review sentiment
- Focus on the following competitors:
 - M Resort Spa Casino
 - ARIA Resort & Casino
 - South Point Hotel
 - Red Rock Casino Resort & Spa
- Food
 - Food Courts
 - Room Service
- Customer Service
 - Front Desk

