Project Proposal

Title:
Thacker analyzer

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Description:
Our privacy software development project is a Chrome web extension that is built on the idea of Lightbeam (https://www.mozilla.org/en-US/lightbeam/) and Ghostery (https://www.ghostery.com/en/). Lightbeam provides a visual representation of all the trackers linked with the sites the user visited but does not provide information about the trackers in detail like Ghostery. So we want to start a project that is a browser extension that will be a simple layout like Lightbeam with a map of the trackers and detailed information of the trackers like Ghostery. We also found out that none of the software sort trackers by the type of data they collect. So in our project, user will be able to see visual representation like a track map and also a list that has different sorting functions. This project will take benefits from both Lightbeam and Ghostery.

We have gathered source codes of Ghostery, Lightbeam and Collusion, which is similar to Lightbeam but for Chrome. Building on these codes, we will develop this extension that will be able to map out the trackers and present them in a visually intuitive way like Lightbeam or Collusion and also program sorting algorithms so that the trackers can be sorted and listed by the types of data the trackers collect, whether the trackers are third party trackers or directly from the sites or whether they share the information with other third parties or not. We believe that this is an important feature that is missing in current programs because the way the found trackers are presented (i.e. Ghostery) are not intuitive and complicated for everyday users to quickly figure out what kind of their data are being collected and tracked.

Background & Motivation:
Third party tracking can provide some good services and at the same time raise some privacy concerns. Tools have been developed to show first party trackers and their privacy policies. First party trackers are usually obvious to the users and can be easily controlled by these developed tools. However, when the data collected by these trackers are shared with the third party trackers and unintended websites, this raises big privacy concerns. Tools like Lightbeam can show these

third party trackers in an intuitive way that clearly shows which and how trackers, third party trackers or unintended parties track the users. However, the users have little or no knowledge about how their data will be used or what types of data each tracker is collecting. And thus became the motivation for this project: to provide a full picture of how far these data will go, by whom they will be used and how they are going to be used.

Literature Review or Related Works:

Krishnamurthy, B., & Wills, C. E. (2009, August). On the leakage of personally identifiable information via online social networks. In *Proceedings of the 2nd ACM workshop on Online social networks* (pp. 7-12). ACM.

Mayer, J. R., & Mitchell, J. C. (2012, May). Third-party web tracking: Policy and technology. In *Security and Privacy (SP), 2012 IEEE Symposium on* (pp. 413-427). IEEE.

Cranor, L. F. (2012). Can users control online behavioral advertising effectively?. *Security & Privacy, IEEE*, *10*(2), 93-96.

Marella, A., Pan, C., Hu, Z., Schaub, F., Ur, B., & Cranor, L. F. Assessing Privacy Awareness from Browser Plugins.

Kristol, D. M. (2001). HTTP Cookies: Standards, privacy, and politics. *ACM Transactions on Internet Technology (TOIT)*, *1*(2), 151-198.

Ajdari, D., Hoofnagle, C., Stocksdale, T., & Good, N. Web Privacy Tools and Their Effect on Tracking and User Experience on the Internet.

Ghostery. About Ghostery. [Online]. Available: http://www.ghostery.com/about. Accessed by 10/23/2014

Lightbeam. About Lightbeam. [Online]. Available: https://addons.mozilla.org/en-US/firefox/addon/lightbeam/ Accessed by 10/23/2014

Nancy Scola, (Oct. 15. 2014) Turning the tables on online advertisers. The Washington post. http://www.washingtonpost.com/blogs/the-switch/wp/2014/10/15/turning-the-tables-on-online-advertisers-2/ Accessed by 10/23/2014

Hanqing Chen, (July 3, 2014), Privacy Tools: How to Block Online Tracking. Propublic. http://www.propublica.org/article/privacy-tools-how-to-block-online-tracking
Accessed by: 10/23/2014

Timeline:

Week 1 (Oct. 27) : First, the source codes we have obtained of Ghostery, Lightbeam and Collusion will be examined so that we can build on the codes to implement our own features. Each group members will learn more about the necessary knowledge related to developing a Chrome web extension. Main design of this project will be finished by the end of this week. Design will be of the main page of tracker map (like Lightbeam), another page that will show the sorted list of the trackers found and a subpage what the main page will look like when a particular tracker on the map is clicked (i.e. information about the tracker will appear in the grid next to the map).

Week 2 (Nov. 3) : [Exam on Tuesday, Nov. 4] We will start to build up on the source codes and have a foundation for our web extension ready and finished. This week will be focused on combining the key features of Ghostery and Lightbeam so that we would have a basic structure of the project.

Week 3 (Nov. 10) : By this time, we will know to what extent we can finish our project. Since it is not feasible to finish the entire project in the given time, we will have to decide which features to actually implement and which features to leave out and assume to work in the final report.

Week 4 (Nov. 17) : [Hand in draft paper on Thursday, Nov. 20] We will work on draft paper so that it includes everything about the project, motivation and background, literature review, which features are working and which features are left out. Some of these will be left with place holders since we will need more time to work on them. Also, we might make adjustments on how far this web extension will be feasible given the time frame and what we can actually implement.

Week 5 (Nov. 24) : All work will be finalized and edited. We will start working on the poster to visually present our project well.

Week 6 (Dec. 1) : [Poster fair on Thursday, Dec. 4] All work should be done and this week should be dedicated to working on the poster.

Week 7 (Dec. 8) : [Hand in final project paper on Friday, Dec. 12] Fix up the draft paper, fill in the missing parts and edit necessary parts with the feedback. And finish up the final paper.