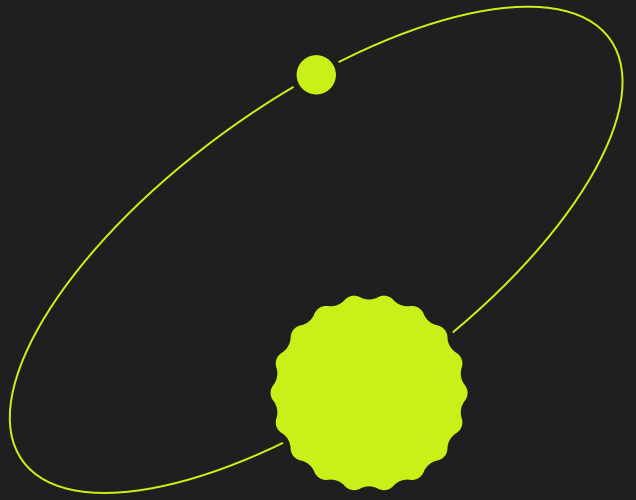
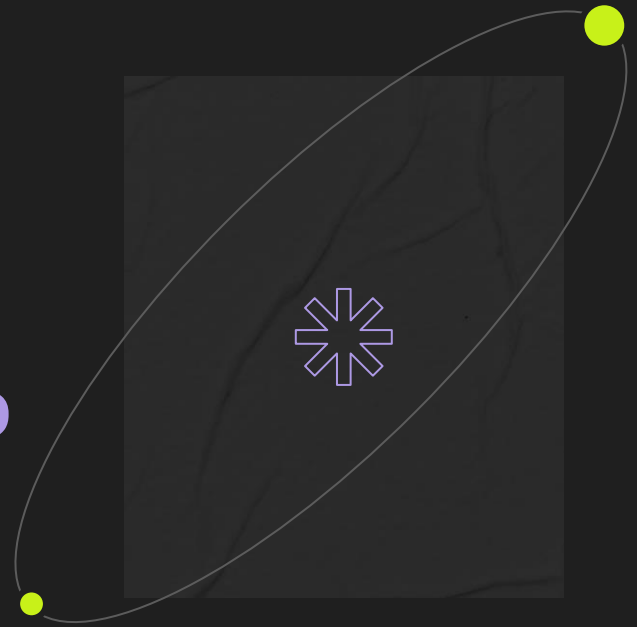
Cyber Threat Intelligence



A.

What is a data breach crawler?



Data crawling

“Data crawling is a method which involves data mining from different sources”

How it works?

Data Breach

Someone steals personal data.

Published

Someone buys the breach and it's published.

Crawler

Crawlers store breaches.

What we use as example:

Have i been pwned?

Website that allows users to check whether their personal data has been compromised. It collects millions of data; the users can search by entering their phone number or email address.

Intelligence X

Search engine and data archive. It has unique features: the search works with selectors (email, URLs, IPs, etc.), it searches in places such as the darknet and others. Keeps a historical data archive of results.

Where did we find them?

1 Clear web

Using search engines and conventional sites.

2 Deep web

Deep web and onion pages, including black-hat sites.

3 Undeground forums

Undeground black hat hacking crime forums.

4 Social sites

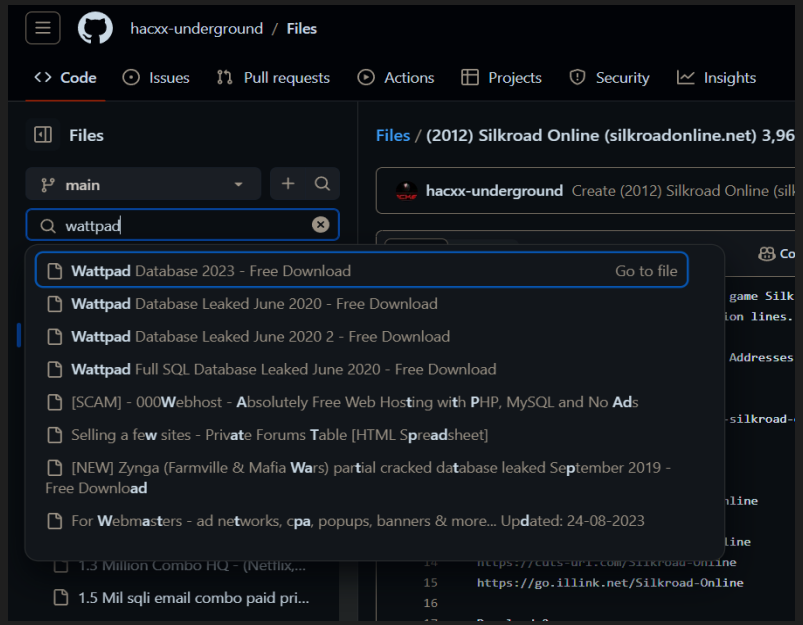
Social network and forums.

Breaches research

1 Clear web

By googling the names of the breached platforms, we can get download links.

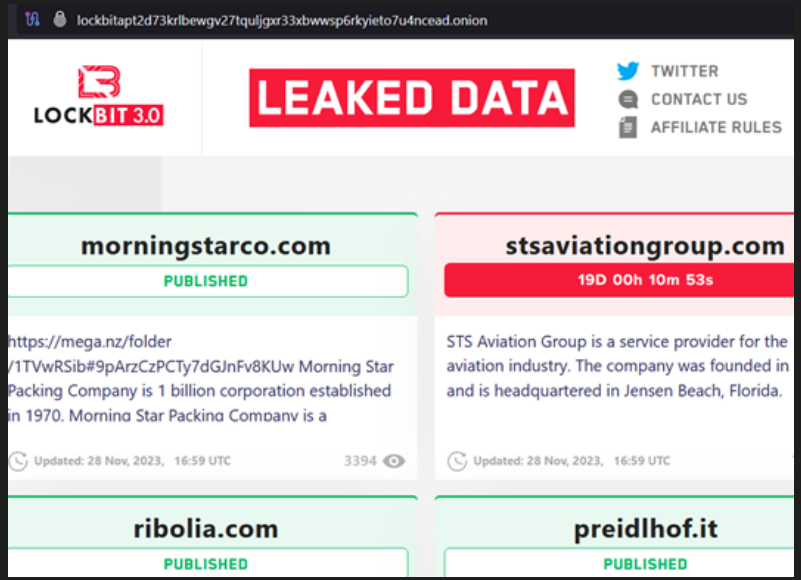
They are often embedded in Pastebin pages, Github repositories for researchers, and even in clear web forums post.



Breaches research

2 Deep web

On the onion sites of cybercriminal groups can often be found leaked information, often derived from victims who have not paid a ransom.



Breaches research

3 Underground forums

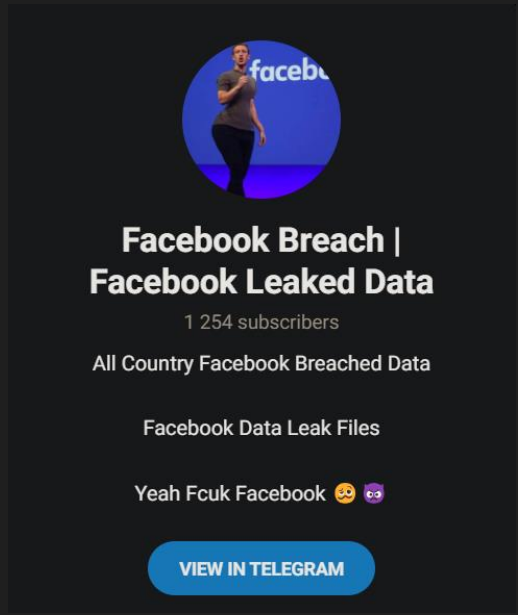
There are forums where cybercriminals publish breached data, often for free or with a system of tokens. Like Leakbase.io and Breachforums.

Breaches research

4 Social networks and forums

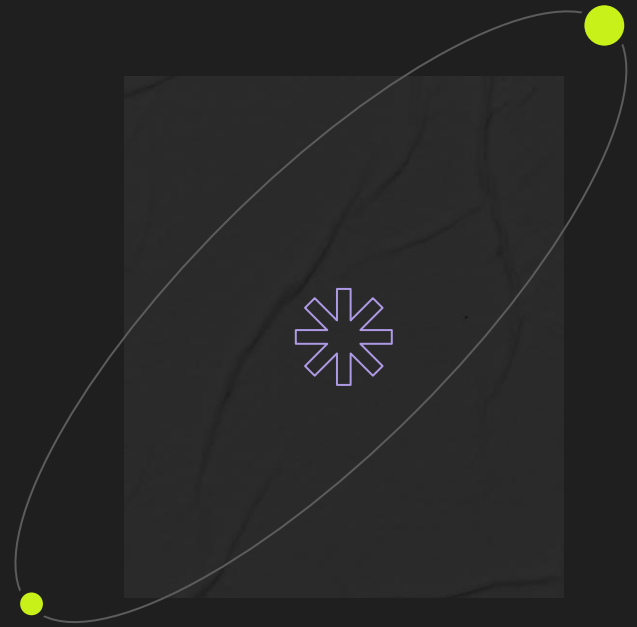
Users often post links to leaked data download on places like Reddit, Telegram and Twitter.

r/databreach



B.

The project



Data Breach Selection

Having limited resolutions, the group decided to use specific data breaches. The selection was made based on the information within them (telephone numbers, emails, passwords, etc.) and so that there were no redundancies between the various data breaches.

Data Breach Selection

Linkedin

ID, Email, password

Twitter

Email, password

Stockx

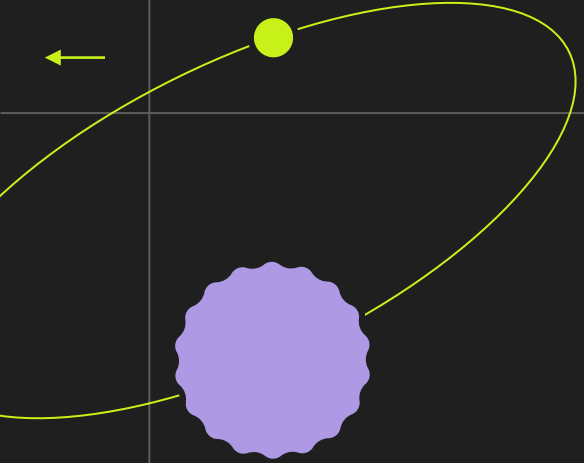
Email, name, surname, address, phone number

Edmodo

Email, password

Facebook

ID, name, surname, location, work, email, bithday, phone number



Functions:

Project functions

01 Password

Searched by API and our engine.

02 Search

Search for emails and phone numbers within files.

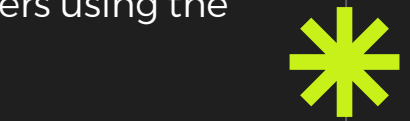
03 Identikit

Creation of the identikit of the chosen person using the information found.

Password search

We use the “Have I been pwned?” API for the password:

- The user enter the password.
- We create the HASH of the entered password.
- We take the first 5 characters of the HASH and “I have been pwend?” returns a range of HASH.
- On this return we select the correct HASH.
- The output will show how many times this pass is repeated in the data breaches.
- If the password is present in our databases, the table with the users using the entered password will be printed



Project Versions

Our project has changed for various reasons, here are the versions:

Version 1

HTML, CSS, JS

A group was already working in Python, so to differentiate ourselves we decided to use HTML, CSS and JS.

PROS

Server-less, DBless

Execute on Client

Easy to setup and customized

CONS

Limited to 1 GB – 10mln record

Depends on client resources

Non-scalable system

WE ACHIEVED 1 GB / 4 MLN RECORD

Version 2

NODEJS

To use when done so far, we opted to upgrade the system to NodeJS (Server)

PROS

Horizontal Scalability

Execution Speed I/O

NPM Modules

CONS

Memory Load Handling

Lack of Native Support for Relational Databases

Asynchronous Complexity Management

WE ACHIEVED 5 GB / 13 MLN RECORD

Version 3

PYTHON (FLASK + SQLITE)

Noting the difficulties in terms of resources and timing, we decided to base ourselves on flask and sqlite.

PROS	CONS
Rich Ecosystem and Libraries	Performance in certain scenarios
Support for Relational Databases	Maintenance and optimization
Scalability	Knowledge of different libraries

WE ACHIEVED +10 GB / +100 MLN RECORD

Version 4

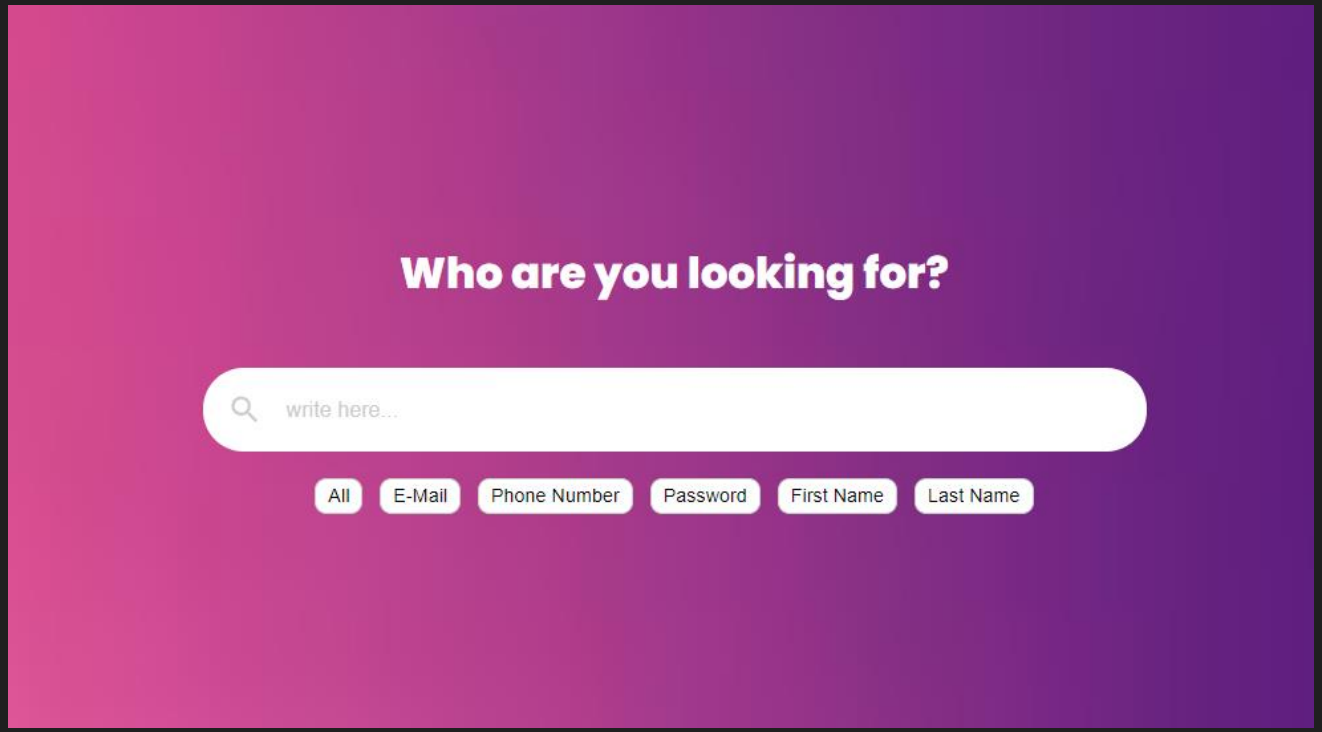
APACHE SOLR

Apache Solr is the best performing solution for big amount of data, but it requires several hours of study and implementation

PROS	CONS
Docker	Difficult implementation
Multiple Hosts	Ram usage
Speed	Data Processing

+ 13MLD

HARDWARE DEPENDENT


Who are you looking for?
write here...
All
E-Mail
Phone Number
Password
First Name
Last Name

The end

Any questions?