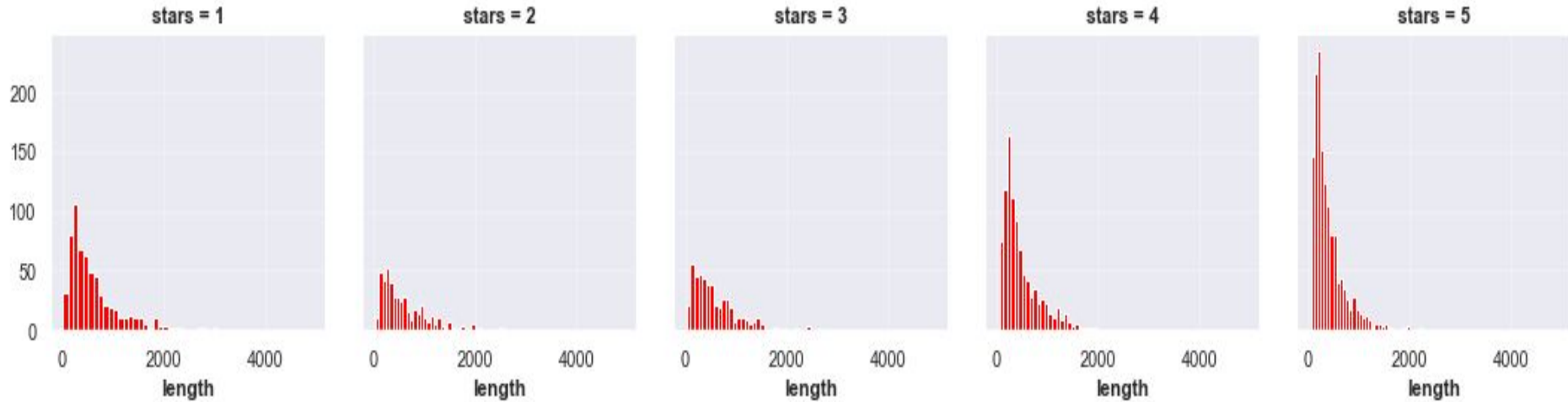# Capstone 2- Final Report

Yelp Recommendation System
By: Daniel Weissberger

Sentiment Analysis - Word count distribution by star rating
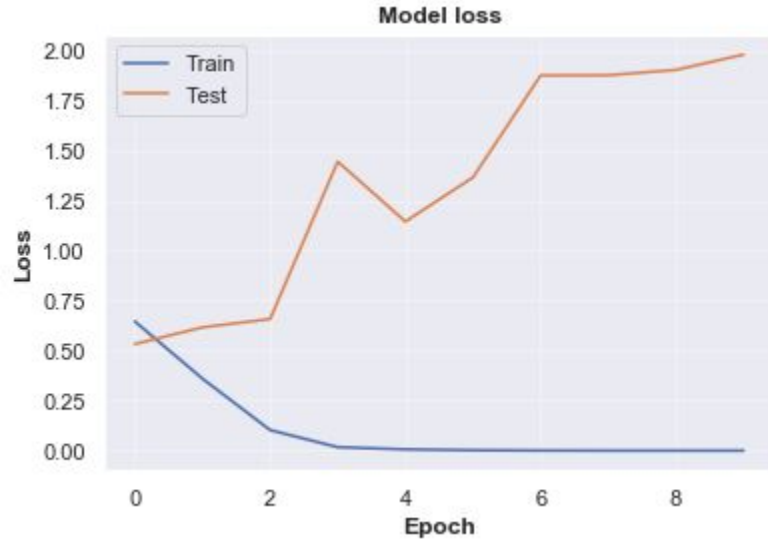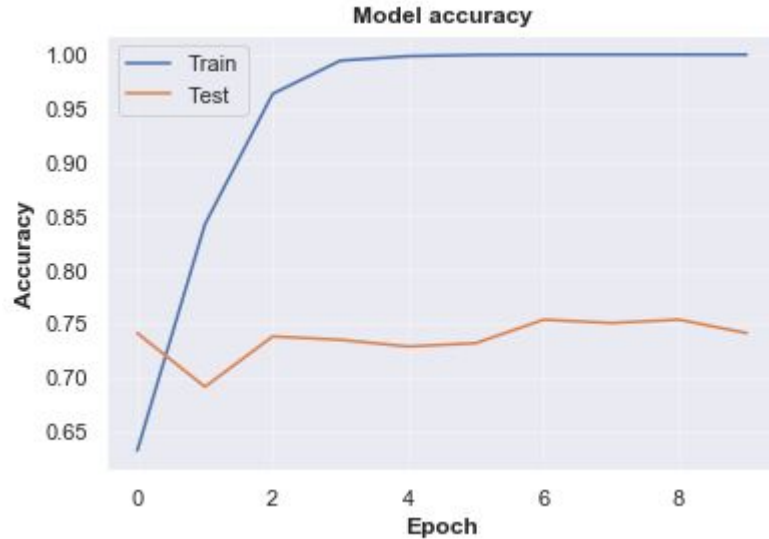
Sentiment Analysis - Approach

- Focus is on Negative and Positive reviews
- Removal of punctuation and stop words (data cleaning)
- Vectorization of the reviews using CountVectorizer (from sklearn)
- Utilize the transform property to map reviews to representative vectors (of equal length)

Sentiment Analysis Results

Multinomial Naive-Bayes		
Precision: .79	Recall: .77	F1-score: 514
Random Forest		
Precision: .79	Recall: .77	F1-score: 514
Decision Trees		
Precision: .65	Recall: .64	F1-score: 514
Gradient Boost		
Precision: .77	Recall: .75	F1-score: 514
Multilayer Perception Classifier (Best Performer)		
Precision: **.80**	Recall: **.79**	F1-score: 514

Sentiment Analysis - RNN (Keras)

Review Prediction - Positive

"Came to Fourk for lunch today, I work right down the road and have driven by here as they have re-modeled it. A co-worker and I ordered the Lobster Empanadas as an appetizer, and they were taken out of the fryer to early and were still soggy.

I order the meatball hoagie and it was pretty good, only complaint was that it was drenched in sauce and ended up everywhere. The meal came with fries, which were fried well but they do the thing that Ruby Tuesday used to do and bring out a small thimble of ketchup to you when you ask.

Co-worker got the pork sub, which came as a seasoned pork with no sauce. He stated it was good but requested BBQ sauce for it.

The service was just fine our server was prompt and polite which is all you can ask, and the inside of the restaurant was clean and well kept.

Overall it was a nice vibe, I could see going there for dinner but it was a bit pricey for the quality of food that you get."

Actual Rating: 3
Predicted Rating: 3

Review Prediction - Negative

"Stopped in for cocktails and a appetizer at the bar and both were not good at all. Cocktails were so weak we had to order a double and it seemed to me the bartenders had no clue. Most likely won't be back in the near future."

Actual Rating: 1
Predicted Rating: 1