

Spammer Detection And Fake User Identification On Social Networks

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Abstract:

Social networking destinations draw in great many users around the globe. The users' collaborations with these social locales, for example, Twitter and Facebook have a colossal effect and once in a while unwanted repercussions for day by day life. The noticeable social networking destinations have transformed into an objective stage for the spammers to scatter a gigantic measure of superfluous and injurious data. Twitter, for instance, has gotten one of the most luxuriously utilized foundation, all things considered, and in this manner permits a preposterous measure of spam. Fake users send undesired tweets to users to advance administrations or sites that influence authentic users as well as disturb asset utilization. Additionally, the chance of extending invalid data to users through fake characters has expanded that outcomes in the unrolling of destructive substance.

As of late, the recognition of spammers and ID of fake users on Twitter has become a typical territory of examination in contemporary online social Networks (OSNs). In this paper, we play out a survey of strategies utilized for distinguishing spammers on Twitter. Additionally, a scientific classification of the Twitter spam recognition approaches is introduced that arranges the strategies dependent on their capacity to distinguish: (i) fake substance, (ii) spam dependent on URL, (iii) spam in

moving points, and (iv) fake users. The introduced methods are likewise thought about dependent on different highlights, for example, client highlights, content highlights, chart highlights, structure highlights, and time highlights. We are cheerful that the introduced study will be a valuable asset for specialists to discover the features of late improvements in Twitter spam recognition on a solitary stage.

Keywords: Classification, fake user detection, online social network, spammer's identification

INTRODUCTION

1. What Is A Social Network?

Wikipedia defines a social network service as a service which "focuses on the building and verifying of online social networks for communities of people who share interests and activities, or who are interested in exploring the interests and activities of others, and which necessitates the use of software."

A report published by OCLC provides the following definition of social networking sites: "Web sites primarily designed to facilitate interaction between users who share interests, attitudes and activities, such as Facebook, Mixi and MySpace."

2. What Can Social Networks Be Used For?

Social organizations can give a scope of advantages to individuals from an association:

Backing for learning: Social organizations can upgrade casual learning and backing social associations inside gatherings of students and with those engaged with the help of learning.

Backing for individuals from an association: Social organizations can possibly be utilized by all individuals from an association, and not simply those engaged with working with understudies. Social organizations can help the advancement of networks of training.

Drawing in with others: Passive utilization of social organizations can give important business insight and input on institutional administrations (despite the fact that this may offer ascent to moral concerns).

Straightforward entry to data and applications: The convenience of numerous social networking administrations can give advantages to users by streamlining admittance to different apparatuses and applications. The Facebook Platform gives an illustration of how a social networking administration can be utilized as a climate for different apparatuses.

Normal interface: A potential advantage of social organizations might be the regular interface which traverses work/social limits. Since such administrations are regularly utilized in an individual limit the interface and the manner in which the administration works might be natural, accordingly limiting preparing and backing expected to misuse the administrations in an expert setting. This can, nonetheless, likewise be an obstruction to the individuals who wish to have severe limits among work and social exercises.

3. Examples of Social Networking Services

Examples of popular social networking services include:

Facebook: Facebook is a social networking Web site that allows people to communicate with their friends and exchange information. In May 2007 Facebook launched the Facebook Platform which provides a

framework for developers to create applications that interact with core Facebook features

MySpace: MySpace is a social networking Web site offering an interactive, user-submitted network of friends, personal profiles, blogs and groups, commonly used for sharing photos, music and videos..

Ning: An online platform for creating social Web sites and social networks aimed at users who want to create networks around specific interests or have limited technical skills.

Twitter: Twitter is an example of a micro-blogging service. Twitter can be used in a variety of ways including sharing brief information with users and providing support for one's peers.

Note that this brief list of popular social networking services omits popular social sharing services such as Flickr and YouTube.

4. Opportunities and Challenges

The popularity and ease of use of social networking services have excited institutions with their potential in a variety of areas. However effective use of social networking services poses a number of challenges for institutions including long-term sustainability of the services; user concerns over use of social tools in a work or study context; a variety of technical issues and legal issues such as copyright, privacy, accessibility; etc.

Institutions would be advised to consider carefully the implications before promoting significant use of such services.

What is Secure Computing?

Computer security (Also known as cyber security or IT Security) is information security as applied to computers and networks. The field covers all the processes and mechanisms by which computer-based equipment, information and services are protected from unintended or unauthorized access, change or destruction. Computer security also includes protection from

unplanned events and natural disasters. Otherwise, in the computer industry, the term security -- or the phrase computer security -- refers to techniques for ensuring that data stored in a computer cannot be read or compromised by any individuals without authorization. Most computer security measures involve data encryption and passwords. Data encryption is the translation of data into a form that is unintelligible without a deciphering mechanism. A password is a secret word or phrase that gives a user access to a particular program or system.



Diagram clearly explain the about the secure computing

Working conditions and basic needs in the secure computing:

If you don't take basic steps to protect your work computer, you put it and all the information on it at risk. You can potentially compromise the operation of other computers on your organization's network, or even the functioning of the network as a whole.

1. Physical security:

Technical measures like login passwords, anti-virus are essential. (More about those below) However, a secure physical space is the first and more important line of defense. Is the place you keep your workplace computer secure enough to prevent theft or access to it while you are away? While the Security Department provides coverage across the Medical center, it only takes seconds to steal a computer, particularly a portable device like a laptop or a PDA. A computer should be secured

like any other valuable possession when you are not present.

Human threats are not the only concern. Computers can be compromised by environmental mishaps (e.g., water, coffee) or physical trauma. Make sure the physical location of your computer takes account of those risks as well.

2. Access passwords:

The University's networks and shared information systems are protected in part by login credentials (user-IDs and passwords). Access passwords are also an essential protection for personal computers in most circumstances. Offices are usually open and shared spaces, so physical access to computers cannot be completely controlled.

To protect your computer, you should consider setting passwords for particularly sensitive applications resident on the computer (e.g., data analysis software), if the software provides that capability.

3. Prying eye protection:

Because we deal with all facets of clinical, research, educational and administrative data here on the medical campus, it is important to do everything possible to minimize exposure of data to unauthorized individuals.

4. Anti-virus software:

Up-to-date, properly configured anti-virus software is essential. While we have server-side anti-virus software on our network computers, you still need it on the client side (your computer).

5. Firewalls:

Anti-virus products inspect files on your computer and in email. Firewall software and hardware monitor communications between your computer and the outside world. That is essential for any networked computer.

6. Software updates:

It is critical to keep software up to date, especially the operating system, anti-virus

and anti-spyware, email and browser software. The newest versions will contain fixes for discovered vulnerabilities. Almost all anti-virus have automatic update features (including SAV). Keeping the "signatures" (digital patterns) of malicious software detectors up-to-date is essential for these products to be effective.

7. Keep secure backups:

Even if you take all these security steps, bad things can still happen. Be prepared for the worst by making backup copies of critical data, and keeping those backup copies in a separate, secure location. For example, use supplemental hard drives, CDs/DVDs, or flash drives to store critical, hard-to-replace data.

8. Report problems:

If you believe that your computer or any data on it has been compromised, you should make an information security incident report. That is required by University policy for all data on our systems, and legally required for health, education, financial and any other kind of record containing identifiable personal information.

Benefits of secure computing:

- **Protect yourself - Civil liability:**
 You may be held legally liable to compensate a third party should they experience financial damage or distress as a result of their personal data being stolen from you or leaked by you.
- **Protect your credibility - Compliance:**
 You may require compliance with the Data Protection Act, the FSA, SOX or other regulatory standards. Each of these bodies stipulates that certain measures be taken to protect the data on your network.
- **Protect your reputation – Spam:**
 A common use for infected systems is to join them to a botnet (a collection of infected machines which takes orders from a command server) and use them to send out spam. This spam can be traced

back to you, your server could be blacklisted and you could be unable to send email.

- **Protect your income - Competitive advantage:**

There are a number of "hackers-for-hire" advertising their services on the internet selling their skills in breaking into company's servers to steal client databases, proprietary software, merger and acquisition information, personnel detail *et al.*

- **Protect your business – Blackmail:**

A seldom-reported source of income for "hackers" is to break into your server, change all your passwords and lock you out of it. The password is then sold back to you. Note: the "hackers" may implant a backdoor program on your server so that they can repeat the exercise at will.

- **Protect your investment - Free storage:**

Your server's harddrive space is used (or sold on) to house the hacker's video clips, music collections, pirated software or worse. Your server or computer then becomes continuously slow and your internet connection speeds deteriorate due to the number of people connecting to your server in order to download the offered wares.

LITERATURE SURVEY

1) Statistical features-based real-time detection of drifted Twitter spam

AUTHORS: C. Chen, Y. Wang, J. Zhang, Y. Xiang, W. Zhou, and G. Min

Twitter spam has become a critical problem nowadays. Recent works focus on applying machine learning techniques for Twitter spam detection, which make use of the statistical features of tweets. In our labeled tweets data set, however, we observe that the statistical properties of spam tweets vary over time, and thus, the performance of existing machine learning-based classifiers decreases. This issue is referred to as "Twitter Spam Drift". In order to tackle this

problem, we first carry out a deep analysis on the statistical features of one million spam tweets and one million non-spam tweets, and then propose a novel Lfun scheme. The proposed scheme can discover “changed” spam tweets from unlabeled tweets and incorporate them into classifier's training process. A number of experiments are performed to evaluate the proposed scheme. The results show that our proposed Lfun scheme can significantly improve the spam detection accuracy in real-world scenarios.

2) Automatically identifying fake news in popular Twitter threads

AUTHORS: C. Buntain and J. Golbeck

Information quality in social media is an increasingly important issue, but web-scale data hinders experts' ability to assess and correct much of the inaccurate content, or “fake news,” present in these platforms. This paper develops a method for automating fake news detection on Twitter by learning to predict accuracy assessments in two credibility-focused Twitter datasets: CRED BANK, a crowdsourced dataset of accuracy assessments for events in Twitter, and PHEME, a dataset of potential rumors in Twitter and journalistic assessments of their accuracies. We apply this method to Twitter content sourced from BuzzFeed's fake news dataset and show models trained against crowdsourced workers outperform models based on journalists' assessment and models trained on a pooled dataset of both crowdsourced workers and journalists. All three datasets, aligned into a uniform format, are also publicly available. A feature analysis then identifies features that are most predictive for crowdsourced and journalistic accuracy assessments, results of which are consistent with prior work. We close with a discussion contrasting accuracy and credibility and why models of non-experts outperform models of journalists for fake news detection in Twitter.

3) A performance evaluation of machine learning-based streaming spam tweets detection

AUTHORS: C. Chen, J. Zhang, Y. Xie, Y. Xiang, W. Zhou, M. M. Hassan, A. AlElaiwi, and M. Alrubaian

The popularity of Twitter attracts more and more spammers. Spammers send unwanted tweets to Twitter users to promote websites or services, which are harmful to normal users. In order to stop spammers, researchers have proposed a number of mechanisms. The focus of recent works is on the application of machine learning techniques into Twitter spam detection. However, tweets are retrieved in a streaming way, and Twitter provides the Streaming API for developers and researchers to access public tweets in real time. There lacks a performance evaluation of existing machine learning-based streaming spam detection methods. In this paper, we bridged the gap by carrying out a performance evaluation, which was from three different aspects of data, feature, and model. A big ground-truth of over 600 million public tweets was created by using a commercial URL-based security tool. For real-time spam detection, we further extracted 12 lightweight features for tweet representation. Spam detection was then transformed to a binary classification problem in the feature space and can be solved by conventional machine learning algorithms. We evaluated the impact of different factors to the spam detection performance, which included spam to nonspam ratio, feature discretization, training data size, data sampling, time-related data, and machine learning algorithms. The results show the streaming spam tweet detection is still a big challenge and a robust detection technique should take into account the three aspects of data, feature, and model.

System Analysis

Existing System:

- ❖ Tingmin *et al.* provide a survey of new methods and techniques to identify Twitter spam detection. The above survey presents a comparative study of the current approaches.
- ❖ On the other hand, S. J. Soman *et. al.* conducted a survey on different behaviors exhibited by spammers on Twitter social network. The study also provides a literature review that recognizes the existence of spammers on Twitter social network.
- ❖ Despite all the existing studies, there is still a gap in the existing literature. Therefore, to bridge the gap, we review state-of-the-art in the spammer detection and fake user identification on Twitter

Disadvantages Of Existing System:

- ❖ No efficient methods used.
- ❖ No real time datas used.
- ❖ More complex

Proposed System:

- ❖ The aim of this paper is to identify different approaches of spam detection on Twitter and to present a taxonomy by classifying these approaches into several categories. For classification, we have identified four means of reporting spammers that can be helpful in identifying fake identities of users. Spammers can be identified based on: (i) fake content, (ii) URL based spam detection, (iii) detecting spam in trending topics, and (iv) fake user identification.
- ❖ Moreover, the analysis also shows that several machine learning-based techniques can be effective for identifying spams on Twitter.

Advantages of proposed system:

- ❖ This study includes the comparison of various previous methodologies proposed using different datasets and with different characteristics and accomplishments.
- ❖ Tested with real time data.

Implementation**Modules:**

- ❖ System Construction Module
- ❖ Anomaly Detection Based on URL
- ❖ Machine Learning technique
- ❖ Detection of Spammer

Module Descriptions:**System Construction Module**

- ❖ In the first module, we develop the Online Social Networking (OSN) system module. We build up the system with the feature of Online Social Networking System, Twitter. Where, this module is used for new user registrations and after registrations the users can login with their authentication.
- ❖ Where after the existing users can send messages to privately and publicly, options are built. Users can also share post with others. The user can able to search the other user profiles and public posts. In this module users can also accept and send friend requests.
- ❖ With all the basic feature of Online Social Networking System modules is build up in the initial module, to prove and evaluate our system features.
- ❖ We present the proposed framework for metadata features are extracted from available additional information regarding the tweets of a user, whereas content-based features aim to observe the message posting behavior of a user and the quality of the text that the user uses in posts.

Anomaly Detection Based on URL:

Anomalous users use various URL links for creating spams. The proposed methodology, which is used to identify various anomalous activities from social networking sites, for example, Twitter, comprises the following features.

- ✚ URL ranking in which the URL rank is identified such that how authentic a URL is.

- + Similarity of tweets includes posting of same tweets again and again.
- + Time difference between tweets involves posting of five or more tweets during the time period of one minute.
- + Malware content consists of malware URL that can damage the system.
- + Adult content contains posts that consist of adult content.

Machine Learning technique:

- ❖ The number of features, which are associated with tweet content, and the characteristics of users are recognized for the detection of spammers. These features are considered as the characteristics of machine learning process for categorizing users, i.e., to know whether they are spammers or not.
- ❖ In order to recognize the approach for detecting spammers on Twitter, the labelled collection in pre-classification of spammer and non-spammers has been done. Next, those steps are taken which are needed for the construction of labeled collection and acquired various desired properties.
- ❖ In other words, steps which are essential to be examined to develop the collection of users that can be labelled as spammers or non-spammers. At the end, user attributes are identified based on their behavior, e.g., who they interact with and what is the frequency of their interaction.
- ❖ In order to confirm this instinct, features of users of the labelled collection has been checked. Two attribute sets are considered, i.e., content attributes and user behavior attributes, to differentiate one user from the other

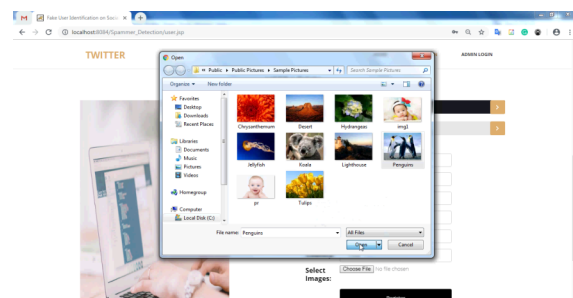
Detection of Spammer:

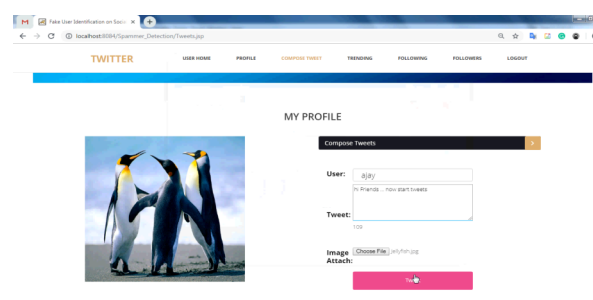
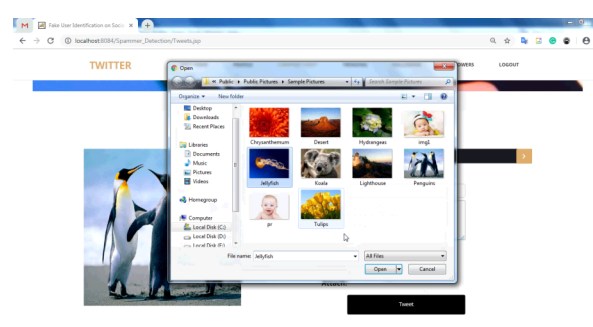
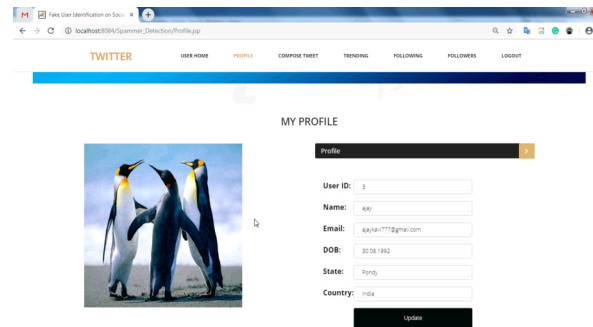
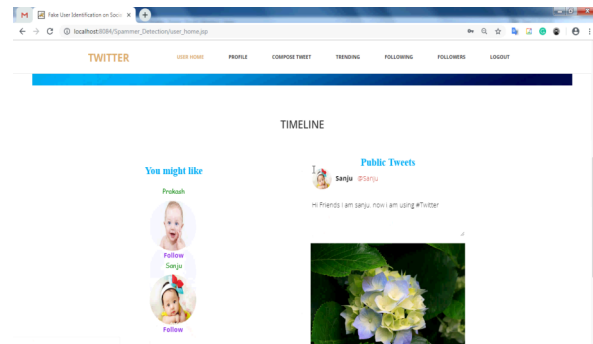
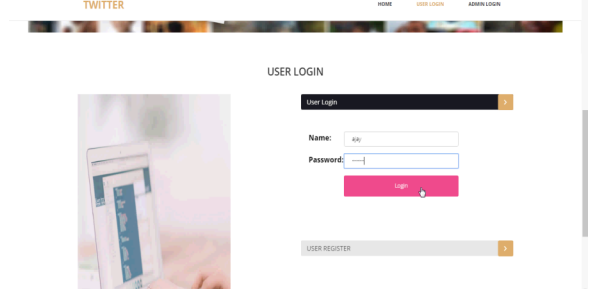
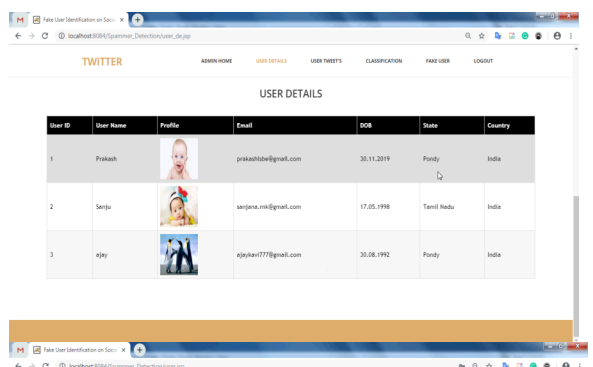
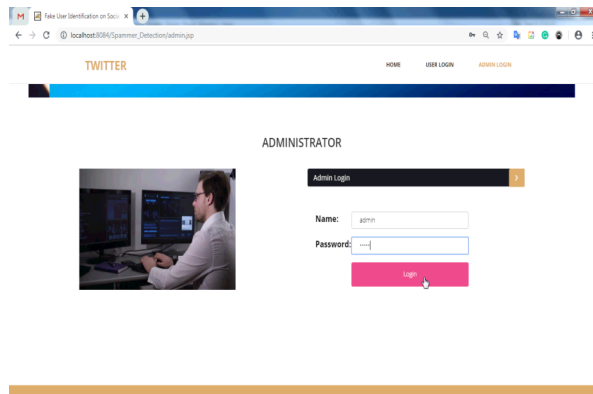
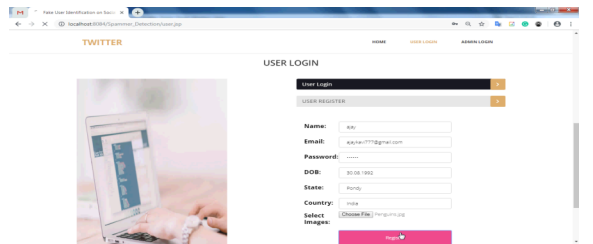
- ❖ In this module, we implement the collection of tweets with respect to trending topics on Twitter. After storing

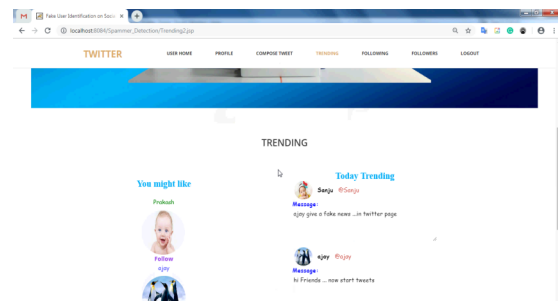
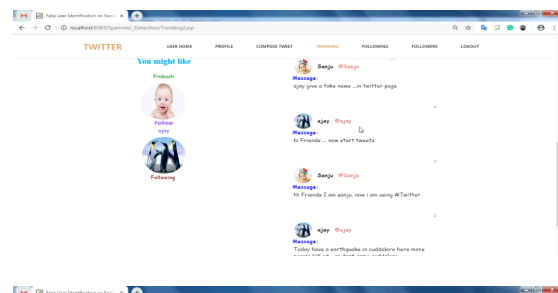
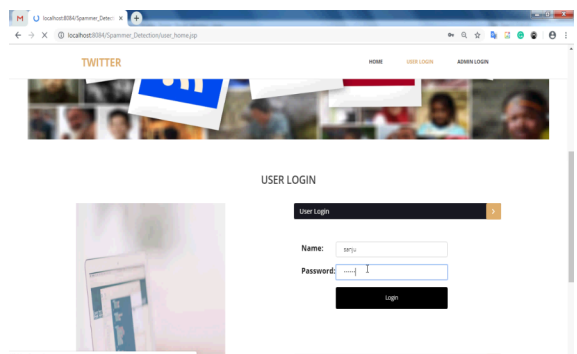
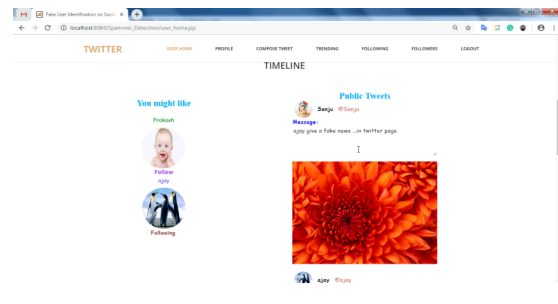
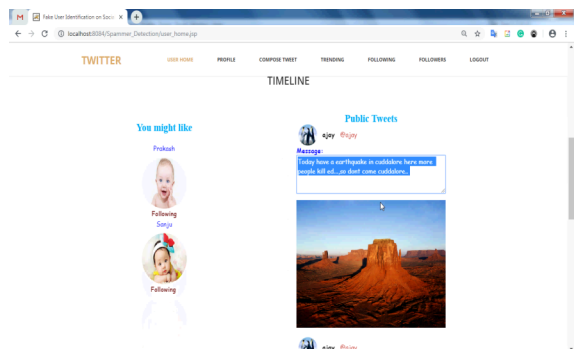
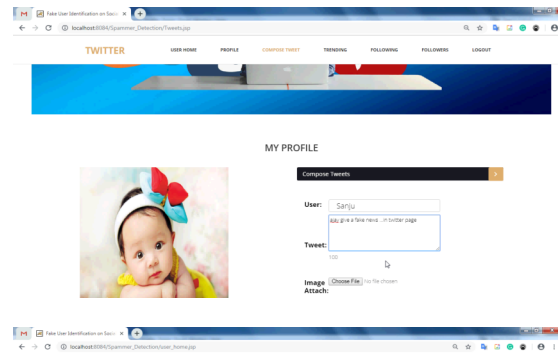
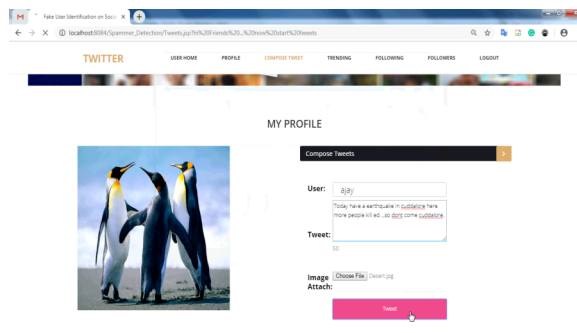
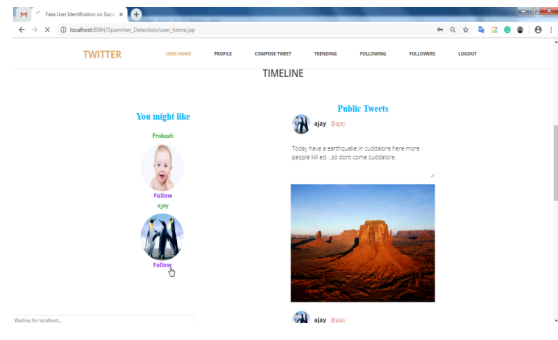
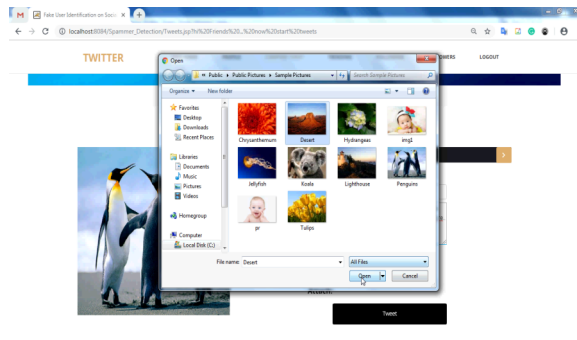
the tweets in a particular file format, the tweets are subsequently analyzed.

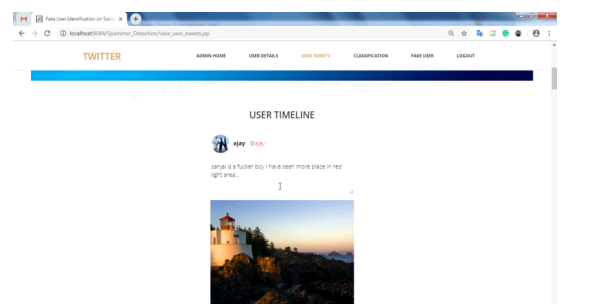
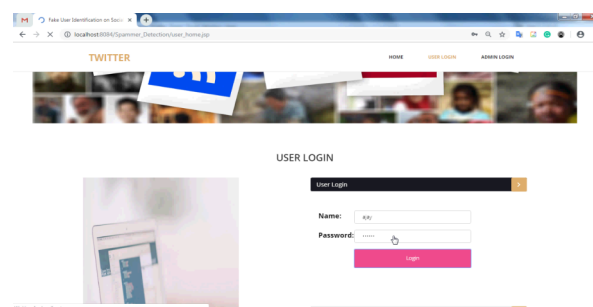
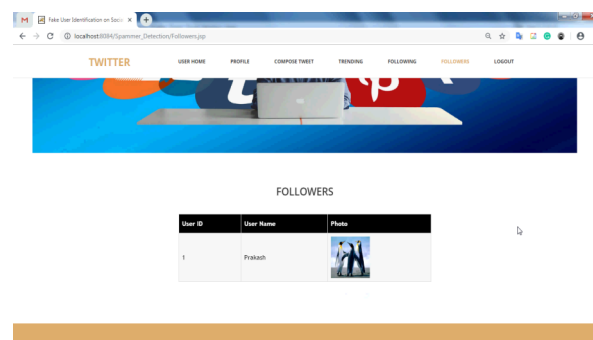
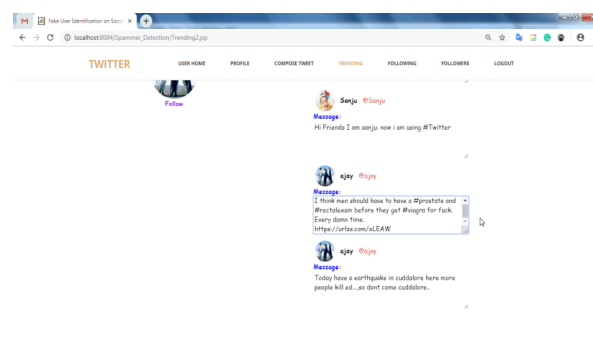
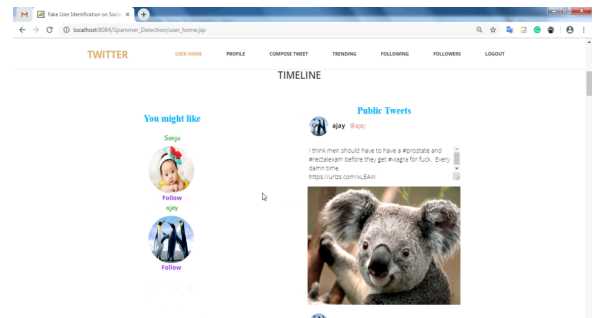
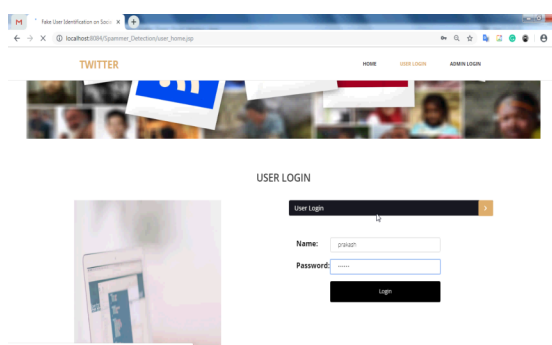
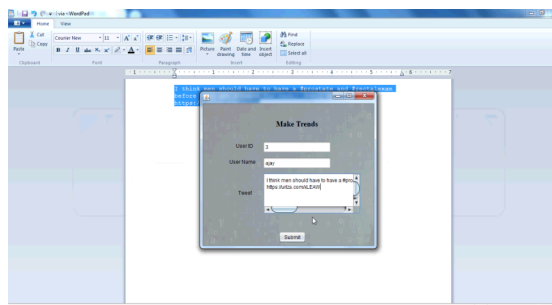
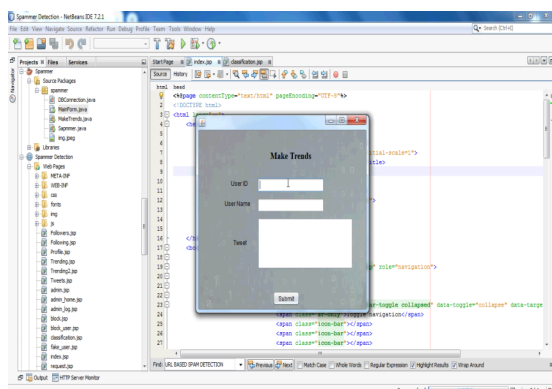
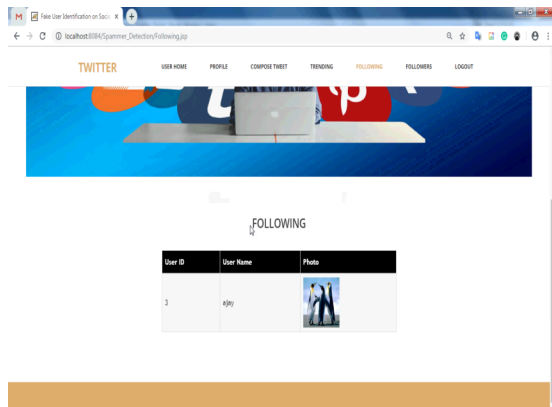
- ❖ Labelling of spam is performed to check through all datasets that are available to detect the malignant URL.
- ❖ Feature extraction separates the characteristics construct based on the language model that uses language as a tool and helps in determining whether the tweets are
- ❖ fake or not.
- ❖ The classification of data set is performed by shortlisting the set of tweets that is described by the set of features provided to the classifier to instruct the model and to acquire the knowledge for spam detection.
- ❖ The spam detection uses the classification technique to accept tweets as the input and classify the spam and non-spam.

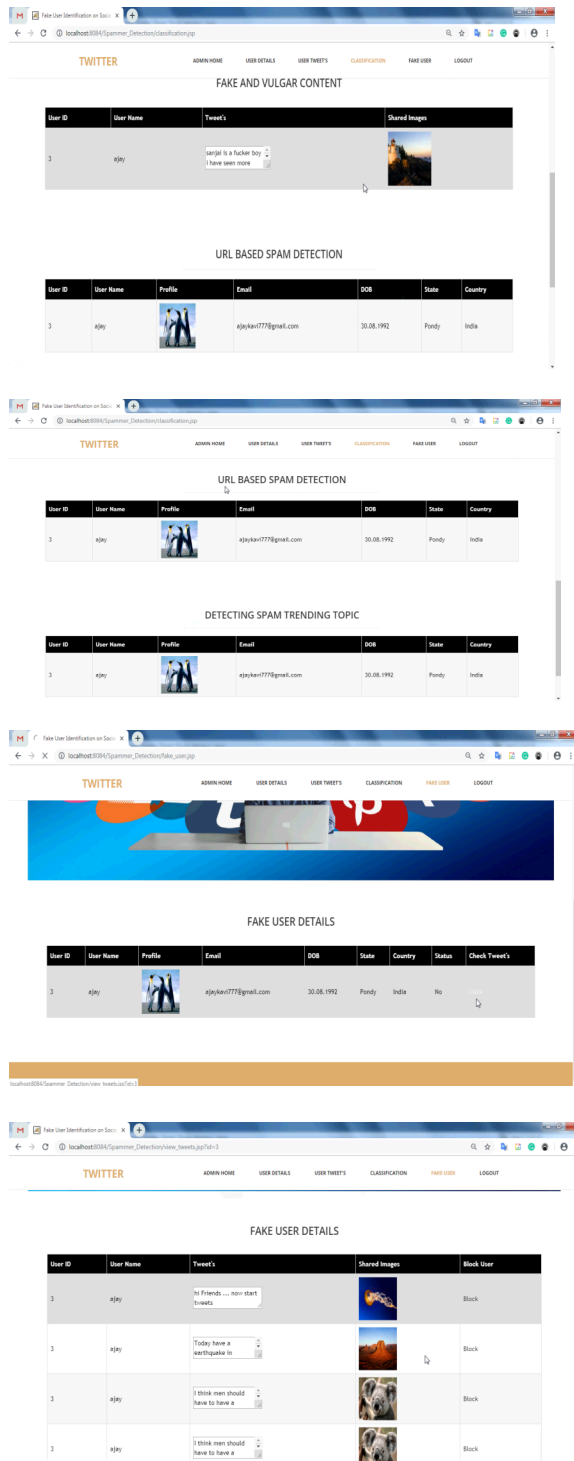
SCREEN SHOTS











CONCLUSION

In this paper, we played out a survey of strategies utilized for identifying spammers on Twitter. What's more, we additionally introduced a scientific categorization of Twitter spam identification draws near and sorted them as fake substance recognition, URL based spam location, spam discovery

in moving subjects, and fake client recognition methods. We likewise analyzed the introduced strategies dependent on a few highlights, for example, client highlights, content highlights, chart highlights, structure highlights, and time highlights. Besides, the strategies were likewise analyzed regarding their predefined objectives and datasets utilized. It is foreseen that the introduced survey will help analysts discover the data on cutting edge Twitter spam recognition methods in a solidified structure. Notwithstanding the improvement of proficient and successful methodologies for the spam recognition and fake client distinguishing proof on Twitter [34], there are as yet certain open zones that require extensive consideration by the specialists. The issues are quickly featured as under: False news ID on social media networks is an issue that should be investigated as a result of the genuine repercussions of such news at individual just as aggregate level [25]. Another related point that merits researching is the ID of talk sources on social media. Albeit a couple of studies dependent on measurable techniques have just been led to recognize the wellsprings of gossipy tidbits, more modern methodologies, e.g., social organization based methodologies, can be applied as a result of their demonstrated adequacy.

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