SIL771: SPECIAL TOPICS IN CYBER SECURITY
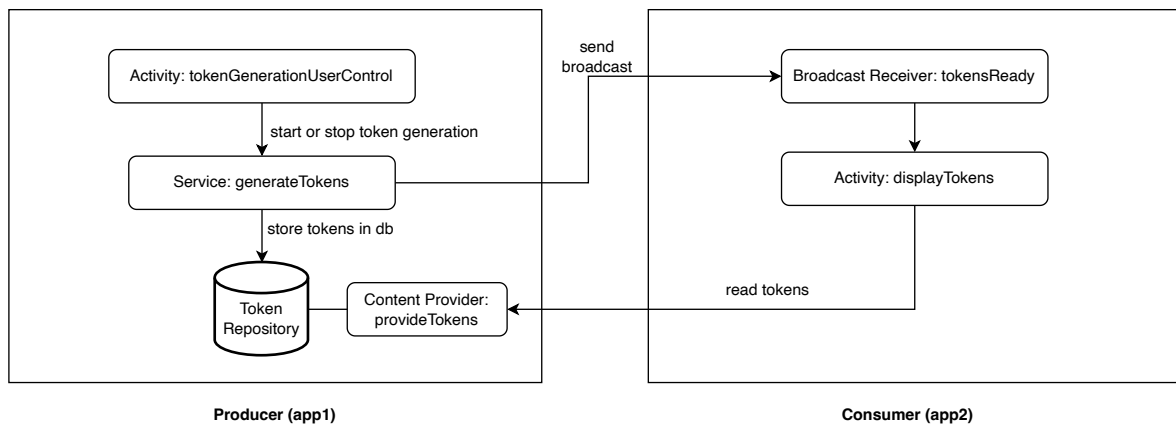
ASSIGNMENT 1: SECURE INTERCOMPONENT COMMUNICATION

Total Marks: 100   **Due: 18 Feb 25**

Aim: To create secure components and to ensure secure intercomponent communication

Task: Create two Android apps:

Producer (app 1): This app consists of following components:
- tokenGenerationUserControl: An activity that provides two buttons to start token generation and to stop token generation. On pressing the button 'Start Token Generation' the generateTokens service starts. Display the generated tokens on this activity.
- generateTokens: A service that generates one token every 15 seconds. A token consist of timestamp and geo-coordinates in the format [timestamp, latitude, longitude]. Example token1=[04-02-2025T05:00:00, 28.543680, 77.198692]
- TokenRepository is a table in database that stores tokens.
- provideTokens: A content provider that provides read only access to its content to its trusted Consumer app.

Consumer (app 2): This app consists of the following components:
- tokensReady: A broadcast receiver that registers to receive broadcasts send by generateToken service. The generateToken service sends broadcast after every 4 tokens creation.
- displayTokens: An activity that fetches token from provideTokens content provider of producer app and displays on the screen.

Create the app components and manifest with suitable custom permissions/ labels so that their access is limited to authorised components as per the information flow displayed in the figure above.

You need to complete the assignment individually. Submit the following in a zip file *rollno_name_A1.zip* before 18 Feb 25, 23:59 Hrs on moodle (if size increases beyond permitted limit on moodle, you may mail to rajesh.pal@alumni.iitd.ac.in) .

- Producer APK: producer_rollno.apk
- Consumer APK: consumer_rollno.apk
- zip file containing the sources for Producer app: producer_rollno.zip
- zip file containing the sources for Consumer app: consumer_rollno.zip

The apk files will be installed on Android device running 13 version. The criteria for evaluation are:
- Fully functional apps: 60%
- Permissions and access controls set properly: 20%
- Source code evaluation: 20%

Note: Plagiarism will result in 0 marks.

Best wishes and happy learning.