**Aspect Based Sentiment Analysis using Machine Learning**

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# 1. Introduction

Traditionally Customers used to consult their friends and family members before purchasing a product but over last few years potential customers of a product read online reviews before buying a product. These online reviews often consist of a couple of sentences accompanied with a star based rating. As a customer, reading a handful of reviews and getting a feeling about different pros and cons of a product and how it stands against similar products available in the market is relatively a straightforward task. As a business however the task becomes quite challenging as businesses not only want to understand the overall sentiment of their consumers regarding their product but also need additional information as to what product features are exceeding the expectations of the users and what features need improvement. The overall task of converting the often-textual reviews into useful actionable insight becomes more challenging due to increased volume and velocity of these reviews and unstructured nature of the review data.

Businesses therefore need an automated knowledge mining system that can collect and process the review data and use deep Natural Language Processing, Machine Learning or a combination of the two to extract useful information that would be helpful in decision making.

Sentiment Analysis as defined by Professor Bing Liu in his book “Sentiment Analysis and Opinion Mining” is the field of study that analyzes people’s opinions, sentiments, evaluations, appraisals, attitudes and emotions towards entities such as products, services, organizations, individuals, issues, events, topics and their attributes.

Aspect based Sentiment Analysis is a branch of Sentiment Analysis that focuses on extracting opinions about an aspect of the entity instead of just classifying a document or sentence as positive or negative.

In our project we shall investigate using Machine Learning especially some of the latest algorithms to extract entity, aspect tuples from reviews.

References: