ONLINE REVIEW SPAMMERS

A Machine Learning approach to identify Review Spammers

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Abstract:

Reviews play a crucial role in deciding business of any E-commerce websites. To be more precise, more than half of the customers will depend on reviews provided by previously used consumers to make decisions. So, genuineness in those reviews is a key aspect to look on for making satisfactory decisions for new customers and thus planned a proposal to work on Amazon movie review data. My main goal here is to detect whether a review is an inaccurate review to its star rating, or a spam review that skews the rating of a movie in a certain direction and flagging it, thus allowing a user to make a more accurately informed decision when making a movie selection.

I obtained the raw data, Movies.txt.gz file from Amazon which contains movie reviews collected from August 1997 to October 2012. It has approximately 8 billion reviews and also has information about users(UserID, User Name), movies(Productid/ MovieID), helpfulness score of the review, and the text. The data corresponding to a single review occupies 8 lines. The attributes describing a review are given in key: value format on separate lines.

- Attributes in the dataset are:
- ProductId: movie id
- UserID: user id
- Helpfulness: fraction of users who found the review helpful
- Score: rating of the product
- Time: Time of the review
- Summary: Overall summary of the review
- Text: Text of the review

As the review score of each person varies, instead of review score we are planning to use score of review text using sentimental analysis. The sentiment of the review text is calculated, and this data is fed to machine learning models for future predictions. The machine learning models I am using here is Random Forest and logistic regression.

Milestones:

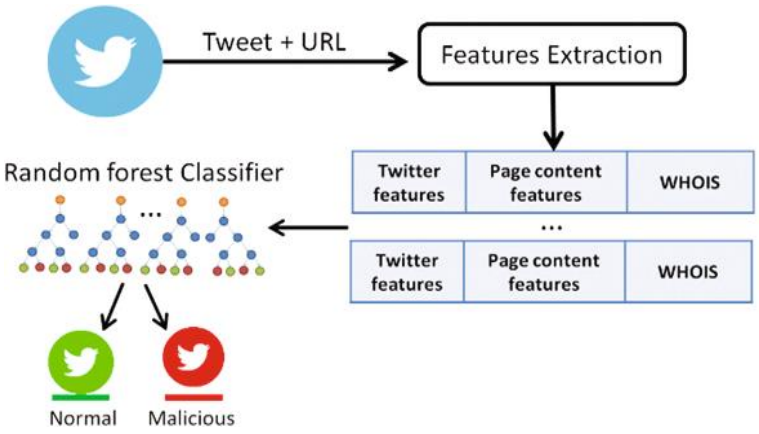
- Exploring the dataset and identifying the features
- Conversion of to .csv file in python
- Preprocessing the data by removing the null values grouping the details according to the review
- Techniques to be applied to identify the negative reviews
- plotting the graphs by exploring the dataset
- Sentimental analysis of review
- Removal of the unwanted characters from the text to get the preprocessed data
- Analysis of the features which are important(Feature Extraction)
- Constructing and evaluating the Machine Learning models

Underlying Technology:

The coding part is in Python and we would be using GPU processor because of huge data.

Related Source:

Twitter utilizes a Random Forest Classifier's to determine if a tweet containing some URL is a malicious or spam tweet by extracting several features of the tweet, like the account features and other data associated with the tweet, and automatically picking up which tweets are harmless and legitimate, and which are spam/bot tweets, and flags them appropriately.


Tweet + URL
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Twitter features
Page content features
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Twitter features
Page content features
WHOIS
Random forest Classifier
Normal
Malicious