



INFORMATICS INSTITUTE OF TECHNOLOGY

In Collaboration with

UNIVERSITY OF WESTMINSTER, UK.

Customer Feedback Based Competitor Analysis for Hotels

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Submitted in partial fulfillment of the requirements for the

BSc. (Hons) in Software Engineering degree

Final Year Project 2018/2019

ABSTRACT

Technology increases proportionally to the rapid growth of the internet, this has changed how customers interact with the hotels. Nowadays, in a totally connected world, customers use online booking facilities to book rooms rather than visiting the hotel. Not only the bookings, but they also post reviews in online booking platforms that directly affect the hotel's revenue in the long term. This has led hoteliers to analyze customer reviews, but not only on their own hotel, but also competitor's reviews in means of gaining even the smallest advantage over the competitors. The process of analyzing reviews and conducting comparisons is time-consuming when done manually or expensive when outsourced. This explains the need for an automatic competitor analysis tool which can analyze competitor's reviews to gain competitive advantage.

Natural Language Processing techniques were utilized to analyze the unstructured reviews into pre-defined aspects which are based on the hospitality sector. Further analysis such as extracting common mentions among reviews, review summarization and extracting common terms together with the sentiment represented by each term was done. Such quantitative and qualitative data was used to help hoteliers to conduct comparisons between hotels.

Due to outliers present among the original ratings in customer reviews, it caused biased comparisons. To overcome this issue a deep learning model was built to generate ratings for each review. Convolutional Neural Network was selected as the neural network and was trained with more than 400,000 labeled reviews which were extracted from TripAdvisor.

The deep learning model has proven its capability of predicting accurate ratings with an accuracy score of 75%. The ratings generated from the deep learning model are standardized and unbiased which makes it ideal to hoteliers to conduct accurate comparisons. An Angular 7 web application with a dashboard view was developed to present the analyzed data in graphs, charts, and summarized texts.

Key Words:

Hotel Competitor Analysis, Natural Language Processing, Machine Learning, Mutli-Class Text Classification, Deep Learning