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Title : A solution to Unicode Phishing

Hari Om, Ritik Kumar, Saumya Das
Department of Information Technology
Sikkim Manipal Institute Of Technology, Majitar, Sikkim -737136

Outline

- Motivation
- Introduction
- Literature Review
- Methodology
- Results and discussion
- Conclusion
- References

Motivation

- Unicode phishing

Fig-1 : Image from First National Bank.com

Introduction

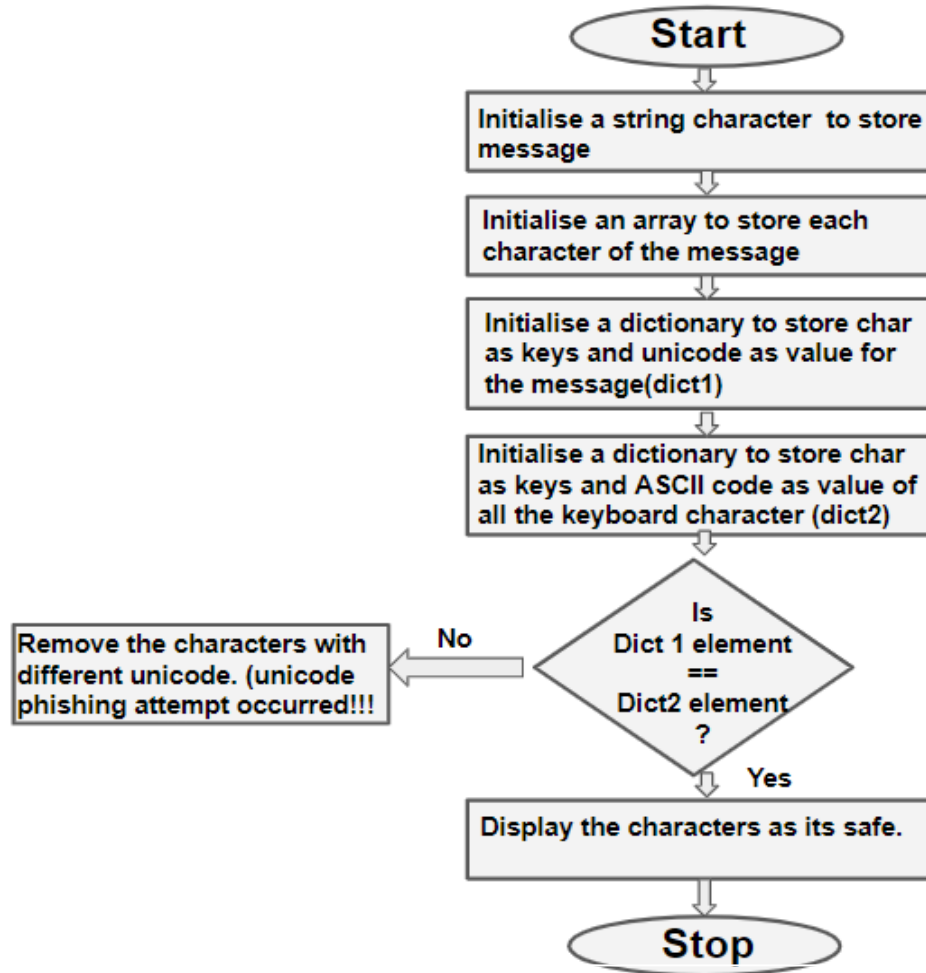What actually is this term - "Unicode Phishing" ?

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Literature Review

Source	Authors	Title	Findings
Google Scholar	H. Zhou, X. Wang, and X. Wang (2016)	"Unicode-based Phishing Attacks: A Systematic Study and Mitigation"	The paper discuss potential mitigations or countermeasures against Unicode-based phishing attacks, such as browser or email client features that can detect and block visually similar characters or techniques for user education and awareness.
Google Scholar	F. Li, X. Wang, and X. Wang	"A Novel Method for Detecting Unicode-based Phishing Websites"	The paper discuss the limitations of the proposed method, potential areas for future research, and practical implications of the findings for detecting and mitigating Unicode-based phishing attacks.

Literature Review contd…

Source	Authors	Title	Findings
Google Scholar	Butt, M.H.F., Li, J.P., Saboor, T., Arslan, M. and Butt, M.A.F.	Intelligent Phishing Url Detection: A Solution Based On Deep Learning Framework.	The paper discuss the limitations of their proposed method, potential areas for future research, and suggestions for further improvements or optimizations and considerations associated with using deep learning frameworks for phishing URL detection.
Google Scholar	Hu, H., Jan, S.T., Wang, Y. and Wang, G.	Assessing Browser-level Defense against IDN-based Phishing. In USENIX Security Symposium	The paper discuss the findings and implications of the assessment, including any strengths or weaknesses identified in the browser-level defense mechanisms against IDN-based phishing attacks. The authors may provide insights, recommendations, or suggestions for improving the defense mechanisms and mitigating IDN-based phishing threats.

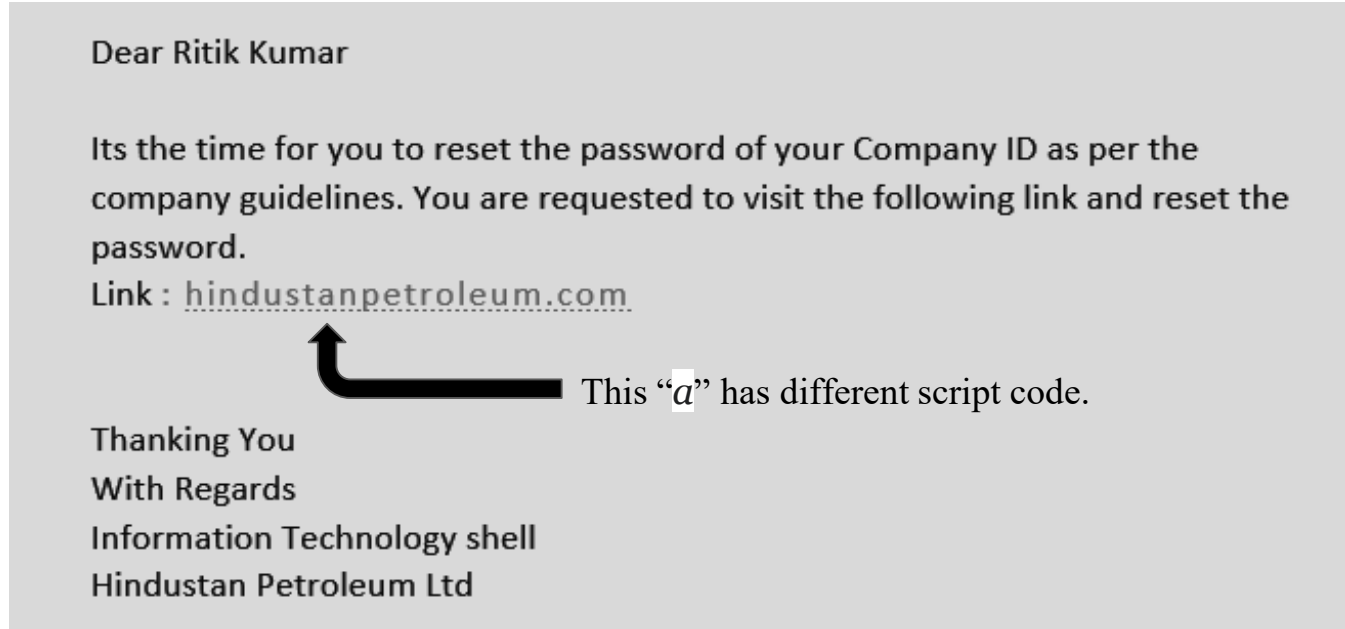# Methodology

Results and Discussion

News Letter

Dear Ritik Kumar

Its the time for you to reset the password of your Company ID as per the company guidelines. You are requested to visit the following link and reset the password.
Link : hindustanpetroleum.com

This "a" has different script code.

Thanking You
With Regards
Information Technology shell
Hindustan Petroleum Ltd

Figure-2: A similar looking example Phishing mail received by a person having a similar looking website link.

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Results and Discussion contd…

```
PS C:\Users\hario> python -u "c:\Users\hario\Des
Enter the Message : hindustanpetroleum.com
['h', 'i', 'n', 'd', 'u', 's', 't', 'a', 'n', 'p
{'h': 104, 'i': 105, 'n': 110, 'd': 100, 'u': 11
h and h have the same ASCII Unicode value: 104
i and i have the same ASCII Unicode value: 105
n and n have the same ASCII Unicode value: 110
d and d have the same ASCII Unicode value: 100
u and u have the same ASCII Unicode value: 117
s and s have the same ASCII Unicode value: 115
t and t have the same ASCII Unicode value: 116
p and p have the same ASCII Unicode value: 112
e and e have the same ASCII Unicode value: 101
r and r have the same ASCII Unicode value: 114
o and o have the same ASCII Unicode value: 111
l and l have the same ASCII Unicode value: 108
m and m have the same ASCII Unicode value: 109
. and . have the same ASCII Unicode value: 46
c and c have the same ASCII Unicode value: 99
PS C:\Users\hario> []
```

Figure-3: The link received by the person on the mail is scanned by the code mentioned in this paperwork, and it has been found that the letter "a" has different Unicode (non-Latin) in the link hindustanpetroleum.com.

Conclusion

- Prevention from Unicode phishing attacks.
- Can be implemented with the softwares of networking devices and IoTs.
- Can be implemented at large scale.
- Future scope
- Limitations

References

[1] Fu, A. Y., Deng, X., Wenyin, L., & Little, G. (2006, July). The methodology and an application to fight against unicode attacks. In Proceedings of the second symposium on Usable privacy and security (pp. 91-101)

[2]https://www.hindustanpetroleum.com/pages/alert-regarding-fake-websites

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Thank You