

ATLAS Assignment: Android

Refer to DroidBench repository at <https://github.com/secure-software-engineering/DroidBench/tree/develop> , for following apps:

DynamicBoth1, ActivityCommunication1, ActivityCommunication2, SharedPreferences1, ActivityEventSequence1, ActivityLifecycle4, AsynchronousEventOrdering1, SimpleUnreachable1, UnreachableBoth1, DynamicSource1, ActivityCommunication7

1. Find which of the sensitive source APIs are called.

Note: Sensitive APIs are those APIs which access the user's private data.

List of source APIs:

- `getLatitude()`
- `getLongitude()`
- `getDeviceId()`
- `getSubscriberId()`
- `getSimSerialNumber()`
- `getLine1Number()`

2. Find which of the sensitive sink APIs are called.

Note: Sensitive APIs are those APIs which access the user's private data.

List of source APIs:

- `Log.d()`
- `Log.e()`
- `Log.w()`
- `sendTextMessage()`
- `putExtra()`
- `write()`
- `putString()`

3. Find all the methods that have called the sources as listed above.
4. Find all the methods that have called the sinks as listed above.
5. Find all the edges between sources and sinks.
6. Find all the paths that contains use of intents.

Note: Intent pass the message from one component to another component using `putExtra()`. (Refer to link: <https://developer.android.com/guide/components/intents-filters.html>)

7. Find all the paths that contains use of `sharedPreferences`.

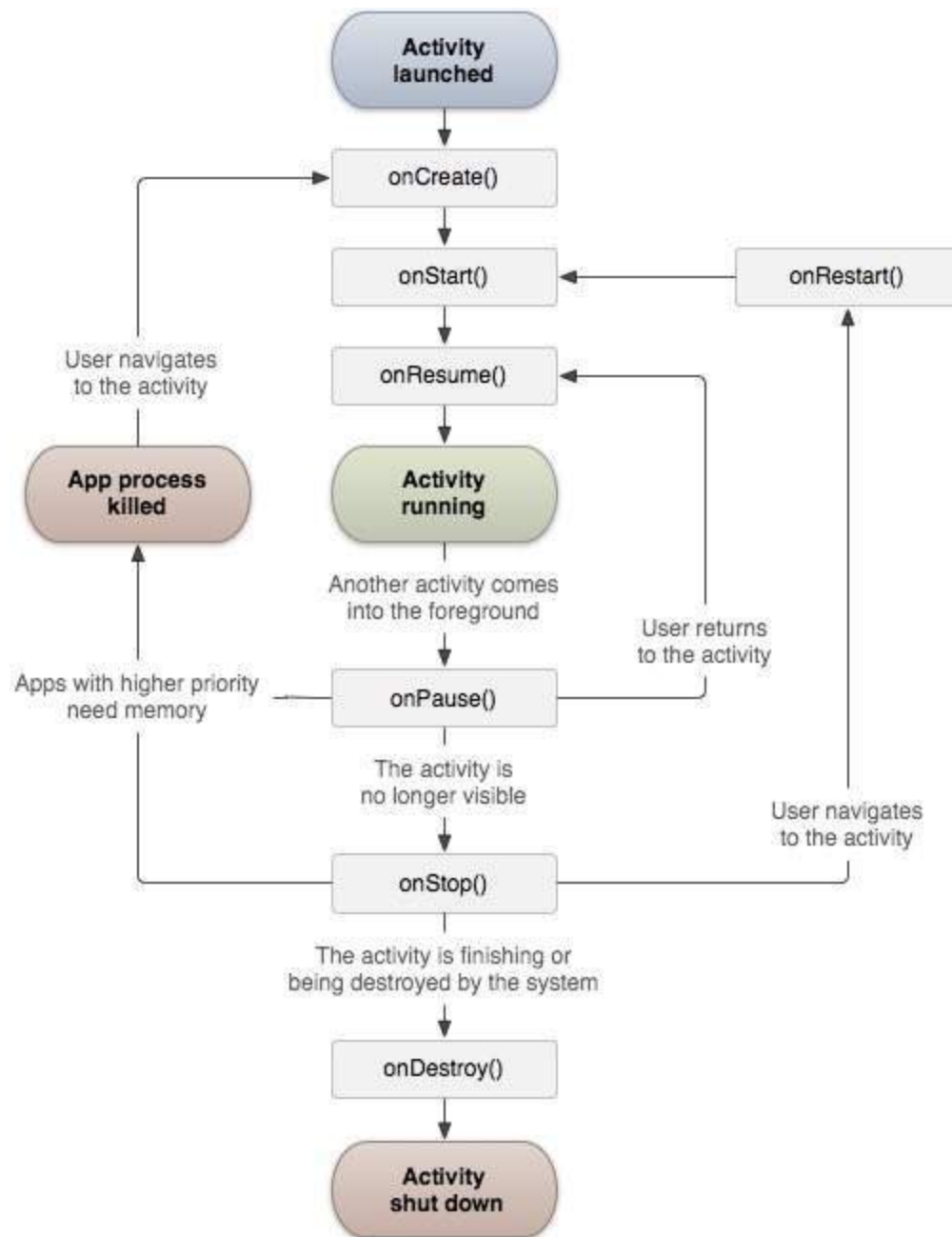
Note: . A `SharedPreferences` object points to a file containing key-value pairs and provides simple methods to read and write them. (Refer to link: <https://developer.android.com/training/basics/data-storage/shared-preferences.html>)

8. Find all unreachable methods in an apk.
9. If there is the path between source to sink, then find the parameters (with values) that are passed from source to sink.
10. Find out whether source and sink are present in same component or distributed over multiple components.
11. Find out whether the application uses dynamic code loading or not.

Note: `DexClassLoader` constructor calling loads the dynamic code. (Refer to link: <https://developer.android.com/reference/dalvik/system/DexClassLoader.html>)

12. Find out the sources and sinks that are present in lifecycle methods other than `onCreate()`.

Note: Below is the diagram of android activity lifecycle. All the methods in square boxes are lifecycle methods.



(Refer to link: <https://developer.android.com/reference/android/app/Activity.html>).