OSINT Workshop (Hands on!)

SANS Security Awareness Summit 2019

The Internet has changed over the years

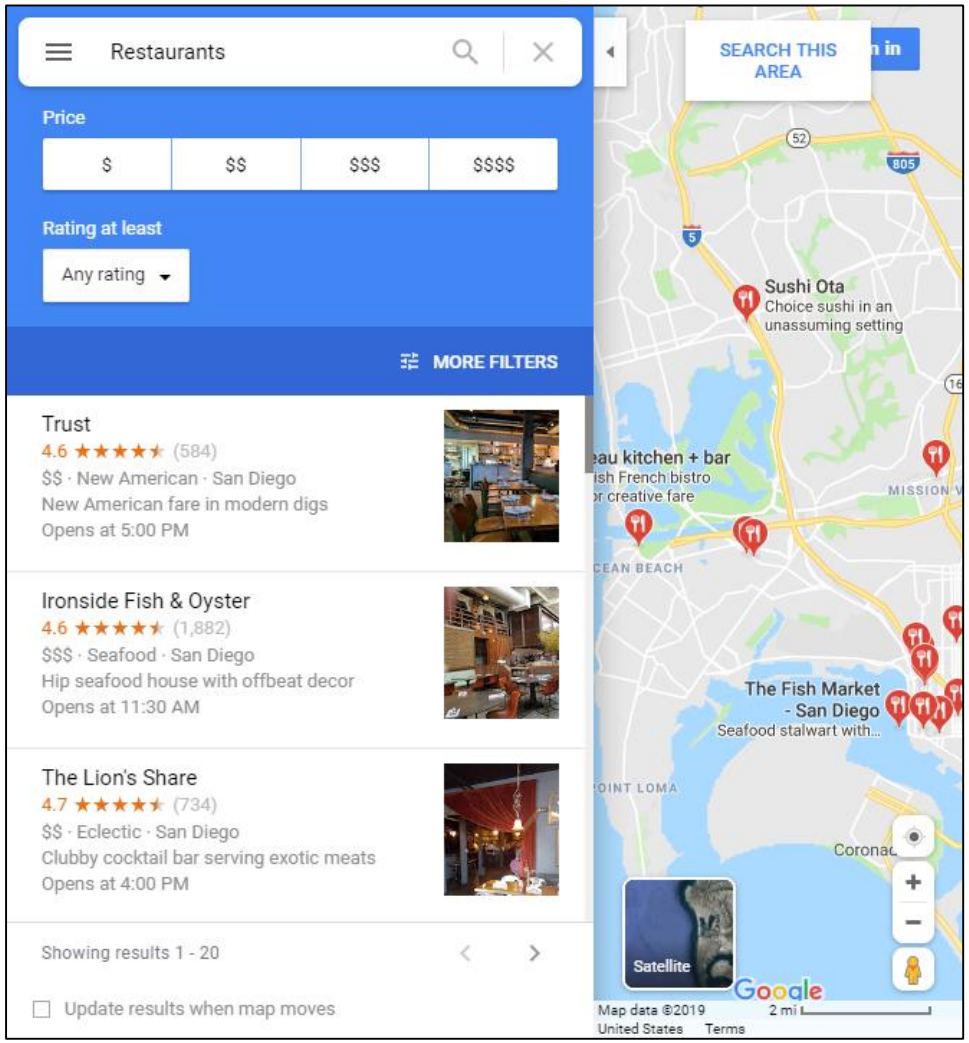
World Wide Web

The WorldWideWeb (W3) is a wide-area hypermedia information retrieval initiative aiming to give universal access to a large universe of documents.

Everything there is online about W3 is linked directly or indirectly to this document, including an executive summary of the project, Mailing lists , Policy , November's W3 news , Frequently Asked Questions .

What's out there?
Pointers to the world's online information, subjects , W3 servers, etc.
Help
on the browser you are using
Software Products
A list of W3 project components and their current state. (e.g. Line Mode ,X11 Viola , NeXTStep , Servers , Tools , Mail robot , Library)
Technical
Details of protocols, formats, program internals etc
Bibliography
Paper documentation on W3 and references.
People
A list of some people involved in the project.
History
A summary of the history of the project.
How can I help ?
If you would like to support the web..
Getting code
Getting the code by anonymous FTP , etc.

http://info.cern.ch/hypertext/WWW/TheProject.html



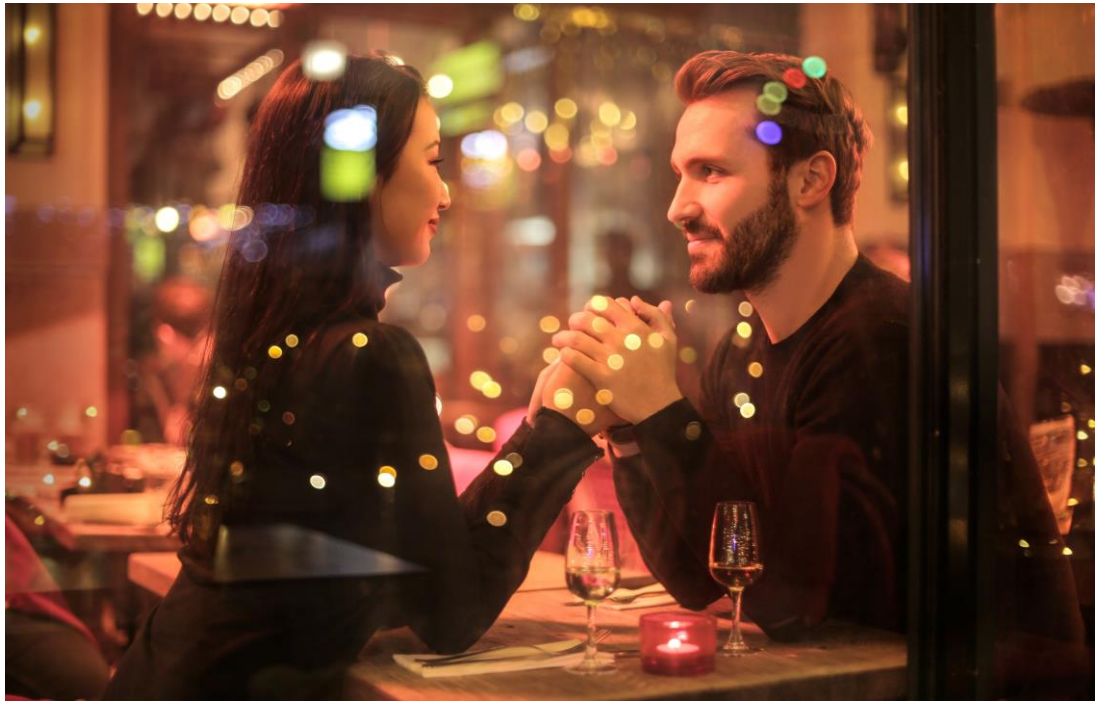
https://www.google.com/maps/search/Restaurants/@32.759902,-117.2864638,11.83z

People share so much data

Where they are

https://www.pexels.com/photo/australia-traveling-travelling-travel-68704/

Who they are with



https://www.pexels.com/photo/photography-of-couple-holding-hands-842546

People share so much data

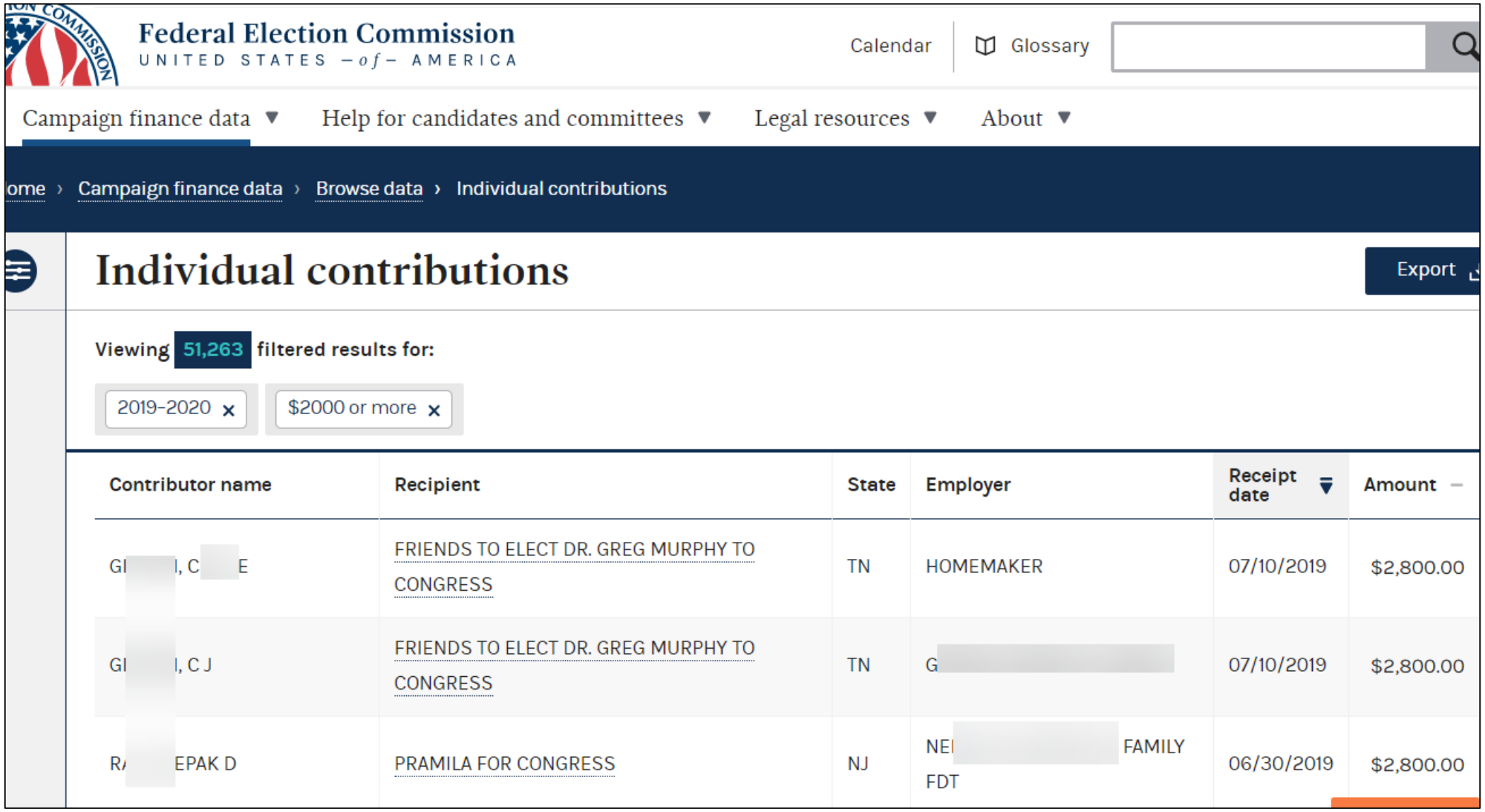
Their likes

https://www.pexels.com/photo/close-up-photo-of-man-wearing-black-suit-jacket-doing-thumbs-up-gesture-684385/

Their hobbies

https://www.pexels.com/photo/action-active-activity-adult-415188/

The US government shares data



https://www.fec.gov/data/receipts/individual-contributions/?two_year_transaction_period=2020&min_amount=2000

Our religious and community groups share

THANK YOU!!!

We'd like to give a huge SHOUT OUT to everyone who helped with VBS. If you decorated, donated supplies, lead a crew, taught a class, cut out activity sheets, organized supplies, greeted guests as they arrived, or prayed for the week, we appreciate each one of you! VBS wouldn't be possible without our amazing volunteers and supportive church family. You helped make a positive difference in the lives of many children!

Photo Cred: Cari Shortt and Vicki Gilstrap

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SERVANT KIDS
VOLUNTEER SPOTLIGHT

Each month, we will be highlighting some of our very special and wonderful volunteers. This will help you get to know them better and also let you know who is leading our children on their spiritual journeys. If you see them around church, give them a hug or a high five for their hard work and dedication to children's ministries!

TYLER & MEGHAN T

PRESCHOOL TOTAL GROUP

We are mostly known as Stella and Brooks' parents, and they are going into 2nd grade and kindergarten. We love attending Church of the Servant with several of our family members, and our church family is very important to us. When we aren't at church, you can find us spending time with family and friends, or at various ball fields. We help in the preschool Total Group time at the 9:30 service, two times monthly. We love getting to know the kids and their families, watching the youngest kids become comfortable and confident, and watching all the kids worship Jesus and understand His teachings. Working with the kids is always encouraging, they love and include everyone and, although it's cliché, we always learn more about how to be better parents and Christians when we help in children's ministry.

The T. Family!

Holly Br with her kids!

HOLLY B

FIRST GRADE SMALL GROUPS (SUNDAY SCHOOL)

I love watching the kids grow throughout the year and all the hilarious things they say. If you are considering being a volunteer for Servant Kids, it's so easy, and the rewards outweigh the time commitment by a thousand.

WEEKLY DEVOTIONALS FOR FAMILIES AND KIDS

On our new website, we have a section on the kids page with weekly devotionals. These devotionals include activities that go along with the lesson learned on the previous Sunday morning. We would like to encourage you to spend a few minutes each day with your child(ren) reinforcing what they have learned about that week during Total Group and small groups. We also post Bible readings, reflection questions, and more each day on Instagram and/or Facebook. When the church and family work together to enforce the concepts and lessons, we will have the greatest impact on the lives of our kids!

WE NEED YOUR HELP!

We need help leading children to Christ! Servant Kids is searching for adults who are willing to lead a small group or Sunday School class or to sub when a Sunday morning leader needs to be gone. This is for an hour on a Sunday morning, either at the 9:30 or the 11:00 hour. We also need help once a month on the first Wednesday night from 6:30-8:00. Contact Kourtney for more information at: keller@churchoftheservant.com.

STILL TO COME...

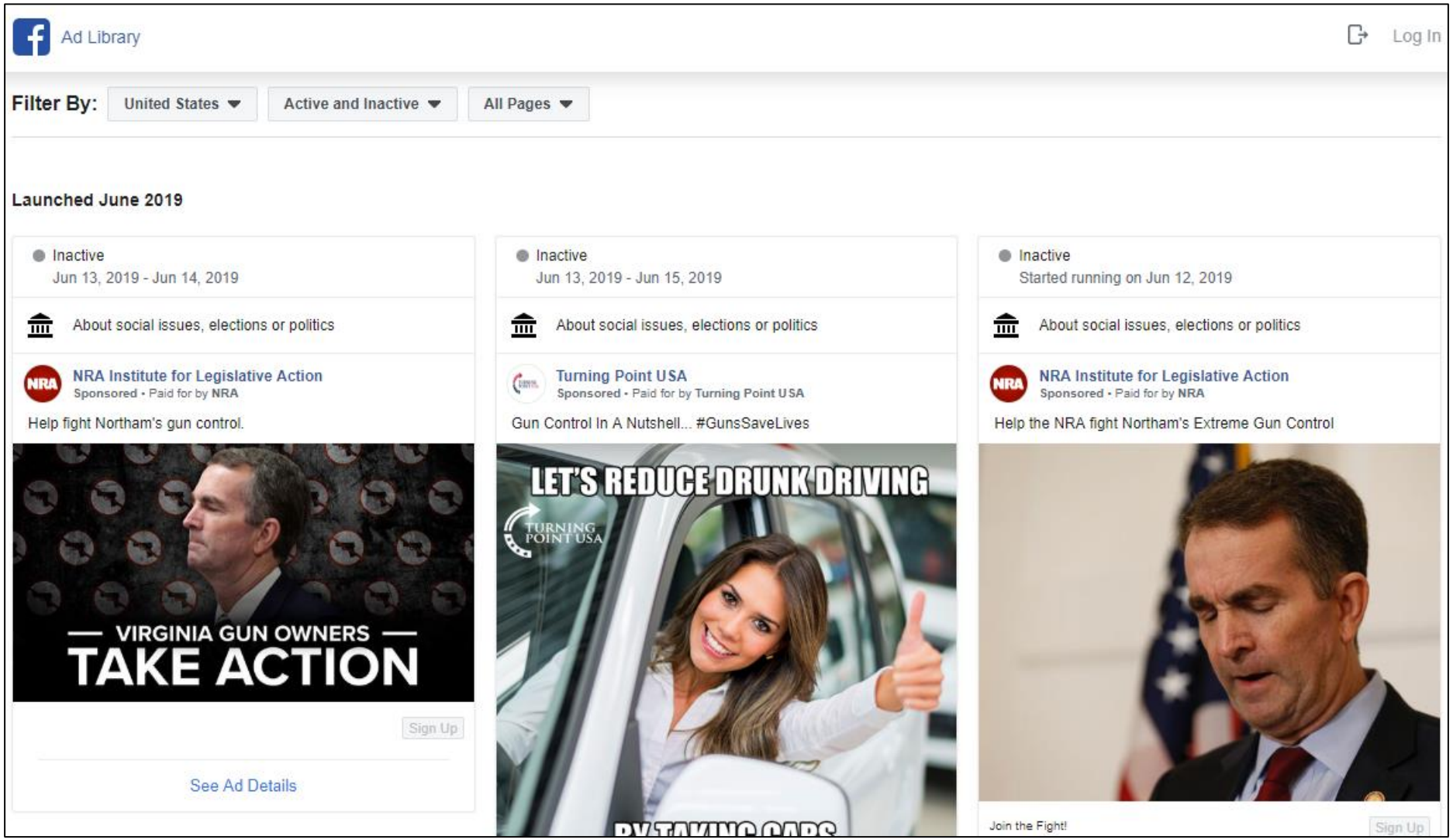
SERVANT KIDS CAMP REGISTRATION IS OPEN!

Servant Kids Camp is returning this summer! This is for kids in incoming grades 1st-5th. Save the date for August 2-4 at Canyon Camp! Registration is now available at ServantOKC.org/KidsCamp and is due by July 7.

ServantOKC.org 13

https://issuu.com/servantchurch/docs/newsletter_070319_all_web?fr=xKAE9_zU1NQ

Groups conduct campaigns to influence us at scale



https://www.facebook.com/ads/library/?active_status=all&ad_type=political_and_issue_ads&country=US&impression_search_field=has_impressions_lifetime&q=gun%20control

Computers create and alter pics, videos, and audio

https://thispersondoesnotexist.com/

https://www.theverge.com/tldr/2018/4/17/17247334/ai-fake-news-video-barack-obama-jordan-peele-buzzfeed

People used to have to "dumpster dive" to get info

https://www.pexels.com/photo/scrap-metal-trash-litter-scrapyard-128421/

Now our sensitive data is mostly online

https://www.pexels.com/photo/three-women-standing-near-man-holding-smartphones-1262971/

And available for "others" to retrieve

https://www.pexels.com/photo/two-alien-inside-car-wallpaper-365625/

Who am I?

- **SANS Author** of SEC487 (OSINT class)
- **OSINT Consultant** (Spotlight Infosec LLC)
- **OSINTCurio.us** Founder
- **Cyber security** for 15+ years
- **Psychology** degree
- Social media @**WebBreacher**

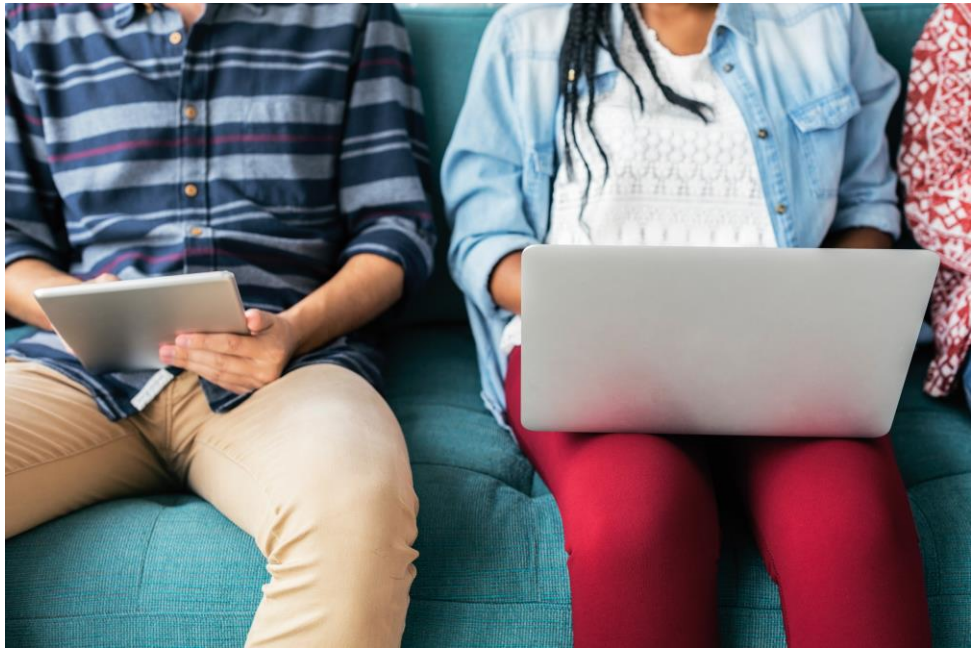
This presentation is already online

https://github.com/WebBreacher/presentations

Grab yourself a copy and follow along!

What would you call…

- Searching for a coffee shop on Bing Maps?
- Looking for a new job on monster.com?
- Researching a business you want to invest in?
- Finding that long lost friend?
- Examining an old photo to see where it was taken?



https://www.pexels.com/photo/adult-boy-break-browsing-306534/

We call it

OSINT - Open Source Intelligence

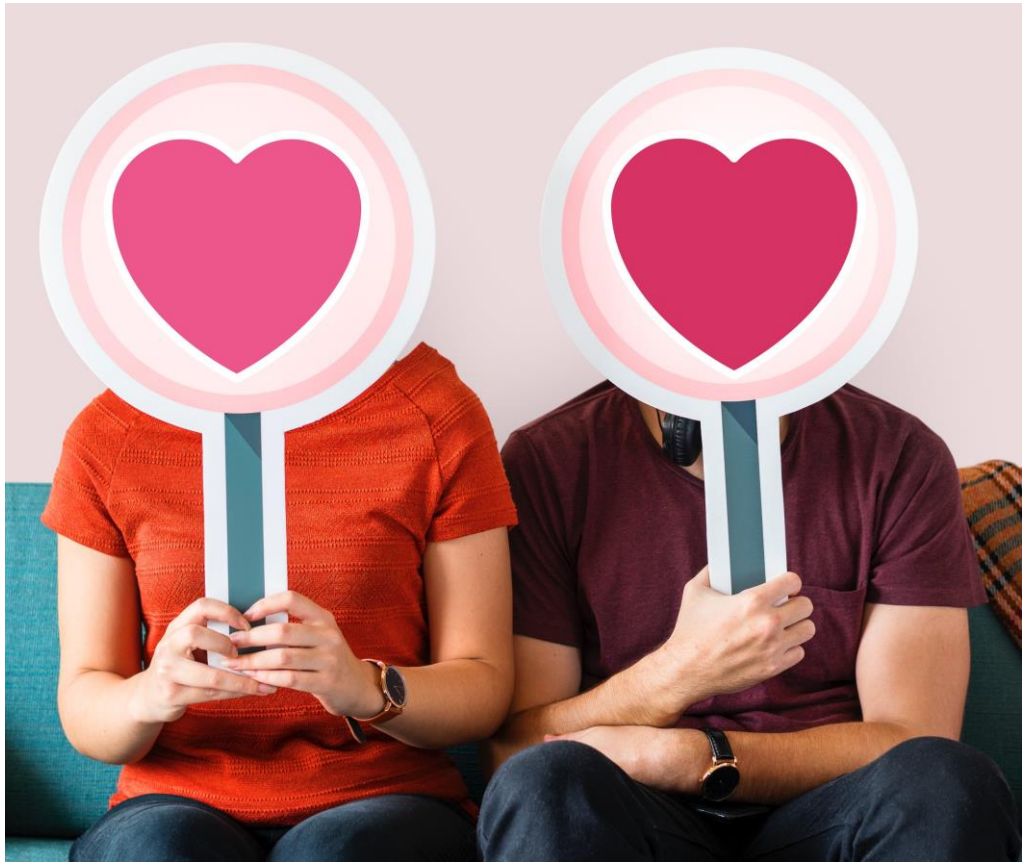
Searching and examining available/open data and applying it to answer questions

Who uses OSINT?

- **Law enforcement**
  - Awareness
  - Catching suspects
- **Intelligence community**
  - Awareness
  - Recruitment
  - Analysis of assets
- **Parents**
- **Businesses**
  - Recruiting/sourcing
  - Understanding risk
  - Business intelligence
- **Criminals**
  - Preparation for action
  - Bragging about exploits
- **People dating**
  - Who is this other person?

Why should you care about OSINT?

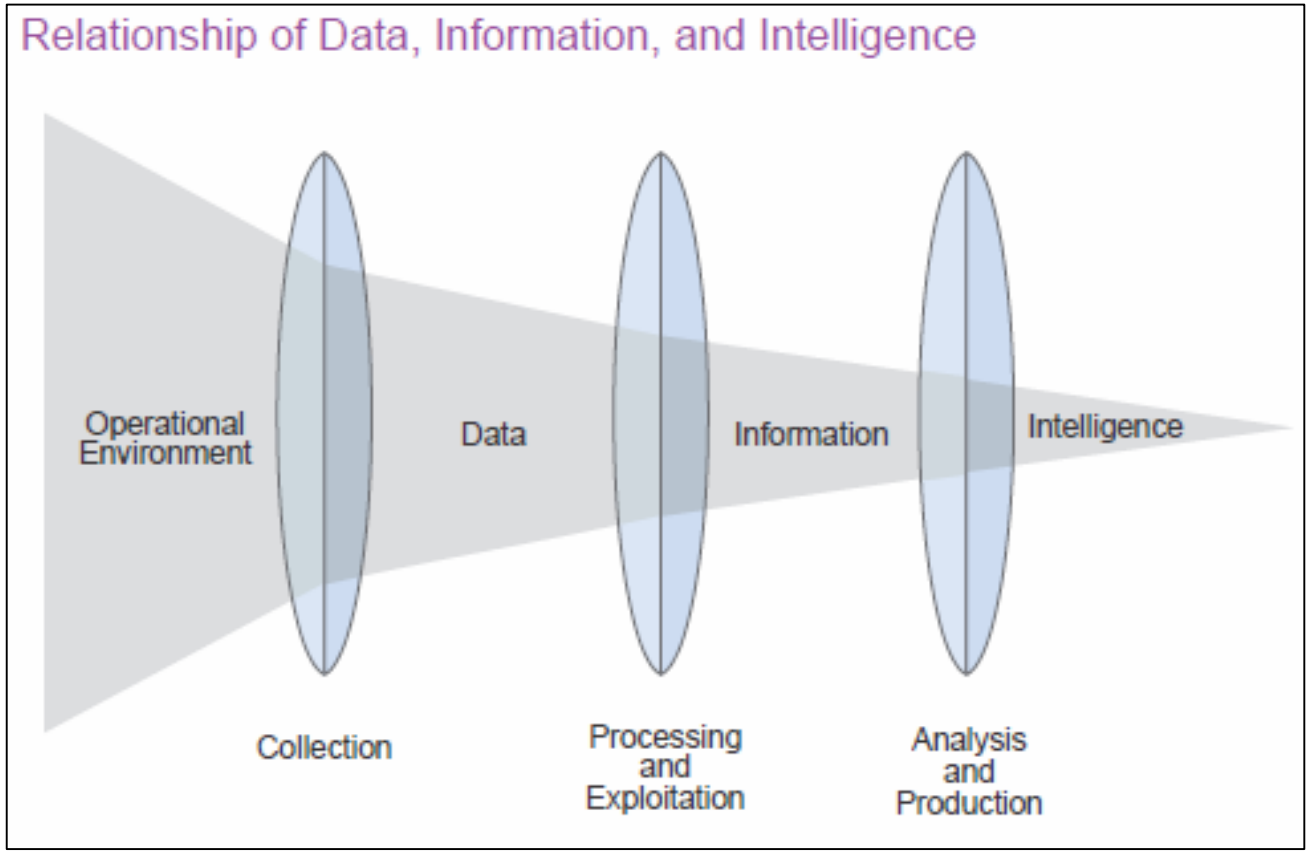
- People are **sharing** things about us online
- People are **collecting** those things and potentially using them
- Understanding **risk** to yourself, your family, and your organization



https://www.pexels.com/photo/man-and-woman-holding-heart-boards-1449059/

How do professionals "OSINT"?

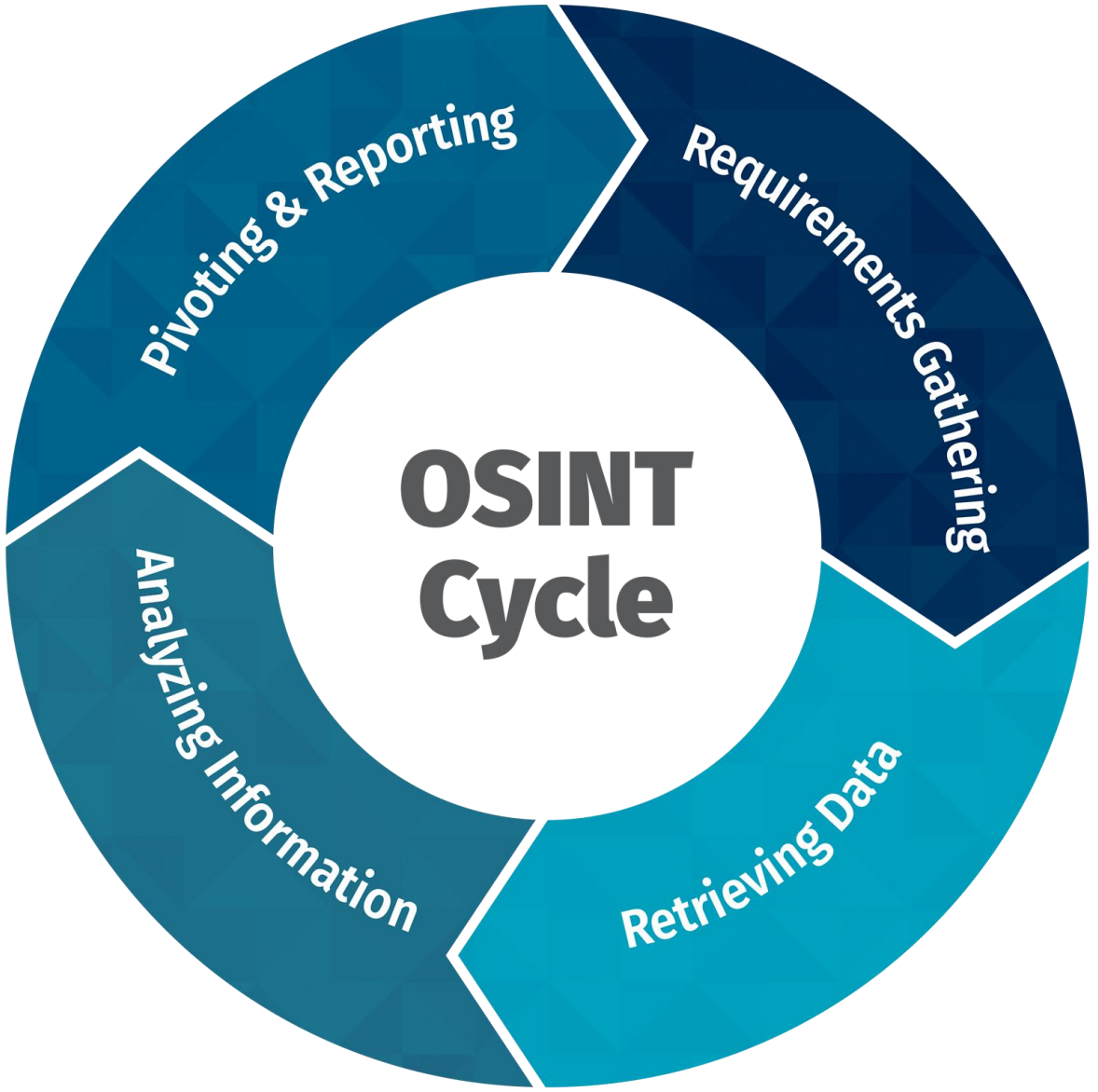
- Gather OS data
- Refine it into OS information
- Add "what does this mean?" and make it OSINT



https://www.jcs.mil/Portals/36/Documents/Doctrine/pubs/jp2_0.pdf

The OSINT Cycle

- Professionals have distinct stages they move through in OSINT work
- Starting with gathering requirements from stake holders and moving clockwise around the cycle



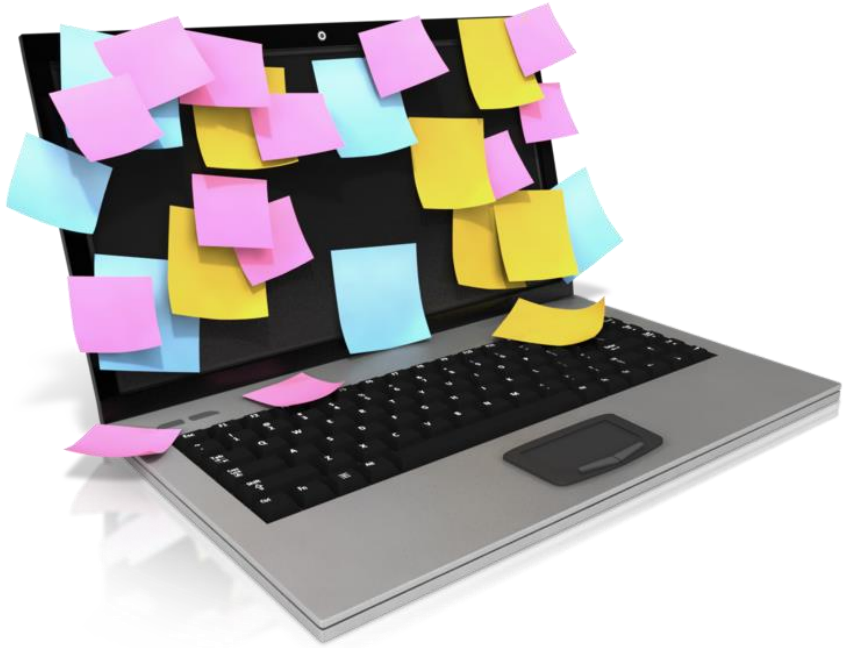
SANS SEC487 Course Materials, 2019.

Let's do some OSINT!

- This is a hands-on workshop
- I will show an OSINT skill and how we use it
- Then you will get time to try it on your computer

Potential networking issues

- Please tether your laptop or use a VPN
- This way our network traffic comes from different IPs



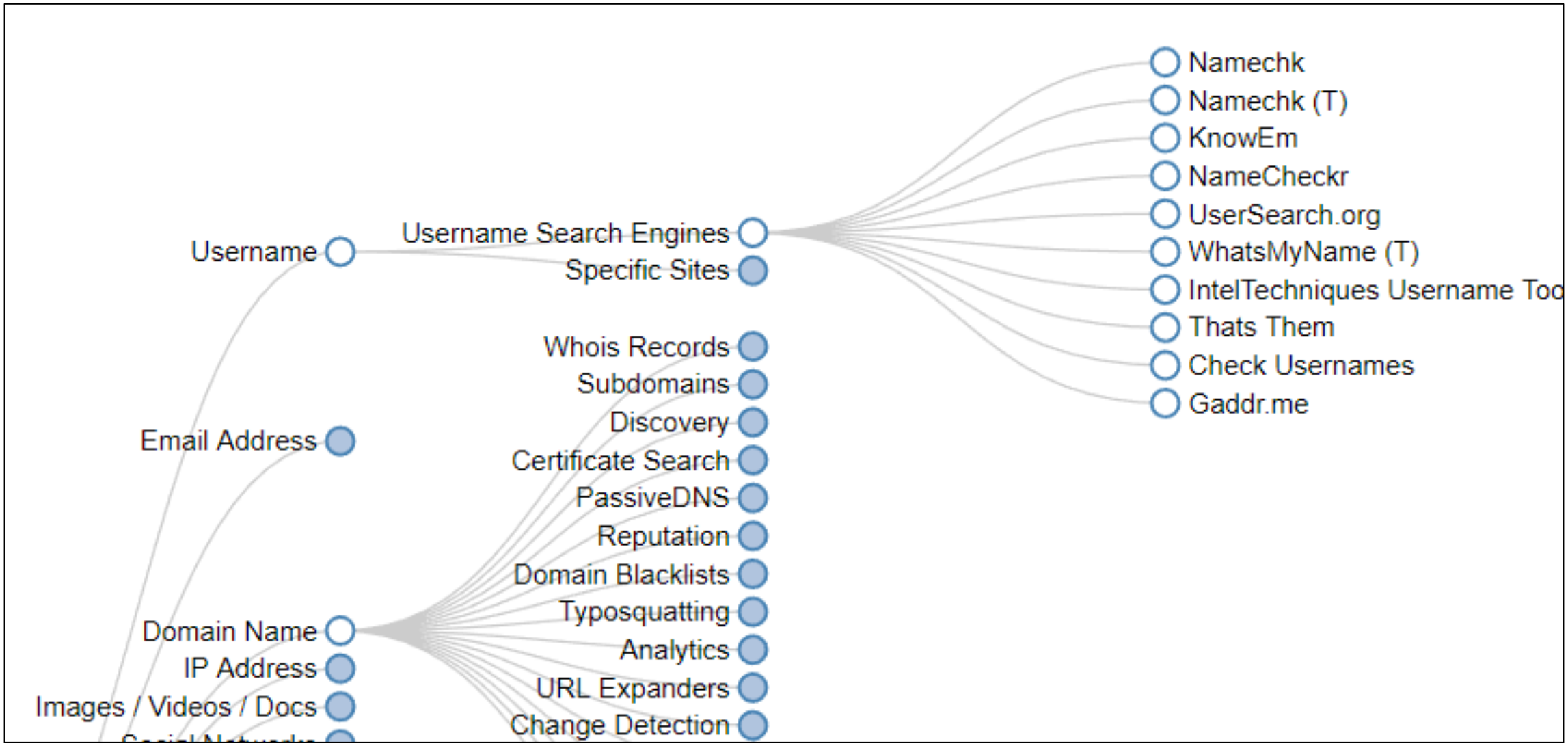
Module 1: Bookmarks and Links

Beginning with URLs

- We will begin with websites that have excellent OSINT resources
- These sites list URLs to tools or other sites you can use for OSINT

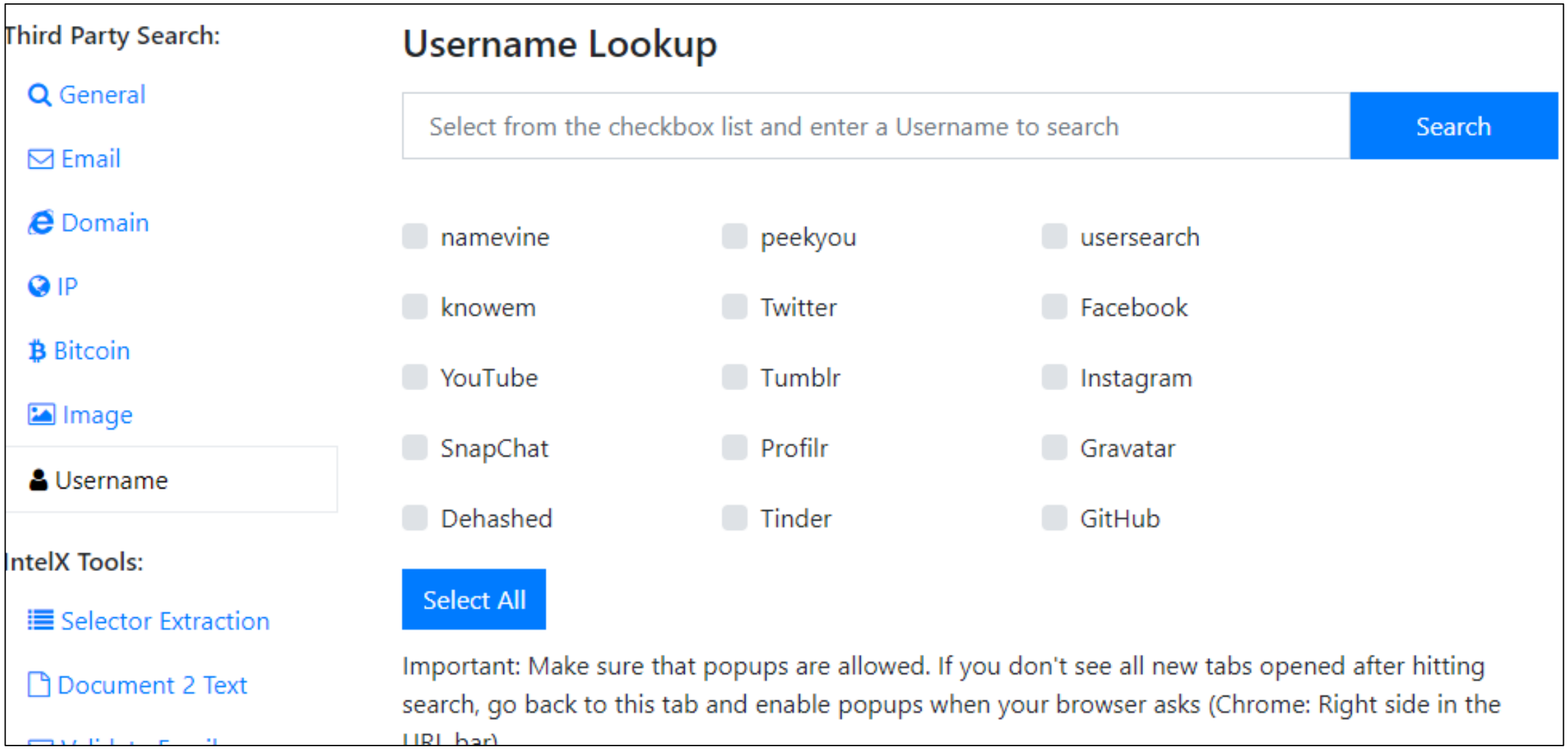
- https://osintframework.com
- http://osintframework.de
- https://intelx.io/tools
- https://yoga.osint.ninja

OSINT Framework - osintframework.com

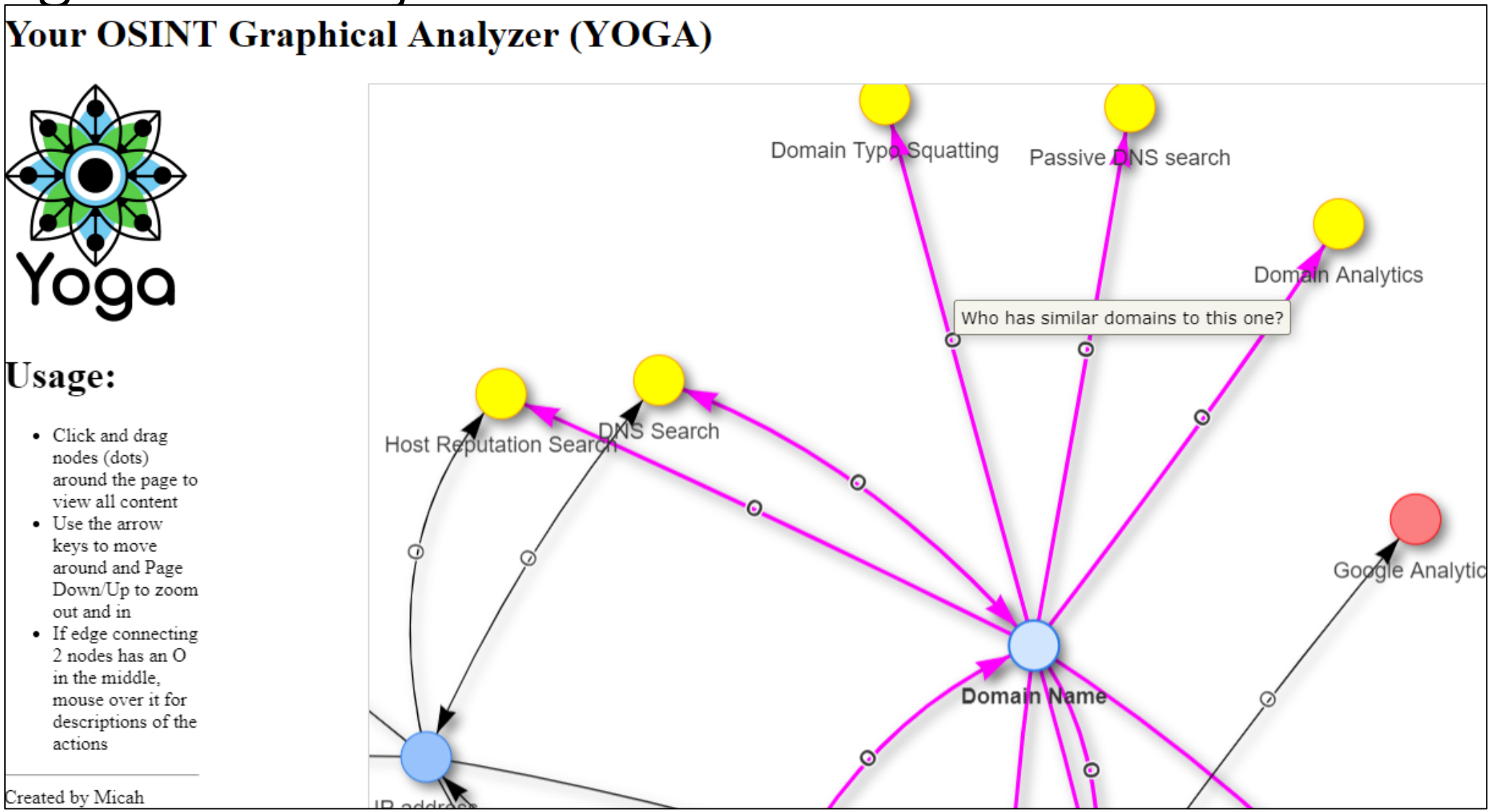


osintframework.de (Start.Me)

intelx.io/tools



yoga.osint.ninja



Exercise 1: Frameworks

- Open a web browser
- Visit the following sites
  - **osintframework.com**
  - **osintframework.de**
  - **intel.io/tools**
  - **yoga.osint.ninja**
- Explore the data available on each

5 Minutes

Search Engines

Much of our work is done in search engines

- Use multiple search engines for different perspectives
  - DuckDuckGo.com 
  - Bing.com 
  - Yandex.com Yandex
  - Google.com Google
- Narrow results using search **operators or directives**
- Most search engines have "**Advanced Search Forms**"
- Operators sometimes work in multiple engines

Google, Bing, and DDG Operators/Directives

Operator	Function	Example
"" (Quotes)	Group terms together. Terms must appear in results as they do in the quotes.	"SANS Security Awareness"
- (Dash)	Negate term or directive. Do not show results with this content.	-WebBreacher -"micah Hoffman"
site:	The results must be indexed from the domain/URL specified.	site:sans.org site:www.sans.org/event
filetype:	The filetype or file extension of the results.	filetype:pdf
OR	One term or another	micah OR webbreacher

Examples

Operators	Outcome
`"micah hoffman" OR "webbreacher"`	Results must have either the words micah hoffman in it or the word webbreacher
`"micah hoffman" -site:sans.org`	Results must have micah hoffman in them and NOT be from the sans.org domain
`site:.gov filetype:xlsx`	Results must be from a *.gov domain and be an Excel XLSX document
`newsletter church OR temple OR mosque -sample -example -template -site:.com`	Results must have the word newsletter in it and either church, temple, or mosque and none of the words sample, example, template and not be from a .com domain

Examples for people searching

- Results for people may have names in a variety of formats
- Ensure your search operators reflect these variations

```
"micah hoffman" OR
"hoffman, micah" OR
"micah_hoffman" OR
"micah-hoffman" OR
"hoffman micah"
```

Exercise 2: Search for Yourself

- Open a web browser
- Visit the following sites:
  - **bing.com**
  - **google.com**
  - **duckduckgo.com**
- Search for yourself
- Analyze results

15 Minutes

OSINTing User Names

User Names for OSINT

- We put meaning in our user names
  - Favorite topics
  - Dates
- They can be extracted from or used in email addresses
- We may use the same user name across sites

Example user names:

- BiggestRedSoxFan
- BiggestRedSoxFan1
- RobertLangdon1980
- fuzzybunny123
- DreadPirateRoberts

User name reuse is common

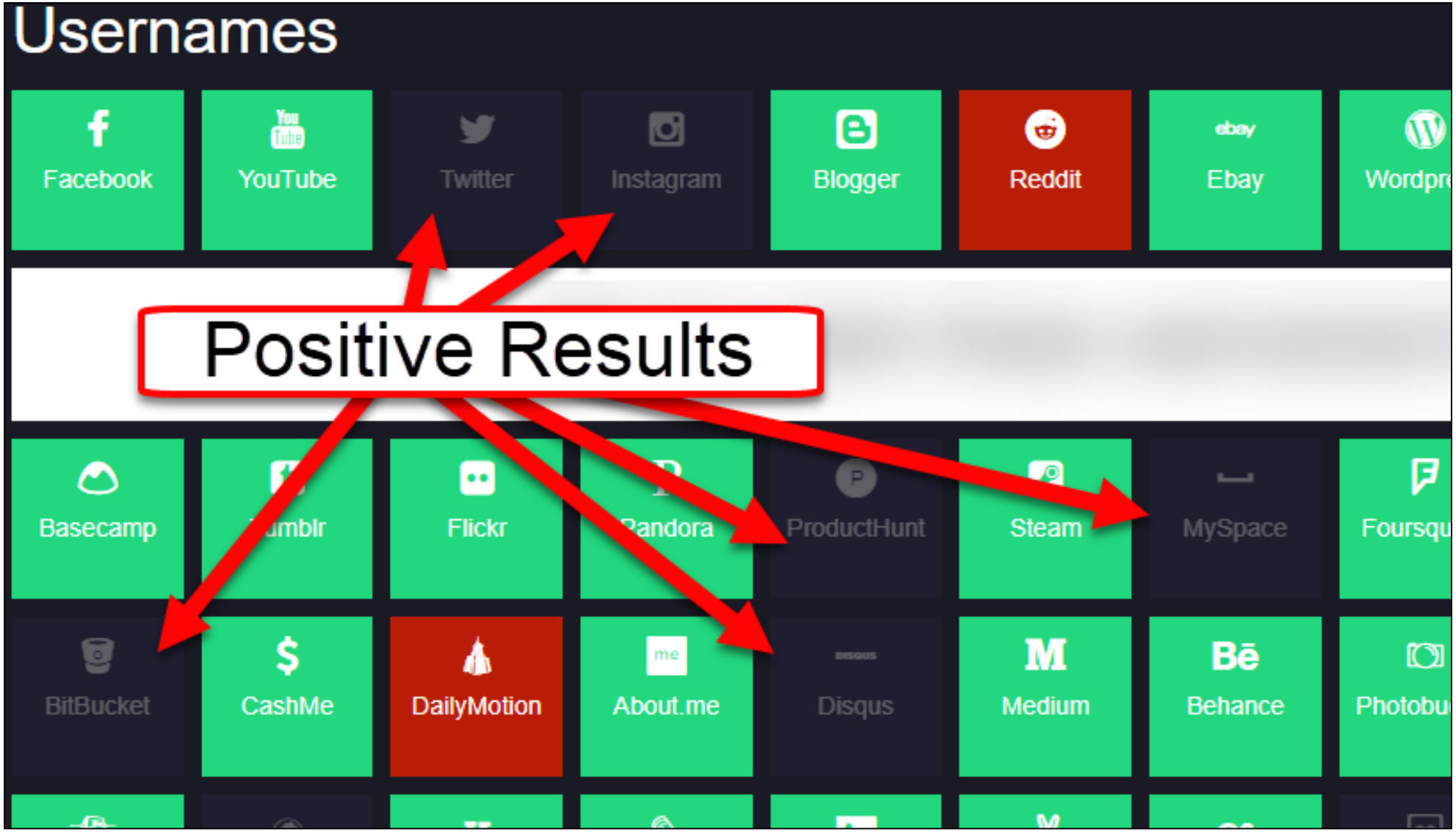
- People use the same user name on multiple websites
  - Facebook: fuzzybunny123
  - Instagram: fuzzybunny123
  - Twitter: fuzzybunny123

- Can we find all these and tie them to a single person?

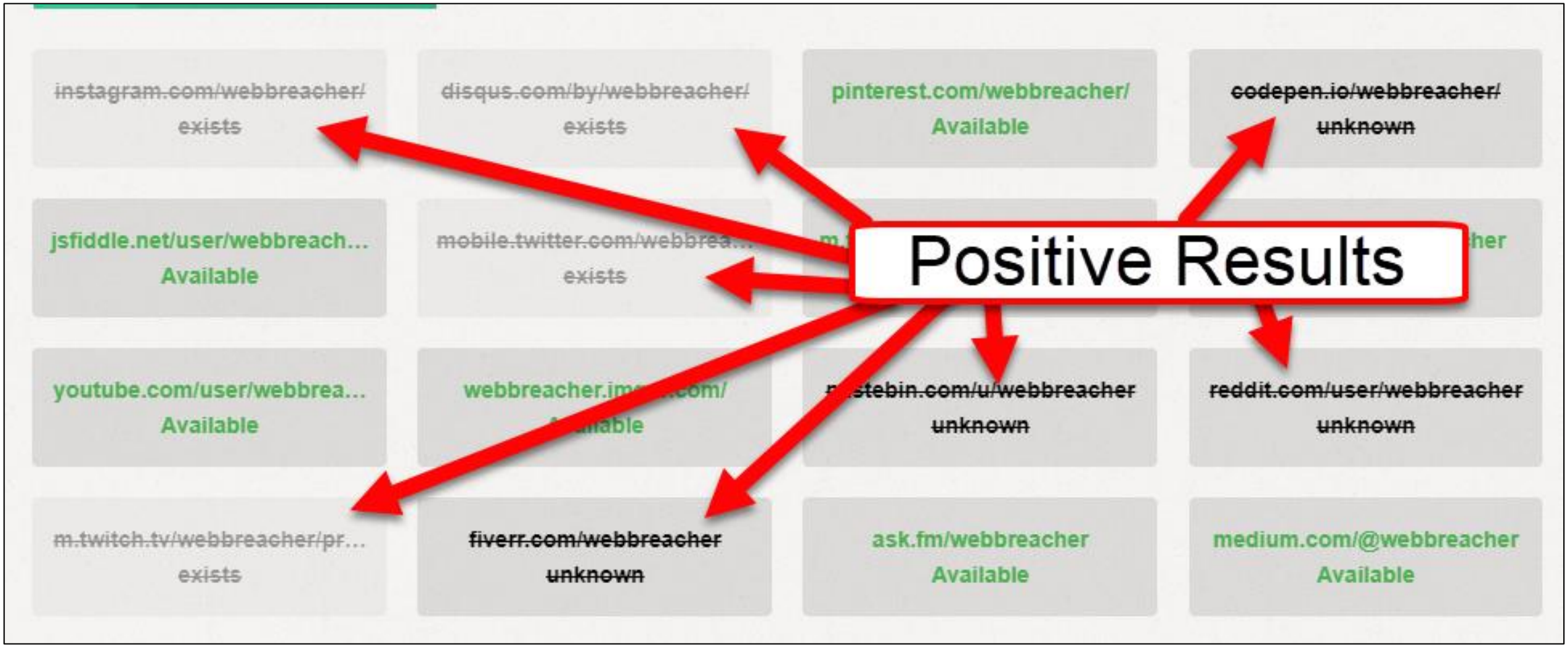
User name checking sites

- There are web sites that allow you to check if a user name exists on a certain web site
  - The purpose is for you to find places where your name is NOT used
  - Then you can create your account and content on that site
- We use it in reverse and look for places where you CANNOT create an account
- Those are sites where the target name was found

https://namechk.com/



https://checkuser.org



Analysis is key

- Running a tool gives you **data**
- Examining it to see if it is relevant and accurate turn that into **information**
- Once we gather all the username on sites, we have to visit them
- Are they you?

Exercise 3: Search for Your User Name

- Open a web browser
- Visit the following sites:
  - **namechk.com**
  - **checkuser.org**
- Search for your user names
- Analyze the results

15 Minutes

Faster, reliable results

- Using tools we can perform these searches across **180+ sites** in < 30 seconds
- We can search for **multiple** user names
- Free video "10 Minute Tip: Finding Usernames Fast!" on https://osintcurio.us

10 Minute Tip: Finding Usernames Fast!

https://youtu.be/Bbrve9OppnM

Recon-NG Demo of the Profiler Module

Using Breach Data

What is breach data?

- Data stolen from systems
- Usually includes usernames, passwords, and possibly emails
- Can include much more

Untitled Document

```
100206240        jamie@whitehouse.gov      2oeMbO/Paps=     who i
100206282        jamien@whitehouse.gov     2oeMbO/Paps=     who i
80689318         bob@whitehouse.gov        7xXwhZ1Huu4=
80796513         g@whitehouse.gov          5djv7ZCI2ws=
84402942         suzy@whitehouse.gov       sfOEpAAEcRY=
102927290        donald.rumsfield@whitehouse.gov hLDe97JLpgY=
102995650        mazafaka@whitehouse.gov 5djv7ZCI2ws=
94847063         adobesux@whitehouse.gov 5djv7ZCI2ws=     none
```

Untitled Document

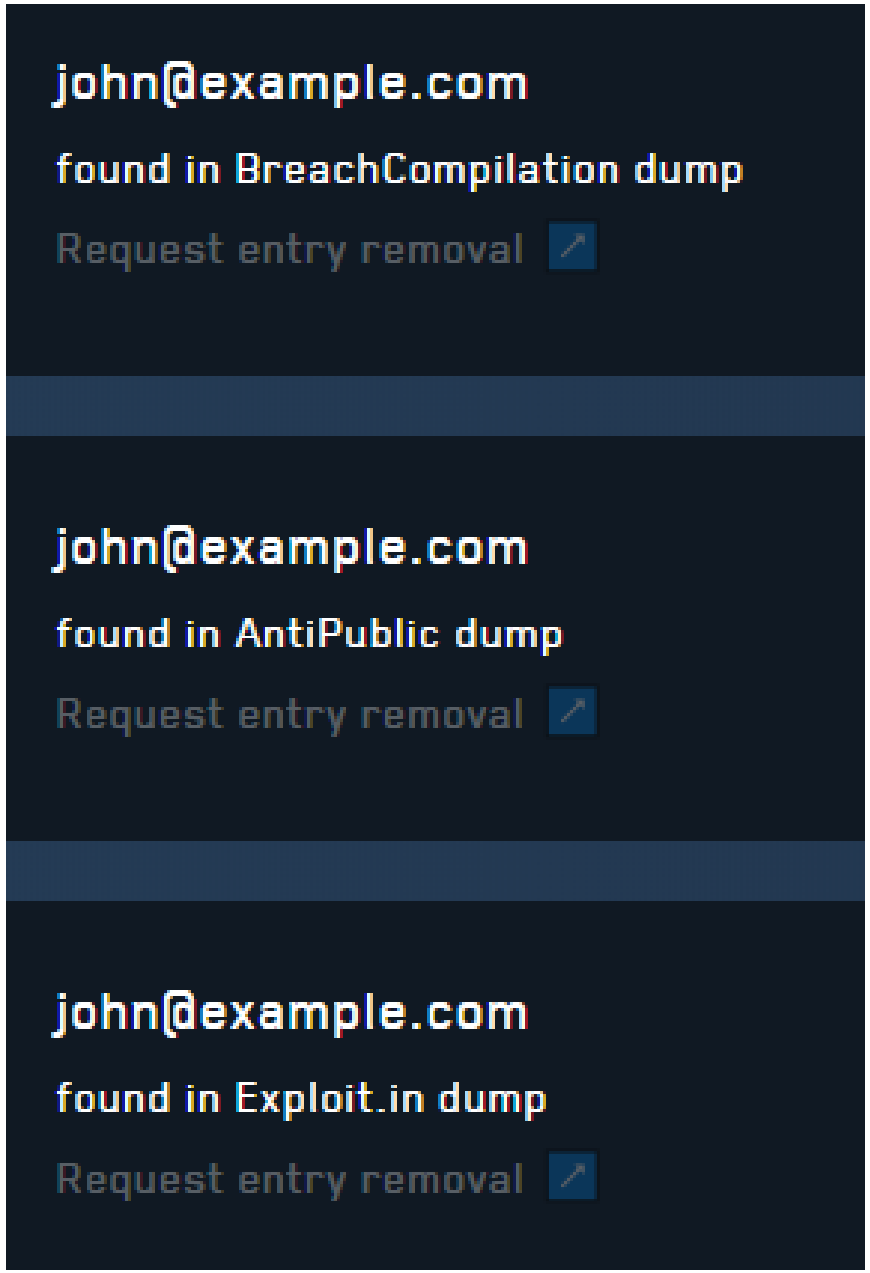
```
barack = Customer('Barack', 'Obama', 'barack@whitehouse.gov', '202456
white_house_dominos = Store.find_closest_store_to_customer(barack)
dominos_menu = store.get_menu()
dominos_menu.search(Name='Coke') # you can search for items

order = Order.begin_customer_order(barack)
order.add_item("PIZZA1")
order.add_item("COKE20")
```

https://intelx.io/?s=barack@whitehouse.gov

Breach Data for OSINT

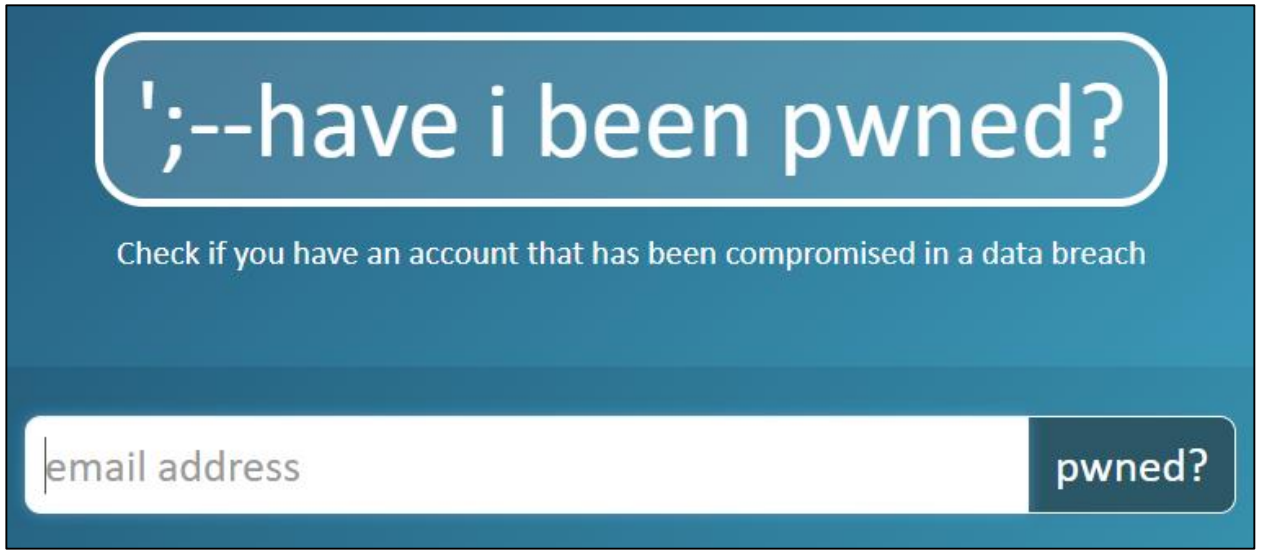
- Check for valid email addresses
- Find same username/email used on multiple sites (Username Reuse)
- Find same password across sites (Password Reuse)



https://dehashed.com/search?query=%22john%40example.com%22

How do we access it?

- Free sites
  - haveibeenpwned.com
  - spycloud.com
  - "Dark web"
- Download and normalize the data ourselves
- Pay for access
  - dehashed.com
  - weleakinfo.com



https://haveibeenpwned.com/

Is it ethical to use?

- Data stolen from systems
- Attackers use it all the time
- What is our ethical responsibility to the victims (website stolen from and users)?

Exercise 4: Search for Yourself on Breach Data Site

- Open a web browser
- Visit the following sites:
  - **haveibeenpwned.com**
- Search for your user names
- Analyze the results

10 Minutes

Demo of Dehashed.com

Wrap-up

This is a portion of what we do

- Professional OSINT cases can take weeks or months
- We used only free sources
- What if you had funding and much more time?
- bellingcat.com does

https://www.bellingcat.com/news/mena/2019/07/11/afrin-incidents-of-desecration-and-destruction-of-cultural-sites/

OSINT workshop outcomes - Exercise 1

- You searched for yourself on multiple search engines
- Find anything "interesting"?
- Find anything you wish you hadn't?

- **Action - Try to remove your data from the Internet**
- Resources:
  - https://inteltechniques.com/data/workbook.pdf
  - https://the.osint.ninja/optoutdoc
  - Search engines

OSINT workshop outcomes - Exercise 1

- You searched for yourself on multiple search engines
- Find anything "interesting"?
- Find anything you wish you hadn't?

- **Action - Try to remove your data from the Internet**
- Resources:
  - https://inteltechniques.com/data/workbook.pdf
  - https://the.osint.ninja/optoutdoc
  - Search engines

OSINT workshop outcomes - Exercise 3

- You searched for your user names
- Find anything "interesting"?
- Find anything you wish you hadn't?

- **Action - Segment your personal and work lives**
- Use different user names for each type of account
  - Personal: **fuzzybunny123**
  - Work: **micahhoffman**
- Use different profile images/avatars on the different types of accounts

OSINT workshop outcomes - Exercise 4

- You searched for yourself on haveibeenpwned.com
- Did you find your email address was in a breach?

https://haveibeenpwned.com/

- **Action 1 - Set up monitoring**
  - Use the "Notify Me" link to receive alerts in the future
- **Action 2 - Change breached account passwords**
  - Any account found in the breach should have password changed
  - Reused breached email and password? Change those too

Want more OSINT?

The OSINTCurious Project

https://osintcurio.us

- Blog posts
- 10 minute OSINT videos
- Bi-weekly webcast/podcast
- Free!!!

We are OSINTCurio.us

Want 36 hours of OSINT?

SANS SEC487: Open Source Intelligence Gathering and Analysis

https://sans.org/sec487

- 6 days of OSINT
- Over 23 labs

SEC487: Open-Source Intelligence (OSINT) Gathering and Analysis SANS Crystal City 2019 Arlington, VA John TerBush	Aug 5, 2019 - Aug 10, 2019
SEC487: Open-Source Intelligence (OSINT) Gathering and Analysis SANS Prague August 2019 Prague, Czech Republic Michael Murr	Aug 12, 2019 Aug 17, 2019
SEC487: Open-Source Intelligence (OSINT) Gathering and Analysis SANS Virginia Beach 2019 Virginia Beach, VA David Mashburn	Aug 19, 2019 Aug 24, 2019
SEC487: Open-Source Intelligence (OSINT) Gathering and Analysis SANS Tampa-Clearwater 2019 Clearwater, FL Micah Hoffman	Aug 25, 2019 Aug 30, 2019
SEC487: Open-Source Intelligence (OSINT) Gathering and Analysis SANS Network Security 2019 Las Vegas, NV Micah Hoffman	Sep 9, 2019 - Sep 14, 2019

Questions?

Micah Hoffman

@WebBreacher (Twitter)

micah@spotlight-infosec.com

https://github.com/webbreacher/presentations