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DiscoverPhish:ASurvey

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ABSTRACT

Phishing is a growing cyber crime that involves posing as a trustworthyentity in order to steal sensitive information. Because of the rise in phishingattacks, there is a greater need for effective solutions to detect and preventthese attacks. Machine learning algorithms have been proposed as a high-accuracy solution for detecting phishing attacks. This paper provides anoverview of recent research studies on machine learning-based phishingdetection. The survey summarises the methods employed, the evaluationmetrics, and the outcomes obtained. In this field, various machine learningalgorithms are being utilised, including decision trees, random forests, andsupport vector machines.The models are developed using a large - scaledataset of phishing and anti-phishing URLs before being applied to newURLs should be classified as phishing or non-phishing..The URL frame,websitecontent,andwebsitereputationcanallbeusedfortraining.Machin elearning offers a promising approach for detecting phishing attacks and hasthepotentialtosignificantlyimproveinternetusers' security. However,moreresearchisneededtoimprovethesesystems'performanceandrob ustnessagainst evolving phishing threats.

Keywords:-Phishingattack,Machinelearning,Phishingdetection,Algorithm.

INTRODUCTION

Phishing is a malicious technique used by cybercriminals to steal sensitiveinformationfromunsuspectingvictims,suchaslogincredentialsandfinancialinformation.Thethreatofphishingattackshasgrowninprominenceastheinternethasbecomemorewidelyusedandonlinetransactions have increased. As a result, there is an increasing demand forphishing detection methods. Traditional anti-phishing solutions, such asURL blacklists and anti-virus software, are limited in their ability to detectnewandunknownphishingattacks.Machinelearningalgorithmshavebeenproposed as a solution for detecting phishing attacks with high accuracy inresponsetothischallenge.Thisstudysoughttosummarisethecurrentsituation is the field by providing an overview of recent research studies onmachinelearning-basedphishingdetection..Thissurveywillprovideathoroughoverviewofthefieldandwillbeusefulforcybersecurityresearchers,practitioners,and decision-makers.

LITERATURESURVEY:-

Thepaper"PhishingWebsiteDetectionUsingMachineLearningAlgorithms" published in 2018 investigates the use of Machine learning todetect phishing websites. The authors tested several algorithms, includingRandomForest,andfounditobethemosteffective,witha94.6%accuracyrate. According to the findings, machine learning can be a useful tool indetectingphishingwebsites. [1]

The paper "Detecting Phishing Websites Using Machine Learning"investigates how phishing websites can be detected using machinelearning.Witha96.2%accuracyrate,theRandomForestalgorithmhasbeendiscoveredtobethemosteffective.Accordingtothefindings,

machine learning can be a valuable tool for improving online securitybydetectingphishingwebsites.[2]

WaihengBai'spaper,"PhishingWebsiteDetectionUsingMachineLearning Algorithms," will be presented in December 2020 at theComputerApps and Infosec World Conference. It investigates the use of machinelearning algorithms to detect phishing websites. Phishing is a major onlinesecurity threat because attackers create fake websites to obtain classifiedinfo from users. The author compares several machine learning algorithmsto classify phishing websites, including Naïve Bayes classifier, DecisionTree,RandomForest,and Support VectorMachine[3]

"Feature Selection for Phishing Website Classification," published in2020, focuses on using feature selection to enhance the accuracy ofmachine learning algorithms through detecting phishing websites.Theresearchersobservedthatutilisingfeatureselectionapproach essuchasthe ReliefF algorithm and the Naive Bayes classifier may enhance theaccuracy of phishing website identification greatly. Feature selection,accordingtotheauthors,isanexcellentapproachforimprovingph ishingwebsitedetectionsystems.[4]

Selvakumari M et al presented their paper "Phishing Website DetectionUsingMachineLearningandDeepLearningTechniques"atthe2021G lobalForumonComputing,Interaction,andEmissionSystems(ICCBS).Phishin g attacks are a major risk to internet security. Using thesestrategies boosted the accuracy of detecting phishing websites, according tothestudy.Accordingtotheauthors,thismethodhasthepotentialtoenhancephis hingwebsitedetection.[6]

The2022article "Phishing AttackDetection UsingMachine Learning"looksintotheusageofmachinelearningtechniquesforidentifyingphis hingattacks. In the investigation, the Random Forest algorithm was determinedtobethe mostsuccessfulatidentifyingphishingassaults.Theauthorsconcludethatmachi nelearningtechniquescanaidinthedetectionofphishingattemptsandenhanceint ernetsecurity.[7]

The Journal of Autonomous Systems Research and Potential Applicationspublished a study titled "Phishing website analysis and identification usingMachineLearning"in2022.Itlookedintohowmachinelearningalgorithms may be used to detect phishing websites. The Support Vector Machinemethodwasshowntobethemostefficientindetectingphishingwebsites inthestudy,andtheresearchersconcludedthatmachinelearningalgorithmscan be a strong tool for increasing online security by detecting phishingwebsites.[8]

CONCLUSION

These studies on Phishing websites are identified using machine learning.have concluded that machine learning algorithms can be an effective toolfordetectingphishingwebsitesandimprovingonlinesecurity.Thesestudies comparedvariousalgorithmsanddiscoveredthattheSupportVectorMachine, Random Forest, and Naive Bayes algorithms performed well indetecting phishing websites. Some studies have also looked into featureselection procedures to improve the identification of phishing websites. Thefindings of these studies highlight the potential for machine learning to helpwith online security by detecting phishing websites. Furthermore, somestudies have assessed the effectiveness of machine learning algorithms toothertraditionaltechniques,suchassignature-baseddetection,anddiscovered that machine learning algorithms outperform other traditionaltechniques in detecting phishing websites. Machine learning can identifyphishing websites in real-world settings, reducing the likelihood of onlinefraud.

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