

CYBER SECURITY : WI-FI HACKING WITH A RASPBERRY PI

NAME : ZUKISA
SURNAME : DYANTYI
STUDENT # : 3567302
TERM 3 : IMPLEMENTATION
SUPERVISOR : DR. M NORMAN
CO-SUPERVISOR : MR. M MUYOWA

BACKGROUND

- ▶ INCREASE OF CONNECTED DEVICES WHICH RESULT HIGH CHANCES OF CYBER ATTACKS.
- ▶ USE A DEVICE THAT IS PORTABLE AND REQUIRE SMALL POWER TO RETRIVE SOFTWARE AND HARDWARE INFORMATION AND PENETRATE WI-FI.
- ▶ OBJECTIVE OF THE PROJECT IS TO USE SMALL DEVICES SUCH AS RASPBERRY PI TO HACK
- ▶ EDUCATE WI-FI OWNERS AND CAMPUS HOW TO PREVENT BEING VICTIMS OF CYBER ATTACKS.

IMPLEMENTATION

SOFTWARE AND HARDWARE

- ▶ RASPBERRY PI MODEL B+ RUNNING KALI LINUX OPERATING SYSTEM.
- ▶ PREFERRED LANGUAGE PYTHON.
- ▶ MOST USED LANGUAGED FOR SYSTEM VULNERABILITY.
- ▶ REPLACED TOOLS CRUNCH, NMAP AND AIREPLAY-NG.
- ▶ LIBRARIES AND PYTHON MODULES USED INCLUDE MODULE WIFI AND CELL, REQUEST AND SCAPY.



Getting Started With Python Requests

IMPLEMENTATION

FUNCTIONS

- ▶ CONTAIN MULTIPLE PYTHON SCRIPTS
- ▶ RUN ALL OF THEM SIMULTANEOUSLY
- ▶ CHANGES MADE FROM PREVIOUS CONVERTED TOOLS FROM KALI LINUX.
- ▶ ADDED NEW PYTHON SCRIPTS TO SCAN WFI NETWORKS AVAILABLE, CONVERT MAC ADDRESSES, GENERATE WORDLIST AND PACKET SNIFFING SCRIPT.



IMPLEMENTATION

TESTING

- ▶ SCAN AVAILABLE WIFI AND RETRIEVE INFORMATION, SAVE ALL INFORMATION IN A CSV FILE.
- ▶ READ AND CONVERT FROM THE CSV FILE.
- ▶ INCREASE DIFFICULTY OF PASSWORD BY USING NUMBERS AND ALPHABETIC CHARACTERS E.G. "3687GHD".

REFERENCES

- [1] CISCO, "Security," *CISCO/Security*, 2018. [Online]. Available: <https://www.cisco.com/c/en/us/products/security/what-is-cybersecurity.html>. [Accessed: 14-Feb-2019].
- [2] hash3liZer, "No Title," 2018. [Online]. Available: <https://www.shellvoide.com/python/how-to-code-a-simple-wireless-sniffer-in-python/>. [Accessed: 05-Aug-2019].
- [3] A. L. and J. Muniz, *Penetration Testing with Raspberry Pi*. Birmingham,UK: Packt Publishing Ltd., 2015.
- [4] V. Kumkar, A. Tiwari, P. Tiwari, A. Gupta, and S. Shrawne, "Vulnerabilities of Wireless Security protocols (WEP and WPA2)," *Int. J. Adv. Res. Comput. Eng. Technol.*, vol. 1, no. 2, pp. 2278–1323, 2012.
- [5] J. F. and S. A. Tyler Williams, "security of the internet of things(iot)," *Digitalcommons.murraystate.edu*, 2017. [Online]. Available: https://www.google.com/search?rlz=1C1AVFC_enZA833ZA833&ei=myOCXMrnCeGU1fAPkqOooAl&q=security+of+the+internet+of+things%28iot%29+murray+state+university&oq=%22security+of+the+internet+of+things%28IoT%29%22+murray+state+&gs_l=psy-ab.1.0.33i160.6166.12427..1. [Accessed: 03-Mar-2019].

PLAN FOR TERM 4

- ▶ GENERATE WORDLIST WITH NUMBER, ALPHABETIC CHARACTERS AND SPECIAL CHARACTERS.
- ▶ TEST WITHIN THE BUILDING.
- ▶ THEN AROUND CAMPUS.
- ▶ MINIMIZE NUMBER OF PYTHON SCRIPTS BEING USED AND DECREASE TIME TAKEN TO PENETRATE WIFI.



THANK YOU!

