

FRAUD DETECTION IN FAKE ONLINE REVIEWS USING MACHINE LEARNING TECHNIQUES

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ABSTRACT: Online reviews have great impact on today's business and commerce. Decision making for purchase of online products mostly depends on reviews given by the users. Hence, opportunistic individuals or groups try to manipulate product reviews for their own interests. This paper introduces some semi-supervised and supervised text mining models to detect fake online reviews as well as compares the efficiency of both techniques on dataset containing hotel reviews

1.INTRODUCTION

Technologies are changing rapidly. Old technologies are continuously being replaced by new and sophisticated ones. These new technologies are enabling people to have their work done efficiently. Such an evolution of technology is online marketplace. We can shop and make reservation using online websites. Almost, every one of us checks out reviews before purchasing some products or services. Hence, online reviews have become a great source of reputation for the companies. Also, they have large impact on advertisement and promotion of products and services. With the spread of online marketplace, fake online reviews are

becoming great matter of concern. People can make false reviews for promotion of their own products that harms the actual users. Also, competitive companies can try to damage each other's reputation by providing fake negative reviews.

Researchers have been studying about many approaches for detection of these fake online reviews. Some approaches are review content based and some are based on behavior of the user who is posting reviews. Content based study focuses on what is written on the review that is the text of the review where user behavior based method focuses on country, ip-address, number of posts of the reviewer etc. Most of the proposed approaches are supervised

classification models. Few researchers, also have worked with semi-supervised models. Semi-supervised methods are being introduced for lack of reliable labeling of the reviews.

In this paper, we make some classification approaches for detecting fake online reviews, some of which are semi supervised and others are supervised. For semi-supervised learning, we use Expectation-maximization algorithm. Statistical Naive Bayes classifier and Support Vector Machines(SVM) are used as classifiers in our research work to improve the performance of classification. We have mainly focused on the content of the review based approaches. As feature we have used word frequency count, sentiment polarity and length of review

2.EXISTINGSYSTEM

Content based strategies middle of attention on what is the content fabric of the evaluate. this is the text of the assessment or what's knowledgeable in it. Heydari et al. [2] have attempted to be aware junk mail compare with the aid of analyzing the linguistic aspects of the overview. Ott et al. [3] used 3 strategies to feature class. those 3 techniques are- fashion identification, detection of psycholinguistic deception and text categorization.

Conduct feature based totally discover approximately makes a speciality of the reviewer that consists of developments of the individual who's giving the overview. Lim et al. [7] addressed the problem of assessment spammer detection, or coming across clients who are the supply of junk mail opinions. folks that put up intentional fake evaluations have extensively high-quality conduct than the everyday person. they have got recognized the following misleading rating and compare behaviors.

Deceptive online assessment detection is commonly viewed as a category trouble and one well-known technique is to apply supervised text class techniques [5]. these techniques are sturdy if the training is executed the usage of massive datasets of categorised cases from every classes, deceptive reviews (fine instances) and sincere critiques (terrible examples) [8]. some researchers moreover used semi-supervised category techniques.

Inside the present paintings, the machine uses entirely to semi-supervised gaining knowledge of.

Most effective text class as sentiment text and it in no manner finds fake evaluate.

3.PROPOSED SYSTEM

In the proposed system, every examine is going through tokenization technique first. Then, pointless phrases are removed and candidate characteristic phrases are generated.

Each candidate characteristic phrases are checked in competition to the dictionary and if its entry is handy inside the dictionary then its frequency. Alongside with counting frequency, the dimensions of the assessment is measured and introduced to the function vector.

Ultimately, sentiment score that is available within the facts set is delivered in the feature vector. we've assigned terrible sentiment as zero valued and wonderful sentiment as a few excessive first-class valued within the feature vector.

The device could be very short and high pleasant due to semi-supervised and supervised gaining knowledge of.

Focused at the content cloth of the assessment primarily based absolutely procedures. As function we've used phrase frequency matter, sentiment polarity and size of overview.

4.SYSTEM ARCHITECTURE

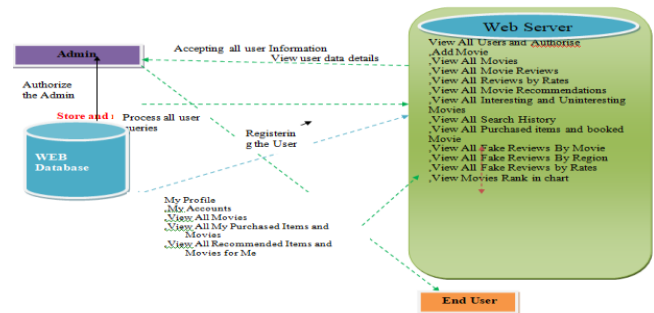


Fig.1: An illustration of System

5.IMPLEMENTATION

Admin

In this module, the Admin has to login by using valid user name and password. After login successful he can do some operations such as View All Users and Authorise, Add Movie, View All Movies, View All Movie Reviews, View All Reviews by Rates, View All Movie Recommendations, View All Interesting and Uninteresting Movies, View All Search History, View All Purchased items and booked Movie, View All Fake Reviews By Movie, View All Fake Reviews By Region, View All Fake Reviews by Rates, View Movies Rank in chart

User

In this module, there are n numbers of users are present. User should register before doing some operations. After registration successful he has to login by using authorized user name and password. Login successful he will do some operations like View My Profile, My Accounts, View All Movies, View All My Purchased Items and

Movies, View All Recommended Items and Movies for Me

6. RESULTS

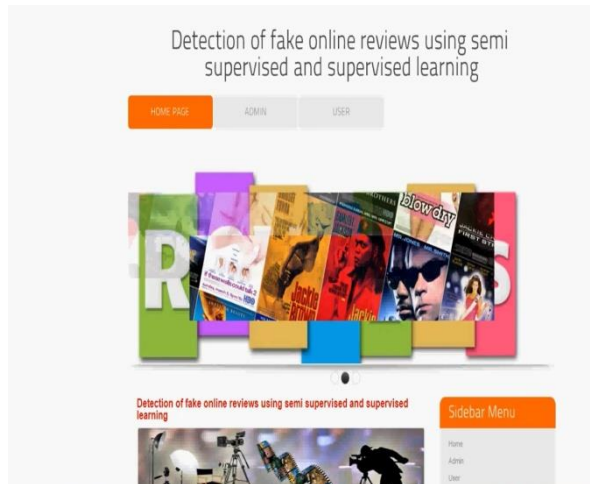


Fig.2 Home Page

7. CONCLUSION

We have shown several semi-supervised and supervised text mining techniques for detecting fake online reviews in this research. We have combined features from several research works to create a better feature set. Also we have tried some other classifier that were not used on the previous work. Thus, we have been able to increase the accuracy of previous semisupervised techniques done by Jiten et al. [8]. We have also found out that supervised Naive Bayes classifier gives the highest accuracy. This ensures that our dataset is labeled well as we know semi-supervised model works well when reliable labeling is not available.

In our research work we have worked on just user reviews. In future, user behaviors can be combined with texts to construct a better model for classification. Advanced preprocessing tools for tokenization can be used to make the dataset more precise. Evaluation of the effectiveness of the proposed methodology can be done for a larger data set. This research work is being done only for English reviews. It can be done for Bangla and several other languages.

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