WI-FI HACKING WITH A RASPBERRY PI

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Term 2 : DESIGN AND PROTOTYPE

INTRODUCTION

➢ The project is about Cyber Security

➢ The motivation for the project is the increase in number of connected devices(IoTs) which result in high chances of cyber attacks

➢ The objective is educate the campus about cyber attacks

➢ The project is to build prototype that penetrate Wi-Fi network and retrieve hardware and software information about the network and devices.

DATA DESIGN

➢ Project does not need huge data or will not retrieve much data

➢ Data for the project will be : MAC address of connected devices, Access Points, Security Protocols

➢ Data retrieved will be saved in a csv file

➢ analysis will be made for final document for example charts and graphs

➢ Structure for Data :
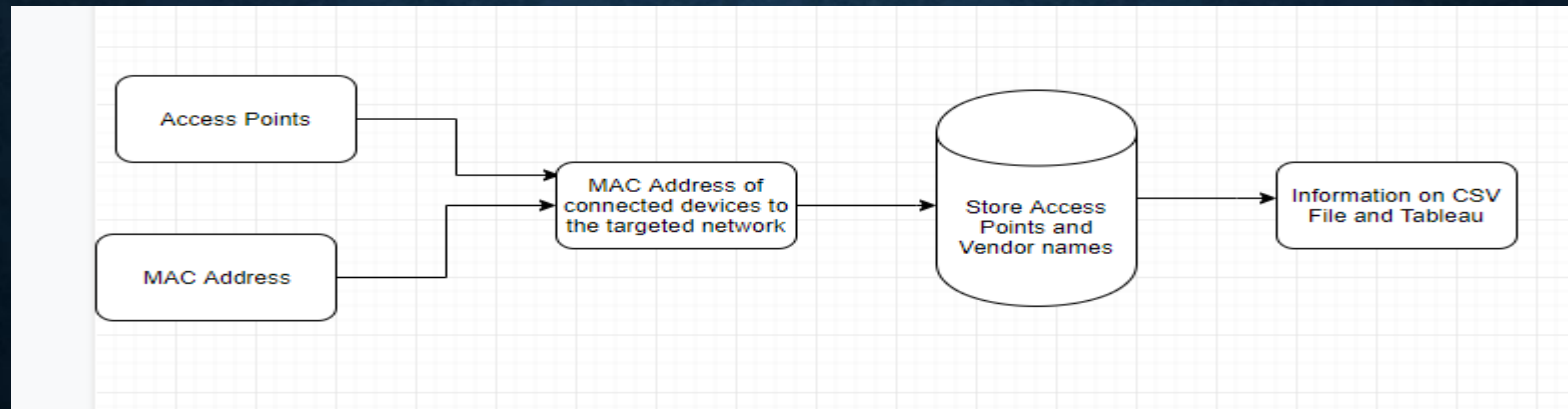
ARCHITECTURAL DESIGN

➢ Raspberry Pi running Kali Linux OS

➢ Kali Linux has HCXtools for penetration and testing

➢ Aircrack-ng will be used for penetration
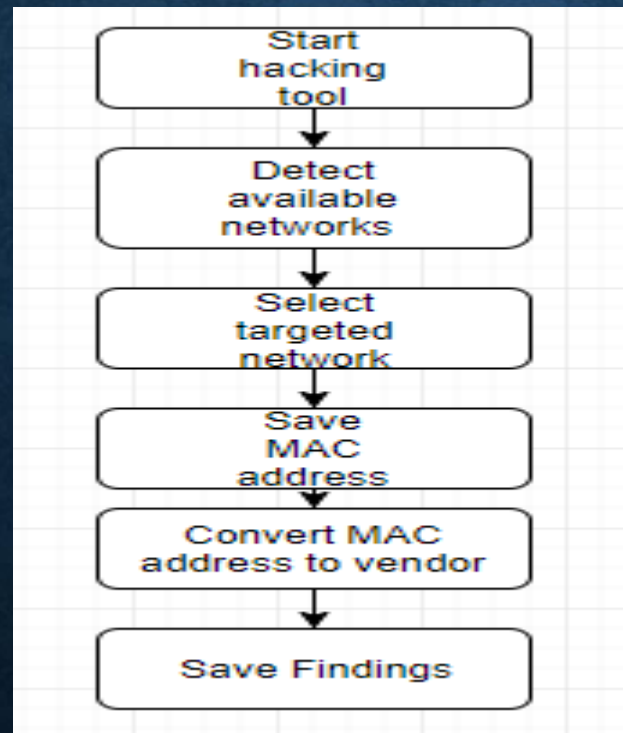

Raspberry Pi – Prototype

Connected Devices

Wireless Access Point

HIGH-LEVEL DESIGN

➢ HIGH-LEVEL DESIGN

LOW-LEVEL DESIGN

➢ LOW-LEVEL DESIGN

PROTOTYPE

➢ The prototype is an evolutionary prototype.

➢ Hardware for the prototype :

1. Raspberry Pi 3

2. Micro SD card

3. TP-LINK router

4. Desktop Monitor

➢ Software used in the prototype : Kali Linux OS, AirCrack-ng, Nmap

PROTOTYPE DEMO

➢ Contain worlist text

➢ Two python script : Attack.py and MAC2VEND.py

➢ Prototype show the hacking of Wi-Fi password using Aircrack-ng

➢ On WPA/WPA 2

➢ Convert MAC address to Vendor Name

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]   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.

[3]   A. L. and J. Muniz, Penetration Testing with Raspberry Pi. Birmingham,UK: Packt Publishing Ltd., 2015.

[4]   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=myOCXMrnCeGU1fAPkqOooAI&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].