

Master Thesis Research Cycle

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Practice problem

Content

In practice it is challenging for users to assess the privacy risk of mobile health (mHealth) apps before actually downloading and using them.

When users are looking for specific functionalities, it is challenging to find the app with the lowest privacy risk, that offers these functionalities.

Due to the high volume of apps in the app stores (Enck et al., 2001), it is not feasible to manually review each app regarding privacy risks.

Relevance

Resolving the challenges in evaluating the privacy risk of mHealth apps, before usage and of large volumes, will result in an improved decision making process for users. It also reduces the danger of exposing vulnerable information.

Automating the review process for large scale app assessments has the potential to grow new privacy evaluation service markets. (Enck et al., 2001)

Research question

How and to what degree can the privacy risk assessment of mHealth apps be automated?

Research problem

Content

Static code analysis is used in the field of informatics to analyse application source code to detect faults or vulnerabilities. (Baca, Carlsson & Lundberg, 2008)

A static code analysis could potentially be used to assess the privacy risks that mHealth apps pose.

It is unclear if, and to what degree, the concepts of static code analysis and privacy risk assessment can be combined in order to automate the app assessment.

Relevance

The automated process of assessing the privacy risk helps to reduce the costs of reviewing each individual app and enhances the information experience users get while researching mHealth apps.

Additionally, it exposes new possibilities for research in the privacy risk area. The research could be conducted on providing solutions and best practices for minimizing the privacy risk of apps.

Research answer

- An automated privacy risk assessment tool, that allows users to easily assess the privacy risks an mHealth app poses.
- An evaluation of the privacy risk assessment tool, including an overview of the users' opinions regarding the potential impact of the tool on their mHealth app decision making.

References

- Baca, D., Carlsson, B., & Lundberg, L. (2008). Evaluating the cost reduction of static code analysis for software security. *Proceedings of the Third ACM SIGPLAN Workshop on Programming Languages and Analysis for Security - PLAS '08*, 79. <http://doi.org/10.1145/1375696.1375707>
- Enck, W., Ocateau, D., McDaniel, P., & Chaudhuri, S. (2011). A Study of Android Application Security. *USENIX Security ...*, (August), 21–21. <http://doi.org/10.1007/s00256-010-0882-8>