Phishing Detection in Browsers using Machine Learning

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Abstract—Phishing is a cybercrime in which a target visits a website that is posing as a legitimate application, to lure individuals into providing sensitive data such as - banking and credit card details, and passwords. An unsuspecting user can click a link in an email or social media platform, and be led to a phishing website, leading to frauds and identity thefts. Phishing is a widespread attack that still does not have a concrete solution.

This report proposes a solution for the protection of end users through a browser extension while comparing various Machine Learning approaches to identify phishing websites. // TODO add "the most important results and findings"

I. Introduction

With the recent advancement in various cybersecurity technology, the weakest link in the cybersecurity happen to be the end users. Attackers utilize phishing which exploits naivety of users to trick them into handing out sensitive information. This poses a great risk not only to the users themselves but the organizations and institutions of which they are a part of. According to recent research from Proofpoint, 75% of organizations around the world experienced a phishing attack in 2020, and 74% of attacks targeting US businesses were successful [1].

Apart from increasing security awareness among users, we must develop tools which complement that awareness to help them make safe decisions. This report proposes and demonstrates a Chromium-based browser extension to help mitigate the risk of phishing while browsing the web.

The central idea of the browser extension is to notify the user whenever they open any *potential* phishing website. The solution also included a Python web server to which the browser extension communicates to determine the legitimacy of a web page. As of now, the web server takes in a URL and returns a boolean value stating if the given URL is part of a potential phishing attempt.

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$$a + b = \gamma \tag{1}$$

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 word alternatively is preferred to the word "alternately"
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Head	Table column subhead	Subhead	Subhead
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^aSample of a Table footnote.

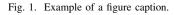


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ACKNOWLEDGMENT

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REFERENCES

 Proofpoint, "Threat report: 2021 state of the phish report." [Online]. Available: https://www.proofpoint.com/us/resources/threat-reports/ state-of-phish

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