TOPIC: IDENTIFICATION OF OPINION SPAMMING

Rationale and Significance of the Study:
Opinion of others highly influence human behavior and is central to a large proportion of decision making activities. Some people take advantage of this anonymity and post fake reviews to promote or discredit target products. The main objective of this research is to be able to develop a system for detecting spam opinions.

In the psychological literature, researchers have looked into possible linguistic cues to deception (Newman *et al.*, 2003), such as decreased spatial detail, which is consistent with theories of reality monitoring (Johnson and Raye, 1981), increased negative emotion terms (Newman *et al.*, 2003) and the writing style difference between informative (truthful) and imaginative (deceptive) writings (Rayson *et al.*, 2001). Yoo and Gretzel (2009) gathered 40 truths and 42 deceptive hotel reviews and manually compare the linguistic differences between them. Song *et al.* (2012) looked into syntactic features from Context Free Grammar parse trees to improve the classifier performance. In addition to exploring text or linguistic features in deception, some existing work looks into customers' behavior to identify deception (Mukherjee *et al.*, 2013a).

Research question
How to identify the Opinion spamming?
The goal is to identify and detect the spam opinions.
The following research questions will be used as base points of the research:

- What extra information is required apart from the reviews for the spam identification?
- What content should be extracted from the reviewer profile to get support in the identification of the spam opinion?
- What steps should be taken to aggregate text opinion from the public domain?
- How many unusual reviewer behavior models can be identified?
- How can you measure the reliability of a reviewer?

Design/Plan of the Study:
A work flow will be followed for the completion of the project. The work flow is given below.

1) Understanding the objective of the research project.
2) Literature review and comparison of current data model
3) Identification and extraction from the data sources
4) Storage and cleaning of the collected data
5) Implementation of the most successful current model
6) Studying the shortcoming of the current model
7) Building and Testing the new model algorithm and the final write up

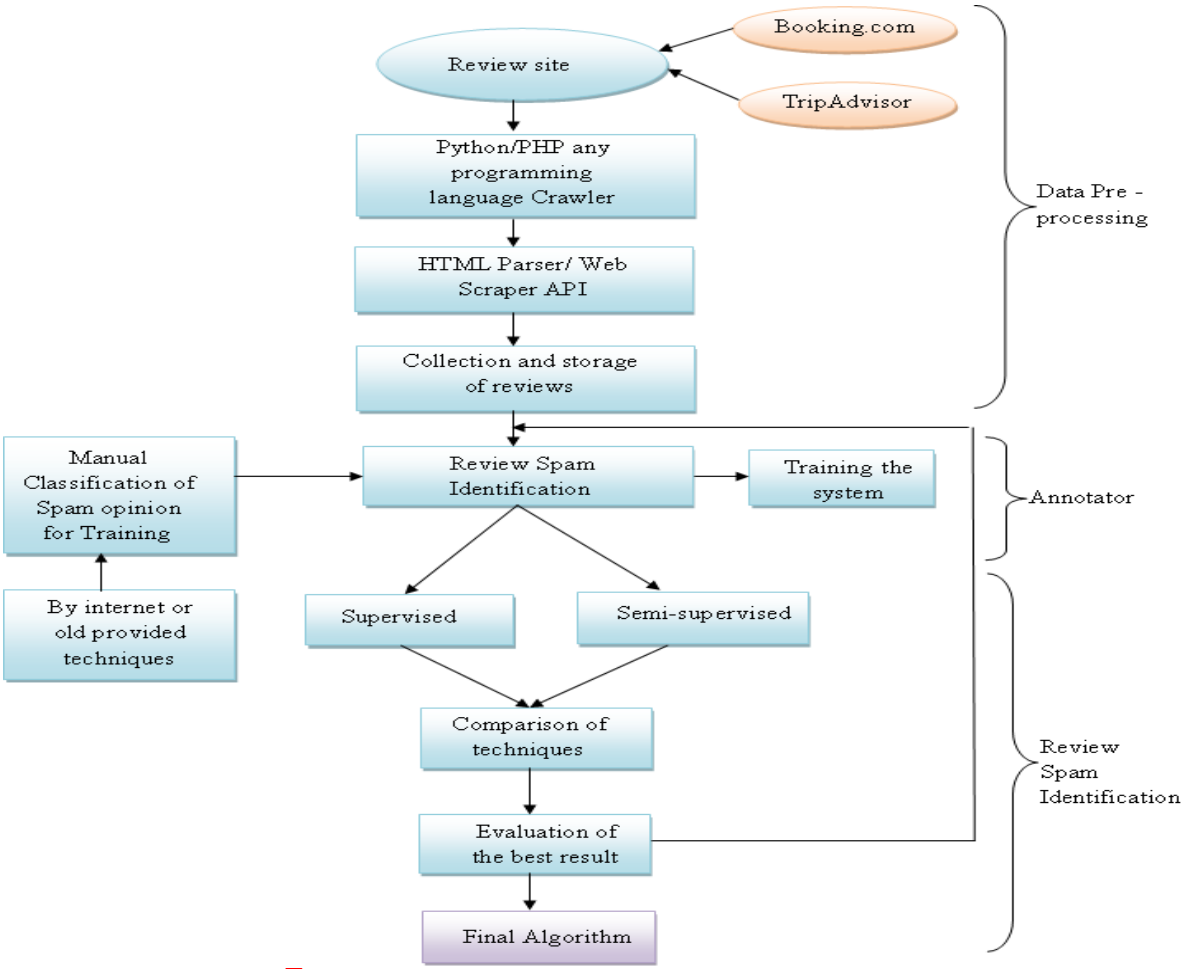
Data Sources

Two of the largest travel websites, TripAdvisior and Booking.com, with the review on hotels, will server as the data source.
The difference between the data sources is:

- TripAdvisior in general contains unstructured data without any separations (positive and negative both).
- Booking.com has a clear and separate area of pros and cons, sections (information is provided by users).

Data extraction technologies: Crawling and Web Scraping

A customer designed web crawler will be developed in order to retrieve the data stored on both websites.



Methodology:

Figure 1: Design of the Study

The study deals with three major steps.The first two steps deal with data preprocessing and annotator. The last step includes the review spam identification process.

Results and Evaluations

This problem can be solved by aspect based opinion mining technique. Our work here mainly consistes of :

- Generating annotated corpora or data sets to evaluate the performance of the algorithms for the selected products, using the site TripAdvisor and Booking.com as the data source,

- Designing and developing an application to extract opinions from these reviews and generate the proposed summarization charts.
- Measuring the accuracy of the algorithms

This application will be implemented using Python and the Natural Language Toolkit (NLTK).

Timeline: 3-6 months

Research benefits:

This model will help the tourist/tourist webpage admin/product based customer to identify the spam or false feedbacks that will help the tourist/tourist webpage admin/product based customer in accurate decision making and provide a better safety to the society. As an example, product based companies use fake or spam opinion to mislead the customer by providing good feedback about their product and negative feedback about their competitors.

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