Youthquake

- a very simple web browsing trail alteration technique -

Motivation: I have drawn my motivation for this project from 2 separate sources with one of them being one article found on Reddit regarding a merger between two companies, one of them - a VPN provider and the other one a "offensive" security company. This sparked quite a commotion between regular users of this private VPN, some of them even cancelling their subscriptions. While their concerns are legitimate, I honestly think that their reliance on such services is a bit worrisome for it gives a false sense of security. Plus, the "secure" word has been used so often that in my opinion, completely lost its meaning. I feel cybersecurity as a field is saturated with marketing terms and jargon meant to intimidate and evoke this feeling of blind faith which closely resembles a form of computer science mysticism.

My second source of inspiration was RCA, that is root cause analysis which is a method used mainly in technical fields (engineering) to identify faults and defects in a chain of events.

Objective: Mask one's true intention or train of thought when searching for a piece of information in a hostile environment.

Let us proceed. In order to exemplify my idea, let us start with one example. I will take my own browser history and try to apply the alteration on it.

Here it is:

Căutarea Istoriei de familie cu înregistrări istorice - Supercăutare - MyHeritage	https://www.myheritage.ro/research?s=691363071&action=query&formId=master&forn
Alegeți-vă planul pentru a accesa miliarde de înregistrări de pe MyHeritage	https://www.myheritage.ro/FP/search-plans.php?s=691363071&colId=1&itemId=919542
Toate rezultatele pentru Chelalau în Toate colecțiile - MyHeritage	https://www.myheritage.ro/research?s=691363071&action=query&formId=master&forn
60 eur to ron - Căutare Google	https://www.google.com/search?client=firefox-b-d&q=60+eur+to+ron
Genetic ethnicities around the world - MyHeritage	https://www.myheritage.ro/ethnicities/romania/country-ethnicity-distribution
Genetic ethnicities around the world - MyHeritage	https://www.myheritage.ro/ethnicities/europe/continent-country-list
Genetic ethnicities around the world - MyHeritage	https://www.myheritage.ro/ethnicities
Kitul de testare a ADN-ului, originile și etnicitatea - Chelalau Web Site - MyHerit...	https://www.myheritage.ro/dna/dna-test-kit/691363071
kiiara - Feels - YouTube	https://www.youtube.com/watch?v=rTlqY9i7Gn4
Inbox (489) - c.ionutmihai1@gmail.com - Gmail	https://mail.google.com/mail/u/0/#inbox
Spam (28) - c.ionutmihai1@gmail.com - Gmail	https://mail.google.com/mail/u/0/#spam
Informații privind comanda	https://www.myheritage.ro/FP/checkout-page.php?order_id=1822627031&config=shipp
accounts.google.com/signin/oauth/consent?authuser=0&part=AJi8hAN0tU57Y...	https://accounts.google.com/signin/oauth/consent?authuser=0&part=AJi8hAN0tU57Yn
Conectați-vă – Conturi Google	https://accounts.google.com/signin/oauth/oauthchooseaccount?client_id=10645084393
Conectați-vă – Conturi Google	https://accounts.google.com/signin/oauth?client_id=1064508439328-p17lgt0tod03fvlggc
Forwarding ...	https://accounts.google.com/o/oauth2/auth?redirect_uri=storagerelay%3A%2F%2Fhttps
ADN MyHeritage	Descoperiți-vă etnicitatea și originile	Testarea ADN-ului - M...	https://www.myheritage.ro/dna
analiza adn bucuresti - Căutare Google	https://www.google.com/search?client=firefox-b-d&sxsrf=ACYBGNR48Bpei5ZWQyVuk3
analiza dna bucuresti - Căutare Google	https://www.google.com/search?client=firefox-b-d&q=analiza+dna+bucuresti
Dynamic Genomes	Hidden Treasures in our DNA	https://curiositystream.com/video/2938/dynamic-genomes

Now, let us analyze it. Please note that the browser used was the latest version of Firefox (as of 12th of December 2019). The entries are in chronological order with the bottom being the earliest and top the latest.

Let us try to recreate the train of thought that lead to those searches:

1. Watched a documentary about DNA on Curiosity Stream
2. Searched for DNA testing centers in Bucharest
3. Landed on DNA testing website MyHeritage
4. By the look of things, he tried to login on that website via Google
5. He checked both spam and inbox on Gmail – probably he was looking for the confirmation link
6. He started listening for a song on YouTube
7. Browsed the website for additional information
8. Tried to convert 60 EUR to RON – probably this is the cost of the testing kit
9. He searched for his family name in the website's database for matches
10. End of browsing history.

Well, as we can see (fig. 1), we are able to recreate the train of thought that led to these events quite easily. So, what's my idea about? One of the basis of root cause analysis is represented by the actual timeline. If one of the steps in the chronology would change, what would be the result?

Exchanging a couple of entries, especially the very first or very last, coupled with the login event have the potential of completely altering the true intent. Let's try to change some entries and see the possible outcomes.

Example scenario:

1. Browsed MyHeritage for additional information
2. Tried to convert 60 EUR to RON – probably this is the cost of the testing kit
3. Tried to login on the website
4. Checked his inbox – probably confirmation link
5. Started listening to music (not relevant to our objective)
6. Searched for his family name in the website's database
7. Browsed back to MyHeritage website
8. Started searching for DNA testing centers in Bucharest
9. Started watching a documentary on DNA gene editing via CuriosityStream
10. End of browsing history

fig. 1

Watched a documentary about DNA genes editing

↓

Searched for testing centers nearby in Bucharest

↓

Landed on MyHeritage Website

↓

Tried to login via Google

↓

Checked both inbox and spam for confirmation email

↓

Started listening to one YT song

↓

Browsed the website for additional info

↓

Tried to convert 60 EUR to RON
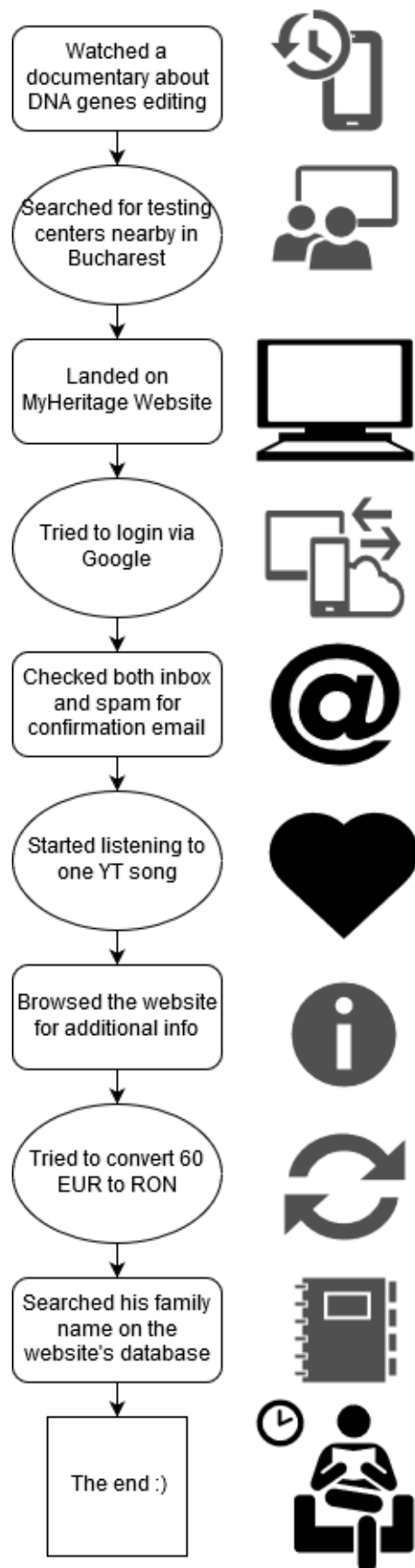
↓

Searched his family name on the website's database

↓

The end :)

In the second scenario, the trigger factor is the website itself, while the documentary is a consequence of that action. In the first scenario the documentary is the trigger factor while the website is a consequence of that action. While this might seem like a rudimentary example (DNA tests are not dangerous) let us take more "concerning examples".

1. Watches a documentary about a type of medication which can be obtained without a doctor's prescription and which, when taken in a high dose, can provoke a cardiac arrest
2. Searches for the said medication on the local market
3. Finds the same ingredient but under a different brand
4. Searches for the brand
5. Find a similar article describing a famous singer overdosing on the same medication
6. Browses Wikipedia for a biography for that person
7. End of browsing session

This example is quite easy to follow. Let's see if changing the timeline would render this browsing habit as a concern:

1. Browses Wikipedia for a biography of a famous singer
2. Finds the cause of death and the medication that the singer took
3. Finds the same ingredient but under a different brand on the local market
4. Watches a documentary about the medication and finds out that it can be obtained without a prescription
5. Searches for the said medication on the local market
6. End of browsing session

In the second case, the trigger factor is the singer's biography while the consequence is searching and finding the relative medication which is readily available on the local market. One can easily imagine how this is very different from the first example when the documentary triggered the initial search and thus made the subject read the article. In the altered example, his active purpose is finding the medication, which **can have major implication in a real-world scenario**.

Possible applications for my project:

Offensive: Concealing one's true intention when searching for information. Sending false trails when researching a topic. A classic example would be searching for a restaurant by making repeated separate unrelated searches for different ones while at the same time sorting them by misleading and bogus criteria like availability or type or food.

Defensive: Deter vulnerable members of society from engaging in harming or unhealthy behaviors. I think personal freedom and privacy are mandatory for a happy life, yet a minimum, not invasive amount of surveillance can save lives. Preventing is way cheaper than trying to fix or to intervene too late.

That was it :P. Have fun!

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