Sentiment Analysis and Rating Prediction on Hotel Reviews

Milestone - 3
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Topics to cover

- Summary of Project
- Milestone - 3 progress
- Results
- UI
- Future Work
Summary of the Project

- Project focuses on doing sentiment analysis on the hotel reviews.
- Getting the customer’s interest
- Implementing Random Forest classifier for sentiment analysis
- Creating a web based UI for visualizing recommendation
## Milestone 3 progress

Results of various classifiers

<table>
<thead>
<tr>
<th>Model</th>
<th>Accuracy</th>
<th>Precision</th>
<th>F-1 Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Random Forest</td>
<td>95.55%</td>
<td>95.16%</td>
<td>94.89%</td>
</tr>
<tr>
<td>SVM</td>
<td>89.17%</td>
<td>88.56%</td>
<td>87.39%</td>
</tr>
<tr>
<td>Naive Bayes Classifier</td>
<td>85.24%</td>
<td>84.03%</td>
<td>84.58%</td>
</tr>
<tr>
<td>Decision Tree</td>
<td>92.54%</td>
<td>91.37%</td>
<td>92.65%</td>
</tr>
</tbody>
</table>
Hypothesis validation

- Hypothesis based on previous research
- Random Forest provided best results in experiment
- Hypothesis is valid
UI to search for hotels based on mood

- MySQL database schema is designed
- Front-end designed on bootstrap framework
Homepage screenshot

Select your interest

Hampton Inn San Diego Del Mar
- Overall Rating: Good
- City: San Diego
- Province: CA
- Click here for reviews
- Click here to locate

Best Western Logan Inn
- Overall Rating: Good
- City: San Diego
- Province: CA
- Click here for reviews
- Click here to locate

InterContinental San Francisco
- Overall Rating: Good
- City: San Francisco
Review #1:
Breakfast was really good, there's a lot of choices. Staff are helpful for a special request. Convenient location to tour San Diego if you have a car. Garage is gated. The pool though is outside near the street.

Source URL: https://www.tripadvisor.com/Hotel_Review-g60750-d119733-Reviews-or375-Hampton_Inn_San_Diego_Del_Mar-San_Diego_California.html%2523REVIEWS


Review #2:
We had breakfast and lunch over several days and the food was fantastic. The staff is wonderful and the rooms are beautiful! The weather sucked, but that isn't under the control of management. I look forward to staying there again.

Source URL: https://www.tripadvisor.com/Hotel_Review-g60750-d119733-Reviews-or125-Hampton_Inn_San_Diego_Del_Mar-San_Diego_California.html%2523REVIEWS, https://www.tripadvisor.com/Hotel_Review-g60750-d119733-Reviews-or155-Hampton_Inn_San_Diego_Del_Mar-San_Diego_California.html%2523REVIEWS

Future Work

- Sarcasm detection -
  - Correct sentiment score
  - Improves Accuracy
- Fake review detection
  - Removes spams
  - Better predictions
Thank you