Reconnaissance (Information Gathering)

Day1_info.md

Recall

LAST TIME TOPICS

Recall

1st CLASS about Ethical Hacking

Topics

- What is information Gathering/ Footprinting/
- Which information we gather
- Types of information gathering
- How we gather information
- Reverse image search
- Google hacking

Recon / Information Gathering / Footprint /

- Information Gathering is Collecting data about some network/host/system.
- Footprinting => Footstep+ printing(logging)
- Most of the people find Footprinting boring, but it is a very important part of Ethical Hacking. Almost 85% of Hacking



Why do we need recon?

- Imagine, You are going to rob a bank... what do you do?
 - Know How much polices are there in the bank
 - \circ Know the doors (way in and out)
 - Know if there is cctv
 - Know which person is the CEO
 - Know which time is Good for robbery
- To Get access on system 1st you have to know the system.
- Knowing the system will lead you to know if the system is vulnerable

Types of information gathering

- Based on how we do the recon
 - 1) Active Footprinting
 - 2) Passive Footprinting

1. Active Footprinting

This kind is when we try to gather information directly by contacting that person.

Example:

- When you go to the bank and ask for some informations.
- Chatting with person on social media to know about them.

Doing Active Footprinting without permission is ILLEGAL!!

2. Passive Footprinting

- This kind of recon is when you gather informations from another person,3rd party or by checking public sources.
- Example:
 - To know the bank working time i can see the posted texts.
 - To know someone name by reading the username.

What type of information do you gather?

- We gather information for different things
 - a. Host
 - Websites
 - Computers
 - Smart Phone
 - b. Network
 - Home Network
 - Companie networks
 - c. Person/Organization
 - d. Application

How do we gather information?

- Gathering info is classified as we saw early.
- There for the techniques and methods we use can be little different.
- Let us see 1 by one

A. Websites

- The informations we gather about a websites are
 - IP Addresses
 - Development frameworks
 - Technologies used and versions
 - Name
 - DNS informations
 - Subdomains, Assets, Contents

To get ip

- To get ip address of some website:
 - Active recon
 - ping <website link>
 - nslookup <website link>
 - host <website link>
 - Passive recon
 - www.nslookup.io

demo

rexder@HunterMachine ~> ping insa.gov.et

PING insa.gov.et (196.188.171.243) 56(84) bytes of data.

```
--- insa.gov.et ping statistics ---
                                                                       DON'T ADD THE HTTPS...
6 packets transmitted, 0 received, 100% packet loss, time 5237ms
rexder@HunterMachine ~ [1]> ping facebook.com
PING facebook.com (157.240.201.35) 56(84) bytes of data.
64 bytes from edge-star-mini-shv-01-ams4.facebook.com (157.240.201.35): icmp_seq=1 ttl=55 t
64 bytes from edge-star-mini-shv-01-ams4.facebook.com (157.240.201.35): icmp_seg=2 ttl=55 t
64 bytes from edge-star-mini-shv-01-ams4.facebook.com (157.240.201.35): icmp_seg=3 ttl=55
64 bytes from edge-star-mini-shv-01-ams4.facebook.com (157.240.201.35): icmp_seq=4 ttl=55 t
64 bytes from edge-star-mini-shv-01-ams4.facebook.com (157.240.201.35): icmp_seq=5 ttl=55 t
64 bytes from edge-star-mini-shv-01-ams4.facebook.com (157.240.201.35): icmp_seq=6 ttl=55 t
64 bytes from edge-star-mini-shv-01-ams4.facebook
64 bytes from edge-star-mini-shv-01-ams4.facebook
                                                   host google.com
64 bytes from edge-star-mini-shv-01-ams4.facebook
64 bytes from edge-star-mini-shv-01-ams4.facebook google.com has address 216.58.208.238
64 bytes from edge-star-mini-shv-01-ams4.facebook google.com has IPv6 address 2a00:1450:4019:805::200e
                                                google.com mail is handled by 10 smtp.google.com.
```

rexder@HunterMachine ~> nslookup facebook.com

172.25.64.1#53

172.25.64.1

Address: 2a03:2880:f145:82:face:b00c:0:25d

Server:

Name:

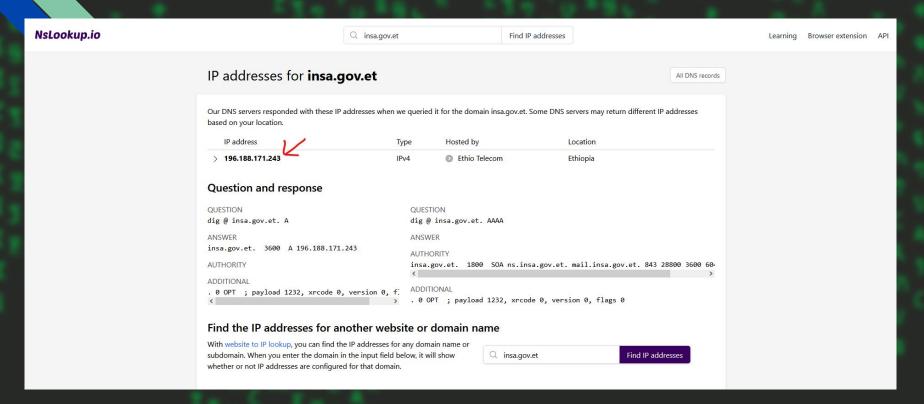
Address:

Non-authoritative answer: facebook.com

Address: 157.240.201.35

Name: facebook.com

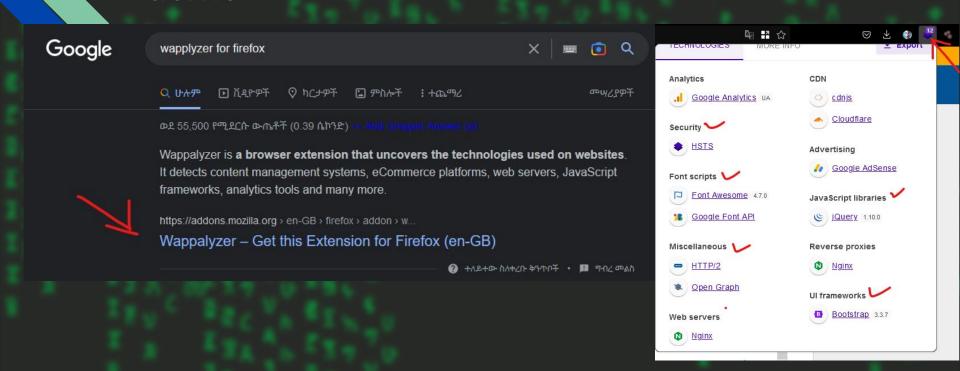
demo...



To get development frameworks

- Use simple browser extension
 - Wapplyzer
 - Builtwith
- Terminal tool
 - whatweb

demo

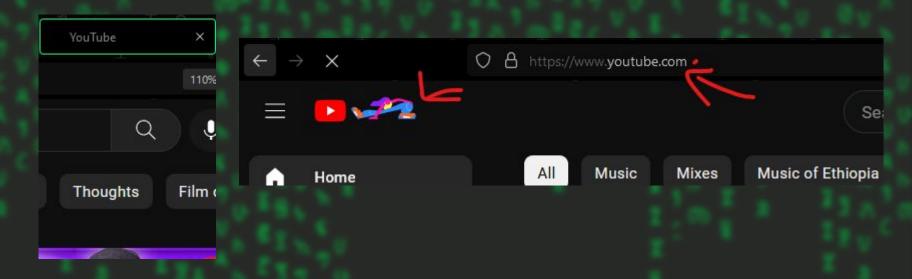


demo...

```
rexder@HunterMachine ~> sudo apt install whatweb
[sudo] password for rexder:
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following packages were automatically installed
  golang-1.18-go golang-1.18-src pastebinit python3-
Use 'sudo apt autoremove' to remove them.
The following additional packages will be installed:
  fonts-lato libgmp-dev libgmp10 libgmpxx4ldbl libru
  ruby-net-telnet ruby-nublic-suffix ruby-rchardet r
rexder@HunterMachine ~> whatweb insa.gov.et
http://insa.gov.et [301 Moved Permanently] Apache[2.4.41], HTTPServer[Ubuntu Linux][Apache/2.4.41 (Ubuntu
)], IP[196.188.171.243], RedirectLocation[https://insa.gov.et/], Title[301 Moved Permanently]
https://insa.gov.et/ [200 OK] Apache[2.4.41], Bootstrap, Cookies[COOKIE_SUPPORT,GUEST_LANGUAGE_ID,JSESSIO
NID], Email[contact@insa.gov.et], HTML5, HTTPServer[Ubuntu Linux][Apache/2.4.41 (Ubuntu)], HttpOnly[COOKI
E_SUPPORT, GUEST_LANGUAGE_ID, JSESSIONID], IP[196.188.171.243], JQuery, Java, Liferay, Script[text/javascri
pt], Title[☞アロスタ - INSA], UncommonHeaders[x-content-type-options,liferay-portal], X-Frame-Options[SAMEORIG
IN], X-XSS-Protection[1]
```

To get the name

• You can see the title of the website or texts inside the page also the url.



Details about domains

- For this you can use whois terminal +website tool
 - sudo apt install whois
 - whois
 - o dig

```
A A ~
   dig google.com
; <<>> DiG 9.19.17-1-Debian <<>> google.com
:: alobal options: +cmd
;; Got answer:
;; ->>HEADER<<- opcode: QUERY, status: NOERROR, id: 23467
;; flags: gr rd ad; QUERY: 1, ANSWER: 1, AUTHORITY: 0, ADDITIONAL: 0,
:: WARNING: recursion requested but not available
;; QUESTION SECTION:
;google.com.
:: ANSWER SECTION:
google.com.
                                                216.58.208.238
:: Ouerv time: 0 msec
;; SERVER: 172.24.64.1#53(172.24.64.1) (UDP)
;; WHEN: Mon Nov 06 19:29:46 EAT 2023
.. MSG STZF rcvd. 54
```

facebook.com whois information **DNS Records** Diagnostics cache expires in 12 hours, 52 minutes and 42 seconds Crefresh Registrar Info RegistrarSafe, LLC Name Whois Server whois.registrarsafe.com Referral URI https://www.registrarsafe.com Status clientDeleteProhibited https://www.icann.org/epp#clientDeleteProhibited clientTransferProhibited https://www.icann.org/epp#clientTransferProhibited clientUpdateProhibited https://www.icann.org/epp#clientUpdateProhibited serverDeleteProhibited https://www.icann.org/epp#serverDeleteProhibited serverTransferProhibited https://www.icann.org/epp#serverTransferProhibited serverUpdateProhibited https://www.icann.org/epp#serverUpdateProhibited Important Dates Expires On 2031-03-30 Registered On 1997-03-29 Updated On 2022-01-26 Name Servers A.NS.FACEBOOK.COM 129.134.30.12 B.NS. FACEBOOK COM 129.134.31.12

faceb%c3%b6ok.com | faceb--k.com | faceb--kbasedbiz.com | faceb--l.com | faceb--activate.com | faceb-color.co.cc | faceb-design.com | faceb-error.com | faceb-junkie.com | faceb-ok.com | faceb-ok.com | faceb-ok.com | faceb-survey.com | faceb.biz | faceb.br | faceb.cc | faceb.chat | faceb.co | faceb.co.ll |

C.NS. FACEBOOK COM

D.NS.FACEBOOK.COM

Similar Domains

185 89 218 12

185.89.219.12

B. Computers/Phone

- The informations we gather about a Computers/Hosts are
 - IP Addresses
 - OS informations
 - HostName
 - MAC address
 - Open services or ports
- Detail on "Scanning and Enumeration"

C. Networks

- The informations we gather about a Networks are
 - IP Addresses
 - Architecture
 - Class and Type of Network
 - Subnets / VHOSTs
 - Hosts on that Network
 - Strength and security of that Network
- Detail on "Network Penetration testing"

D. Personal Informations

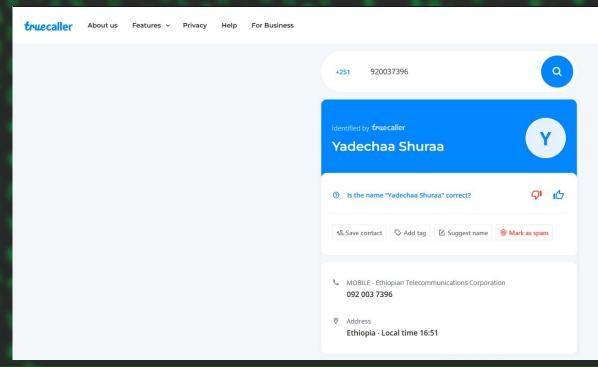
- The informations we gather about a Persons are
 - Full Name
 - Address
 - Physical Address
 - All Social Media Address
 - Phone address
 - What the person loves
 - Job
 - Friends
 - Status
 - skills
 - 0 ..

OSINT - Open Source Intelligence

- Persons information can be gathered by active and passive.
- Gathering and Analyzing Different Informations Based on Public resource Passively is called OSINT (Open Source Intelligence).
- We can get lot of informations for system, user, host,...
 through passive activity.
- There are many methods, Lets See about Personal informations :...

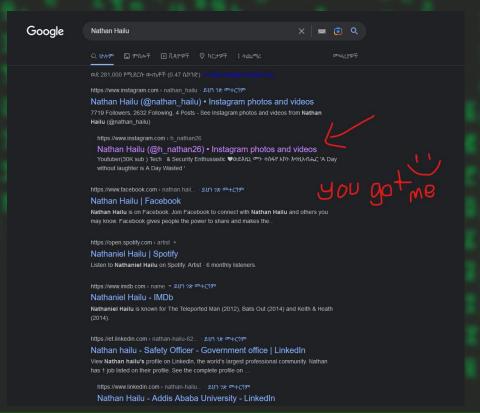
Getting Names by Phone number.

- For this purpose you can use
 https://www.truecaller.co
 m/
- You can get the phone number from social media like telegram, some posted promotion, from websites.



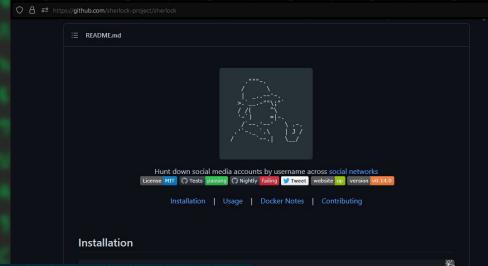
Getting social medias Addresses

 If you have Full name of a person, Just use search engines(google,bing,ya hoo)



demo...

Also you can use tool called sherlock from github



```
rexder@HunterMachine ~/t/s/sherlock (master)> python3 sherlock.py nathanhailu
[*] Checking username nathanhailu on:

[+] Academia.edu: https://independent.academia.edu/nathanhailu
[+] Arduino: https://create.arduino.cc/projecthub/nathanhailu
[+] Chess: https://www.chess.com/member/nathanhailu
[+] Clubhouse: https://www.clubhouse.com/@nathanhailu
[+] Codecademy: https://www.codecademy.com/profiles/nathanhailu
[*] Results: 5
```

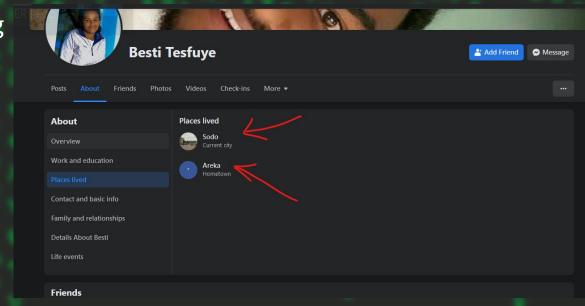
GTST - GeezTech Security Tester®

[!] End: The processing has been finished.

by Nathan Hailu

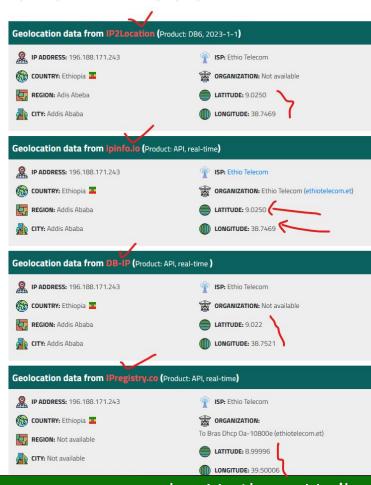
Getting Physical Addresses

- Peoples share there living place on social medias info page.
- Else there are many methods:
 - Sending links and when people access the link u can get the IP then you can just geolocate the place.



IP geolocation

- If you got the private ip address of someone you can insert it to
 - https://www.iplocation.net
- The method of getting the IP might be tricky but detail we will learn on Social Engineering class



○ A https://www.iplocation.net/ip-lookup

Knowing people's behaviour and Obsession

Peoples are being open on social medias, so we <u>Security</u> <u>Testers</u> have access about person behaviours and likes.

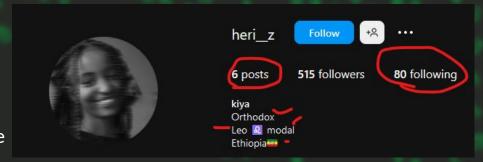
Example: instagram is the best place to get info about some user.

Also by seeing telegram Profiles you can get more information about their, religion status, mindset, ideology, family

By checking their followings/friends you can get more common pictures and events, etc....

THIS IS OSINT!!!

Detail on Social engineering.



E. Applications/Softwares

- The informations we gather about a Applications are

 - What they are made up of
 Which programming language used
 - Which framework used
 - Source codes
 - Their logic and Function

Exercise 1 15-20min

- 1. What is the IP Address of https://moe.gov.et/
- 2. What is the IPv6 of https://google.com/
- 3. What is The Full Name of This phone number owner +251911842577
- 4. What is the job of user called "Zelalem moges"?
- 5. What is the Javascript framework of Youtube?



Reverse image search

Reverse image search is a technique of searching with images.

We all search with text but we can search with images to This can give as more information

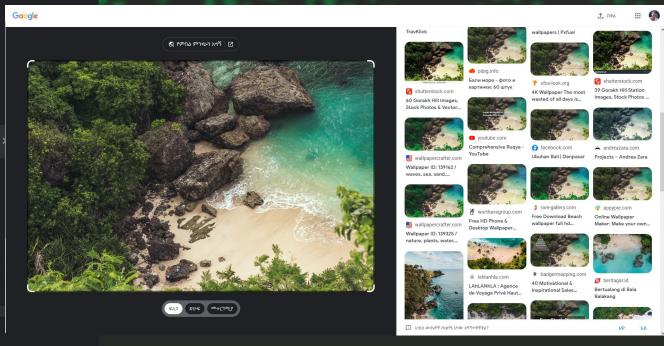
Ex: think like user posted a picture with a background of some area, if the user didnt talk about the place we can just search the image and the search engines will give as some similar photos where they are taken in same place(not 100% accurate)

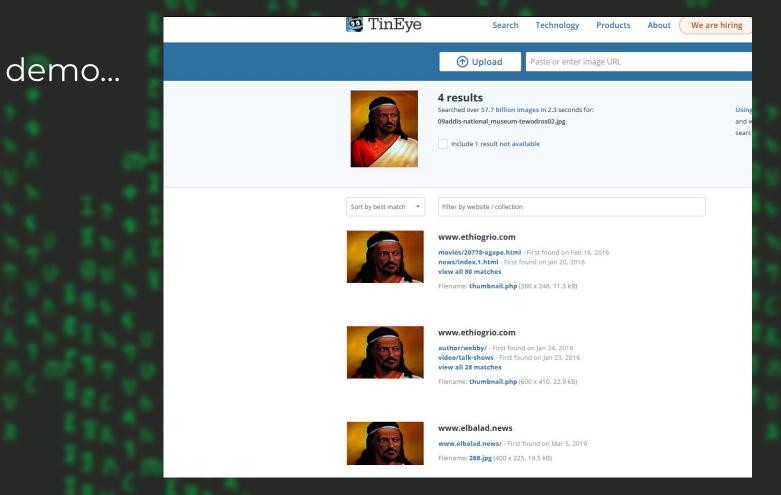
We can use:

- https://tineye.com/
- https://www.labnol.org/reverse/
- https://images.google.com/

demo...







Google Dorking(Google Hacking)

- it's not hacking into Google servers!
- Google hacking is using different Google operators to effectively optimize search results.
- It also involves using Google to identify vulnerabilities in websites.
- Results are highly customizable.
- THIS IS THE MOST POWERFUL SKILL OF HACKER!

Basic operators

- For inclusion of something common (+)
 - O Nathan Hailu +geeztech +ceo > don't add space between the sign and the word
- Terms you want to exclude (-)
 - Antivirus -software
 - Georgia -america -state
- Search for an exact term (")
 - "How to eat food"
 - "Nathan Hailu" => what is the difference?

Cont...

- (*) any word (wild card)
 - If you include * within a query, it tells Google to try to treat the star as a placeholder for any unknown term(s) and then find the best matches.
 - Estonia parliament voted on the * bill
- (|) boolean 'OR'
 - O "Nathan Hailu" | "Natan Hailu"

Advanced Operators

- These are Syntaxes used by Google.
 - o intitle
 - Google returns results with the word/phrase found within the title of the page
 - intitle:index.of
 - intitle:"Hackers Bible"
 - inurl
 - Finds a specific term within the URL
 - inurl:view/index.shtml
 - filetype
 - Searches for a specific filetype
 - "Hacking" filetype:pdf
 - filetype:txt
 - Intext
 - Google returns links that contains Texts from that link
 - intext:"Hackers in Ethiopia"

Mixing Operators

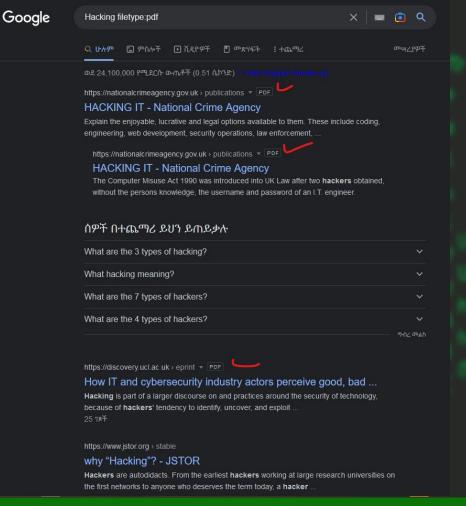
Inurl:securethiscompany.com intitle:index.of

"mysql dump" Inurl: filetype:sql intext:password

inurl:ftp "password" filetype:xls

31

intitle:admin intitle:login

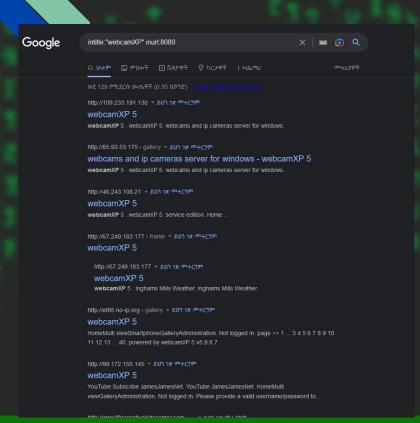


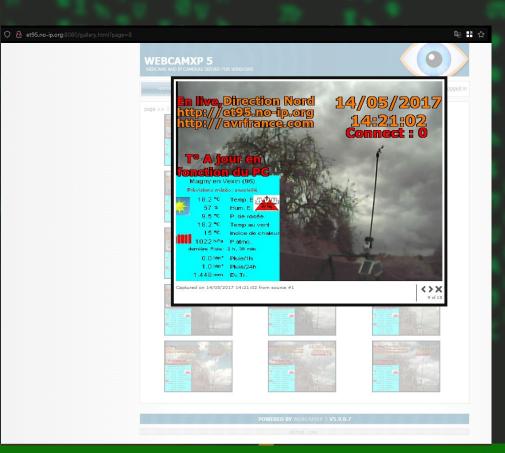
demo

Google

```
"mysql dump" Inurl: filetype:sql intext:password
                                                                    X 🔳 📵 Q
Q ሁሉም 🖸 ቪዲዮዎች 🖾 ምስሎች 🗷 ባዢ ፤ ተጨማሪ
                                                                                ምሣሪያዎች
ወደ 191 የሚደርሱ ውጤቶች (0.35 ሴኮንድ)
http://web.mit.edu > scripts > textpattern 🔻 ይህን ገጽ ሙትርጎም
web.mit.edu/scripts/deploy/textpattern.sql
MySQL dump 10.9 -- - Host: sql.mit.edu Database: presbrey+scriptstp ... 13:39:09'),(86, 'en-
us','change_password','admin','Change your password','2005-07-06.
http://www.radiosoft.com > ext > Database 🔻 ይህን ገጽ ሙተርጎም
www.radiosoft.com/typo3conf/ext/introduction/Resou...
MySQL dump 10.13 Distrib 5.1.57, for apple-darwin11.0.0 (i386) ... tstamp, username,
password, admin, usergroup, disable, starttime, endtime, lang, email,
http://www.sante.gov.ml > docs > mysql... マ 足切 78 四十C19
www.sante.gov.ml/docs/basevida/mysqlbase.sql
 . CHARACTER SET latin1 */; USE `mysql`; -- MySQL dump 10.13 Distrib 5.6.13, ... such as
master host, master port,\nmaster user, and master password
http://190.0.46.114 > deb1413410033407 ▼ ይህን ገጽ መተርጎም
190.0.46.114/portal/DATOS%20MIGRADOS/deb1413410033...
Adminer 4.2.1 MySQL dump SET NAMES utf8; SET time zone = '+00:00'; SET
foreign_key_checks ... 'This module displays a username and password login form.
https://github.com > MPAT-core > blob 🔻 ይህን ገጽ ሙትርጎም
MPAT-core/dump.sql at master - GitHub
MySQL dump 10.15 Distrib 10.0.24-MariaDB, for debian-linux-gnu (x86_64) ... with the
following information:\n\nUsername: USERNAME\nPassword: PASSWORD\nLog
  https://github.com > andalike > mySQL > blob > all db b.
 mySQL/all_db_backup.sql at master · andalike/mySQL - GitHub
 MySQL dump 10.13 Distrib 5.7.24, for Linux (x86 64) ... an argument representing a cleartext
  password, this function\nreturns an integer to indicate how
```

demo





Hackers Power

- Hackers do anything with these operators
- When they Got errors or any problems they use the operators and other.
- As Security tester, We can Also use them to optimize our Search also to Create A script to Do that.

GHD - Google hacking Database



Link: https://www.exploit-db.com/google-hacking-database

WARNING

If you do a lot of dorkings with same ip address, Google will block you for some hours, and shows you this. This is Because Google Want to Get rid of Bots/Scripts.



Exercise

- Hey Mr. Hacker give the the pdf file of the "systems engineer" from insa.gov.et site.
 - a. Hint: some files are named in another language
- 2. What is the text file from insa web-site
- 3. Give me screenshot of GHD result of That displays Nathan Hailu with geeztech only

Class is Over!

- 1) DO notes
- 2) Ask questions
- 3) Practice more

On This Season we will Have lots of fun(easy,medium) and challenging(hard,insane) tasks