CSE – 545: SOFTWARE SECURITY – TEAM #12

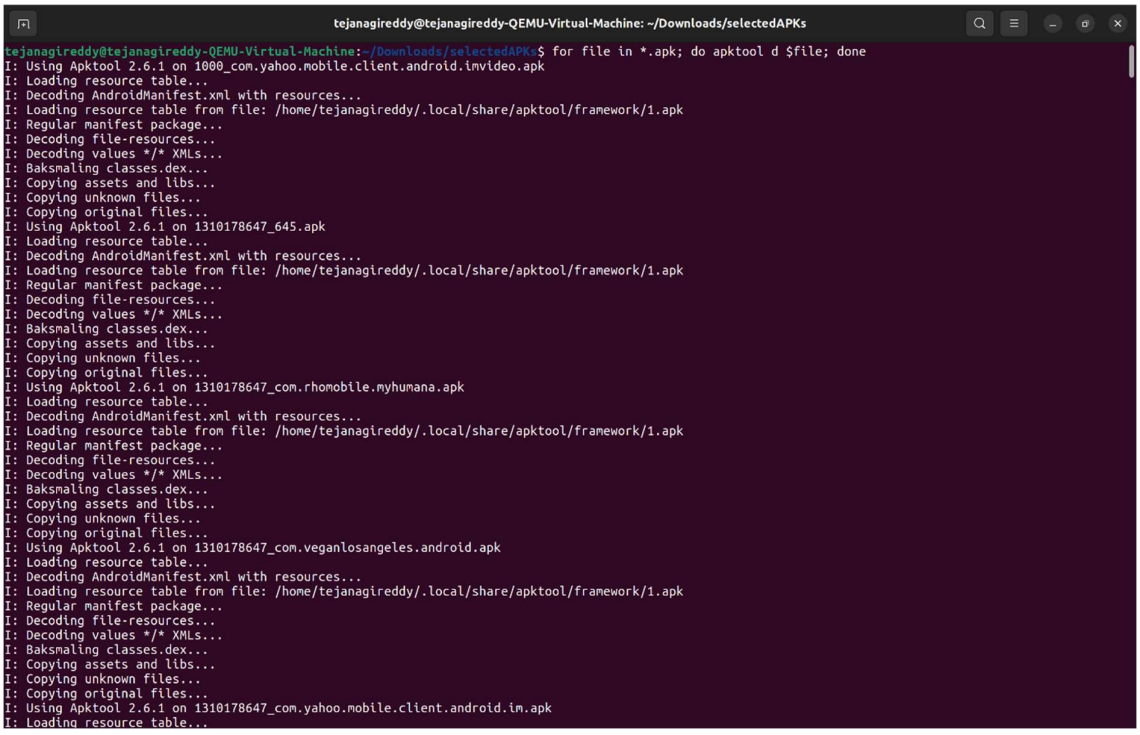
Project Part #1 Android Permissions

Use APKTool to compute statistics of permission of the given APKs. Analysing these APKs and to compute statistics:

1. Top ten most frequent Permissions
2. Top ten apps with most Permissions
3. Use a line chart representing on number of permissions requested by apps on x-axis and number of apps that request a specific number of permissions on y-axis

We would consider the 145 APK files and try to conduct some reverse-engineering, so we would use a APKTool which divides each file into resources, .dex files and .xml files. In which, we are much interested in a .xml file called AndriodManifest.xml file. That will enable us and give us insights about the structuring of the code as well as find the security measures they have taken to avoid facing a reverse engineering attack.

We use the following code shown below to be able to reverse engineer the folder of apk files.



The line we need to check for in xml file which has tags uses-permission in the file and mention the same in a csv file for further statistical analysis. We would then, compute the top 10 most frequent permissions used and top 10 apps with most permissions from the csv file and the same would be mentioned and represented in a graph.

We have used two different python files to represent the different parts of the project. The file data_extraction.py considers to represent the xml files permissions into a csv. The file readfromcsv.py considers to represent the data into a graph along with computing top ten most frequent permissions used and top ten most permissions used.

The picture below represents the top 10 most used permissions and top 10 apps with most permissions

```
C:\Users\bibin\Downloads>python readfromcsv_teja.py
top 10 most used permissions
android.permission.INTERNET
android.permission.ACCESS_NETWORK_STATE
android.permission.WRITE_EXTERNAL_STORAGE
android.permission.VIBRATE
android.permission.READ_PHONE_STATE
android.permission.ACCESS_FINE_LOCATION
android.permission.WAKE_LOCK
android.permission.ACCESS_COARSE_LOCATION
android.permission.READ_CONTACTS
android.permission.CAMERA
Top 10 apps with most permissions
me.everything.launcher
9999999999999_com.android.phone
com.speaktoit.assistant
1311184772_es.codefactory.android.app.ma.vocalizerenudemo
1317675242_com.google.android.apps.plus
com.bluetornadosf.smartypants-190
com.avast.android.mobilesecurity-2129
1310178647_com.yahoo.mobile.client.android.im
com.booking
1314646812_com.cc
```

The graph represents number of permissions seen on each app on x-axis vs number of apps that require that specific number of permissions on y-axis.