Detecting Malicious Facebook Applications Using Machine Learning Algorithm

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Abstract: Now a days, the existence of Facebook, twitter, or any other online social networking sites (OSNs) is must in our daily lives. As it is way to stay connected and communicate with our closed and distanced ones. These sites are used for various purposes such as music, picture, video downloading, posting various photos, expressing ones ideas etc. the addictiveness and craze of all these OSNs has increased due to presence of third party applications. However spammers have realized the potential of these third party applications and are using it as a tool to disturb and spam user profiles. In many cases, according to surveys these applications are malicious. There are many ways in which the malicious hacker can benefit from these applications such as: can reach large number of users, obtain personal information of user through his profile, spam other users relating to the users, etc. As the research goes on, research communities have focused on detecting malicious URLs and online social campaigns which are fake or spam. Here, we develop an application called SecureU app which help us to find out the fake or malicious applications, hide pictures and posts which are inappropriate and also give real time notifications.

Keywords: Malicious app, User Profiling Apps, Online Social Networks (OSNs), SQL Lite Database.

Introduction

Facebook, twitter, any other OSNs addictiveness and craze is increasing due to the existence of the third party applications. Unfortunately, spammers have realized the potential of these applications and are using it as a medium to spam user profiles and access their personal information. Hence, with the help of our application we warn the user about the malignant app and help them to stay away from it. Facebook is used as social network platform. Using Facebook user can interact with other Facebook user; user can also create their own webpages. Facebook provides diversity discussion tools for user. We trying to develop an application, which detect whether the given app is malicious or benign. In our, SecureU app we first detect the app is malicious or not, if yes, malicious app will be shortlisted and user will be informed and kept secured from it. Also we provide a real time notification to user and hence, increase user and related persons security.

1. Modules

In recent years the mobile has become the valuable part of the human beings. It is necessary for human begins to have a powerful device which will provide facilities other than basic facility available in mobile phones. Android provide such functionality which enables developers to design such type of applications which will make a simple mobile to smart one. “Android is built on the open Linux Kernel.

Furthermore, it utilizes a custom virtual machine that has been designed to optimize memory and hardware resources in a mobile environment. Android is open source it can be liberally extended to incorporate new cutting edge technologies as they emerge. The platform will continue to evolve as the developer community works together to build mobile applications”.

The proposed system is going to provide the facilities to the users when user is newer to any place through the application named places directory. Another application of proposed system is shortest path is going to provide the service to user by mining the shortest distance between source and destination. The last application named GPS Alarm of proposed system will provide the notification to the user of arrival of its specified destination while travelling in the form of alarm.

A. Mathematical Module

Let S is the Whole System Consists: $S = \{U, P, Req, A, APP\}$.

1. $U$ is the set of number of user on the facebook. $U = \{u_1, u_2, \ldots, u_n\}$.

2. $P$ is the set of number of permission set for user. $P = \{p_1, p_2, p_n\}$.

3. $Req$ is set of number of add app request from user to server. $Req = \{a_1, a_2 \ldots a_n\}$. 

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4. A is the set of number of set of access tokens of user.

5. APP is the set of number of facebook benign application available on facebooks application server. \( \text{APP} = \{\text{ap}_1, \text{ap}_2 \ldots \text{ap}_n\} \).

**Step 1:** At first user sends request to facebook server for adding an application to his profile like some game app etc.

**Step 2:** When request comes to facebook server from client it returns the one set which contains the permissions required to app which he want to install on his profile, permissions like, Application wants to access user information from profile like name, date of birth etc. and this token are send to application server.

**Step 3:** In this step user allow the access the information from his profile to that particular app. Here user doesn’t aware that whether that app is benign or malicious so, here our SecureU comes in picture. SecureU checks whether that app is malicious or benign by applying some classifications such as SecureU and SecureU.

**SecureU:** This is the initial level detection or classifier i.e. SecureU checks the application ID no, name and location of application and verifies with the available benign application in the application server.

**SecureU:** This is actual step of detecting the malicious apps in the facebook. If an application is found malicious then that application will be blocked for all the users so, that in future users don’t get request from that application to add.

**Step 4:** In this step, the SecureU allows only the benign apps to add on user’s wall.

**Output:** Detecting malicious apps and providing access to only benign apps to user.

**A. System Architecture**

A system architecture or systems architecture is the conceptual model that defines the structure, behavior, and more views of a system. An architecture description is a formal description and representation of a system, organized in a way that supports reasoning about the structures and behaviors of the system.

![Figure 1: System Architecture](image-url)

The main aim is to protect oneself from social malware. One the user log in to the account the system works in the following manner: After log in, the user can upload any post he wishes to, this is then passed to a training set block. The next state is that of a feature extraction which checks the specified features which are stated by the SecureU application. Here, we use the SVM Algorithm as a classifier which consists of various parameters that are specified to identify the app, post, picture, etc. are malicious or benign.

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**2. Conclusion**

In this paper, we develop an application, which detect whether the given application is malicious or benign. In our, SecureU app we first detect the app is malicious or not, if yes, malicious app will be shortlisted and user will be informed and kept secured from it. Also we provide a real time notification to user and hence, increase user and related persons security.

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4. References


