Spam Email Detection

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Abstract: Phishing is a type of extensive fraud that happens when a malicious mails act like a real one keeping in mind that the end goal to obtain touchy data.In spite ofthe fact that there are a few contrary to phishing programming and methods for distinguishing potential phishing endeavors in messages and identifying phishing substance on sites.However, detecting phishing Mails is a challenging task, as most of these techniques are not able to make an accurate decision dynamically asto whether the Arrived mail is spam or not. Propose system will compare email with spam keyword database ,if content in mail matched with database contents then mail is detected as spam.

Keywords: *NLP, Prediction, Spam words, Phishing.*

I INTRODUCTION

Phishing is a trickery system that uses a blend of social designing what's more, innovation to assemble delicate and individual data, for example, passwords and charge card subtle elements by taking on the appearance of a dependable individual or business in an electronic correspondence. Phishing makes utilization of spoof messages that are made to look valid and implied to be originating from honest to goodness sources like money related foundations, ecommerce destinations and so forth, to draw clients to visit fake sites through joins gave in the phishing email.

Phishing is a technique of tricking people into giving sensitive information like usernames and passwords, credit card details, sensitive bank information, etc., by way of email spoofing, instant messaging, or using fake web sites whose look and feel gives the appearance of a legitimate website. System will decides whether a message is phishing thanks to the Bayesian classification algorithm and the scores added to the database. It is instantly perceived as a spam message by the words that are exciting, phrases that increase the desire for shopping, and which contain unwanted content.

II RELATED WORK

Touseef J. Chaudhery, "Intelligent Phishing Website Detection using Random Forest Classifier " Phishing is defined as mimicking a creditable company's website aiming to take private information of a user. In order to eliminate phishing,different solutions proposed. However, only one single magic bullet cannot eliminate this threat completely. Data mining is a promising technique used to detect phishing attacks. In this paper, an intelligent system to detect phishing attacks is presented. We used different data mining techniques to decide categories of websites: legitimate or phishing. Different classifiers were used in order to construct accurate intelligent system for phishing website detection. Classification accuracy, area under receiver operating characteristic (ROC) curves (AUC) and F-measure is used to evaluate the performance of the data mining techniques. Results showed that

Random Forest has outperformed best among the classification methods by achieving the highest accuracy 97.36

G.S.Edwin Ebby , "Phishing Detection in Websites using Parse Tree Validation " Phishing is a technique of tricking people into giving sensitive information like usernames and passwords, credit card details, sensitive bank information, etc., by way of email spoofing, instant messaging, or using fake web sites whose look and feel gives the appearance of a legitimate website. In this work, a technique named parse tree validation is proposed to determine whether a webpage is legitimate or phishing. It is a novel approach to detect the phishing web sites by intercepting all the hyperlinks of a current page through Google API, and constructing a parse tree with the intercepted hyperlinks. This technique is implemented and tested with 1000 phishing pages and 1000 legitimate pages. The false negative rate achieved was 7.3

Srushti Kotak, " A new method for Detection of Phishing Websites: URL Detection "Phishing is an unlawful activity wherein people are misled into the wrong sites by using various fraudulent methods. The aim of these phishing websites is to confiscate personal information or other financial details for personal benefits or misuse. As technology advances, the phishing approaches used need to get progressed and there is a dire need for better security and better mechanisms to prevent as well as detect these phishing approaches. The primary focus of this paper is to put forth a model as a solution to detect phishing websites by using the URL detection method using Random Forest algorithm. There are 3 major phases such as Parsing, Heuristic Classification of data, Performance Analysis in this model and each phase makes use of a different technique or algorithm for processing of data to give better results.

K.Ramya, "Phishing Email Filtering Techniques A Survey " The most interesting species of Internet fraud is Phishing. Email Phishing is a vulnerable activity which is referred as E-mail fraud, includes web link or form and Asks for confidential information such as password, account details. The email will be classified as phishing email and legitimate email by various phishing email filter techniques based on their functional activities. Various Anti phishing Mechanisms and tools are used for user's protection against this fraudulent act by using heuristics method and machine learning algorithm by (SVM) support vector machine classifier. The phishing problem is highly effective and no single solution exists to mitigate all the vulnerabilities effectively. This survey relies on recently developed anti phishing mechanisms and tools.

III PROBLEM STATEMENT

Phishing mails detection is truly an unpredictable and element issue including numerous components and criteria that are unstable. However, detecting phishing Emails is a challenging task, dynamically as most of these techniques are not able to make an accurate decision to whether the new arrived mails are spam or not.

IV. EXISTING SYSTEM

In an Existing System, the phishing approaches used need to get progressed and there is a dire need for better security and better mechanisms to prevent as well as detect these phishing

approaches.Existing system detect phishing mails by using the URL detection and existing datasets method using Random Forest algorithm..

Existing system only check the syntax of new arrived emails with spam emails datasets. Also check URL present in emails with spam URL datasets.When email arrived to us that email syntax is match with existing spam emails, if match then alert message is given to the users that email is a spam email and stored into the database for future references.If not then extract URL from that mail and check with phishing URL list If match add URL is a spam otherwise detected as a normal.

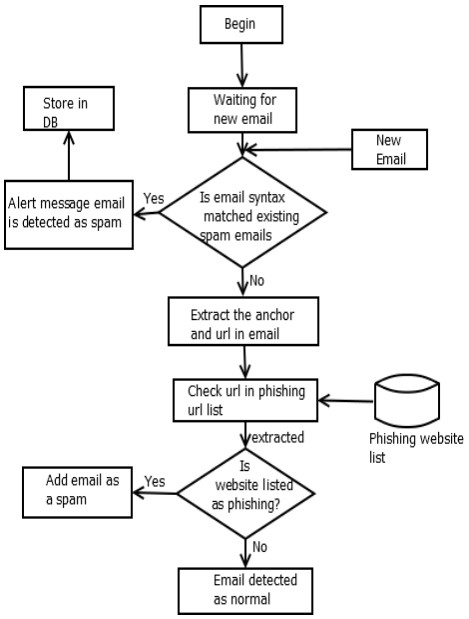

Fig: Existing System Architecture

Advantages:

Parsing, Heuristic Classification of data, Performance Analysis in this model and each phase makes use of a different technique or algorithm for processing of data to give better results.

It will provide better security and improve the accuracy.

Disadvantages:

System that can't learn by itself about new types of phishing attacks by adding a more enhanced feature to the detection process.

V. PROPOSE SYSTEM

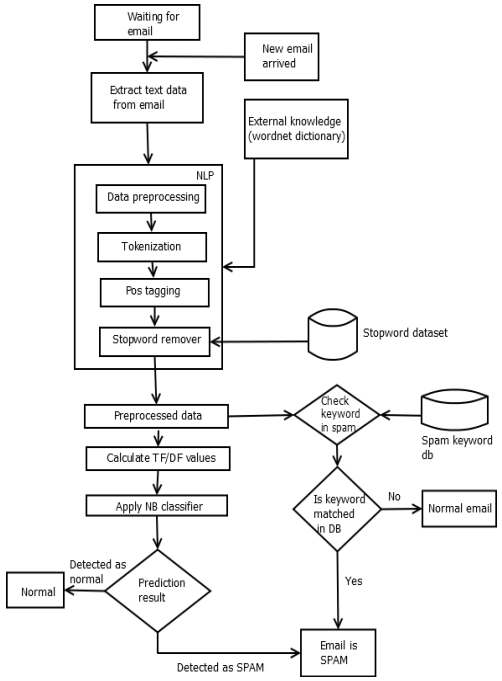

Fig: Propose System Architecture

At the time of new email arrives our proposed system extract text data from email.NLP is used for Natural Language Processing .NLP perform

- Data Preprocessing
- Tokenization
- Pos Tagging

- Stopword Remover

After preprocessing system will apply NB classifier on that data. If keyword matched in DB then email detected as SPAM , otherwise its treated as normal email.

VI. Hardware Requirements & Software Requirements

Software Requirements

Platform :

1. Language Used: Python 3.7
2. IDE: Python IDLE
3. Database: MySQL
4. Platform Used: Microsoft Windows 7 or above

Hardware Requirements

1. Processor: Pentium Processor Core 2 Duo or Higher
2. HardDisk: 250 GB (min)
3. RAM:1GB or higher
4. ProcessorSpeed: 3.2 GHz or faster processor

VII. ALGORITHMS

1) Naive Bayes Algorithm

Naive Bayes model is easy to build and particularly useful for very large data sets. In simple, Naive Bayes is known to outperform even highly sophisticated classification methods.

It provides a way of calculating posterior probability p(c|x) from p(c) ,p(x) and p(c|x).

See the equation below:

$P(c|X) = P(x|c)\ P(c) / P(x)$

$P(c|X) = P(x1|c)\ x\ P(x1|c)\ x\ .\ .\ .\ x\ P(xn|c)\ x\ P(c)$

2) SVM Algorithm

Input: Dataset
Output: Accuracy and Validity

step1: start

step 2:-Input the dataset

step 3:-classify the dataset

step 4:-Apply the SVM meachine learning with four krenel functions(linear polynomial,sigmoid and radial based functions(RBF)).

step 5:-specify the Hyper-plane

step 6:-If obtained accuracy and validity is not acceptable then go to step 4.

step 7:-End

3)Decision Tree

Decision tree induction is the simple learning method of decision trees from class training tuples.

Steps:

1) Check if algorithm satisfies termination criteria.

2) Computer information-theoretic criteria for all attributes.

3) Choose best attribute according to the information- theoretic criteria for construction of tree.

4) Create a first node i.e decision node based on the best attribute in step 3.

5) Split the dataset based on newly created decision node in step 4 as per decision node.

6) For all sub-dataset in step 5, call C4.5 algorithm to get a sub-tree (recursive call).

7) Attach the tree obtained in step 6 to the decision node in step 4 for tree construction.

8) Return tree

4) Random Forest

-Let the number of training cases be N,and the number variables in the classifier be M.

-The number m of input variables are used to determine the decision at a node of the tree; m should be less than M.

-Choose a training set then Use the rest of the cases to estimate the error of the tree,by predicting their classes.

-For each node of the tree,choose randomly m variable on which to base the decision at the node.

-Then calculate the best split which is based on these m variable in training set.

-Each of the tree are fully grown and not pruned.

VIII. RESULTS

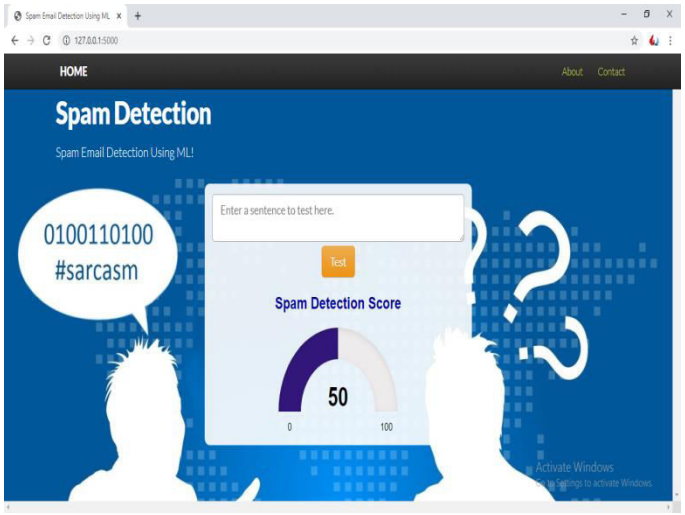

Fig: Home Page

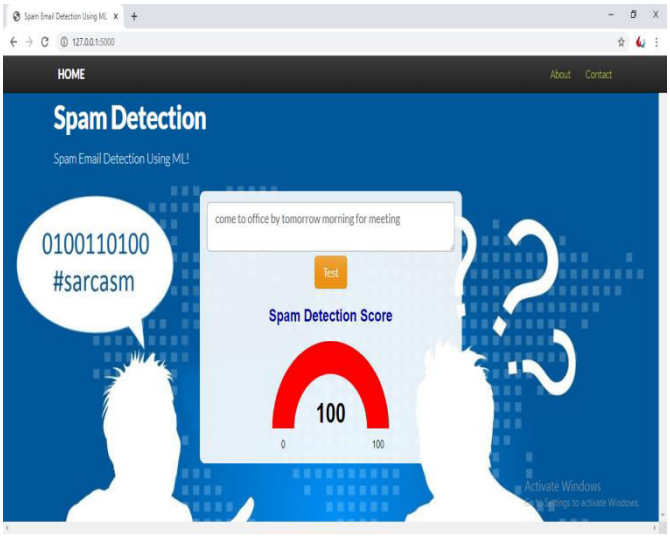

Fig: Spam –Email

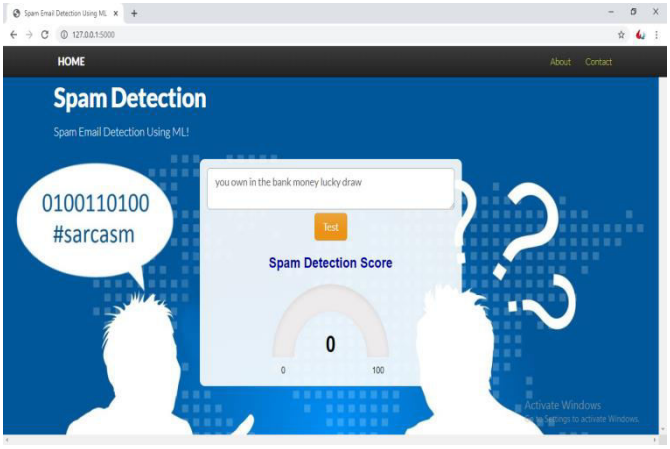

Fig: Spam -Email

IV. CONCLUSION

System will control the security of information and to prevent infringements, to check whether spam is available from the current database, to enable the user to create his own spam list, and to check whether the incoming mail has dangerous content.

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