

Mobile Security Coursework

Mobile security coursework is a team project, where you develop a mobile application capable of exfiltrating contents from the mobile phone and hiding the malicious intent using smart algorithms to prevent the discovery of the malicious intent even with the reverse engineering of Android APK. You will be evaluated based on the following three parts of the coursework.

Part 1:

Design an Android app to facilitate smooth communication within your team and with the public. Whether you are a music band, a medical team, or a team offering utility services, the app shall provide an easy-to-use platform for effective interaction. The app should have the following features.

For Public Users:

1. An app to communicate with a team: This can be a team of doctors, team of musicians, etc. You can decide on the theme of the app.
2. Create User Account: Users can sign up for personalized interactions and exclusive features.
3. Discover Team Members: Explore the names and details of the team members to get to know the community.
4. Detailed Profiles: Dive into detailed profiles of each team member to understand their roles and expertise.
5. Messaging and Beyond: Engage in direct messaging with team members for inquiries, orders, or general communication. Explore additional features like sharing your location to enhance your communication experience.

For Teammates:

1. Admin Privileges: All team members enjoy admin privileges for easy access to advanced features.
2. Quick Responses: Log in and promptly respond to guest account requests, be it messages or orders.

Application Scenarios:

The teammate application can be designed based on various use cases. Some example application scenarios are given below. Your design plan should have a use-case so that the privileges given to the app make sense.

1. Music-Band Group: Bands app that can leverage to connect with their followers, share updates, gather feedback, and manage event requests.
2. Medical Team: Doctors and medical professionals communicate with patients, address inquiries, schedule appointments, and share essential healthcare information.
3. Teachers' App: Educators can utilize such an app for effective communication with students, fostering discussions, answering queries, and sharing educational resources.

Make sure you have an intuitive self-contained application design.

Part 2:

Spy-friendly version of your application.

1. Modify the application to perform **at least** three malicious activities
2. Gather and exfiltrate information from the mobile phone
3. Malicious activity should be stealthy and not evident to a common user
4. Example: reading SMS, copying images, and sending them to a remote destination.

Creativity is the key to getting additional points in this section.

Part 3:

Make analysis harder

1. Obfuscate/Hide the malicious intent of the program so that it is hard for an analyst
2. You can use obfuscation tools or design custom-made obscuring algorithms

Submission

The code should be uploaded in LMS with proper documentation and a project report by 22nd March 2024 23:59. The team should also give a presentation and demonstration of their application during the lecture and lab sessions in the final two weeks of the course. We will be opening presentation schedules closer to the date for you to select the slots.