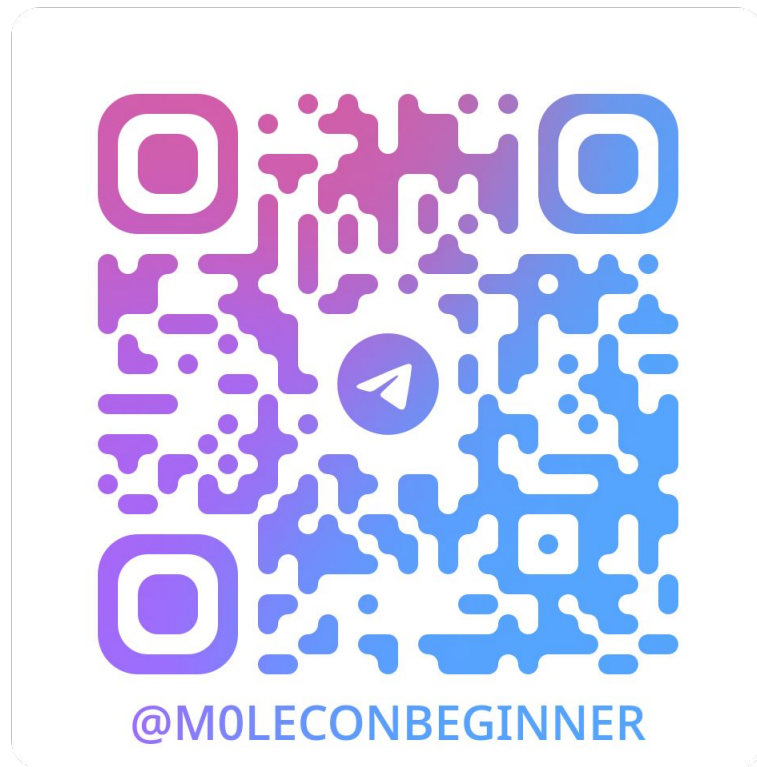


# Android Reverse Engineering

---

# Join the Telegram channel



COMPUTER SECURITY CONFERENCE | CTF COMPETITION

# MOLECON 2026



BEGINNER CTF, 29 NOVEMBER 2025

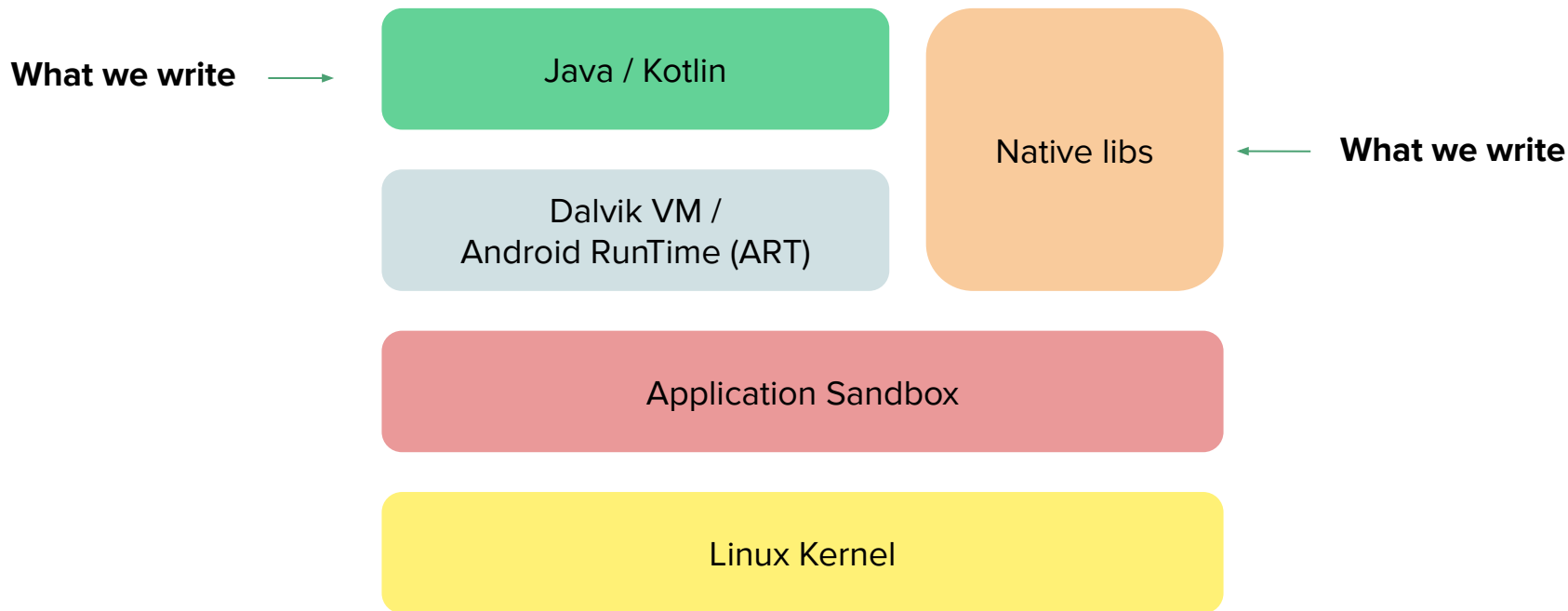


<https://beginner.m0lecon.it/>

Prenota un posto in presenza:

<https://forms.gle/FZJJuaqmGvxqhdUQA>

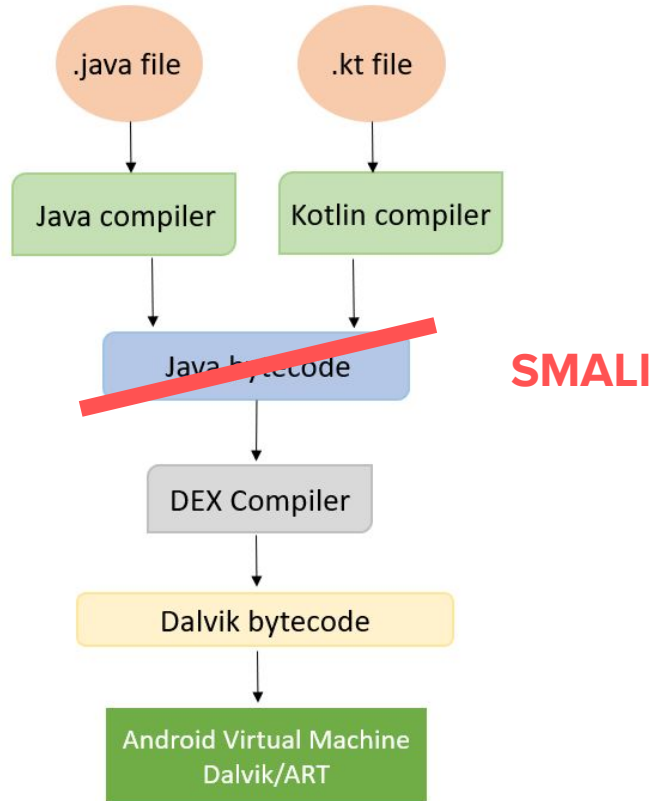
# Android App Ecosystem



# Applications



# Applications



# Applications

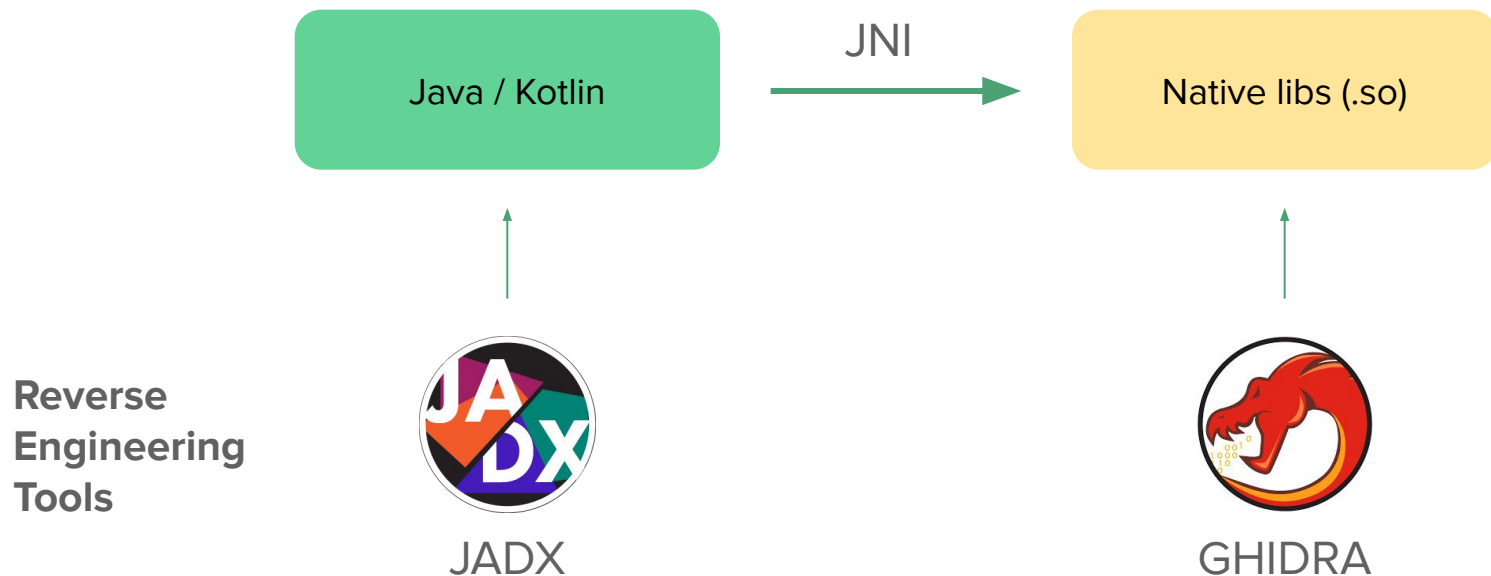
.java file

.kt file

```
17  # virtual methods
18  .method public addInteger(II)I
19      .locals 1
20      .param p1, "num1"    # I
21      .param p2, "num2"    # I
22
23      .line 30
24      add-int v0, p1, p2
25
26      .line 31
27      .local v0, "res":I
28      return v0
29  .end method
30
```

Android Virtual Machine  
Dalvik/ART

# Applications: Java Native Interface (JNI)





# The APK format

Just a ZIP file...

- classes.dev → bytecode!
- res/ → resources folder (images, text in different languages, variables...)
- lib/ → native libs (.so files)
- **AndroidManifest.xml**

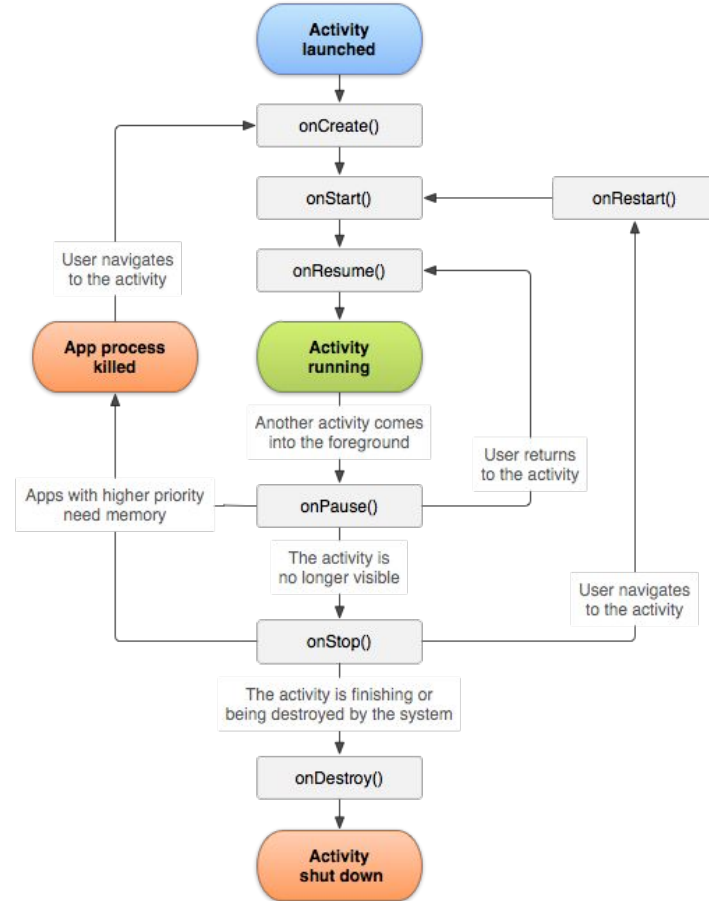
# AndroidManifest.xml

```
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
package="com.example.android.apis">
    <application android:name="ApiDemosApplication"
        android:label="@string/activity_sample_code"
        android:icon="@drawable/app_sample_code"
        android:theme="@android:style/Theme.Material.Light.DarkActionBar">
        <activity android:name=".app.HelloWorld"
            android:label="@string/activity_hello_world">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />
                <category android:name="android.intent.category.SAMPLE_CODE" />
            </intent-filter>
        </activity>
    </application>
</manifest>
```

<https://www.geeksforgeeks.org/android/application-manifest-file-in-android/>

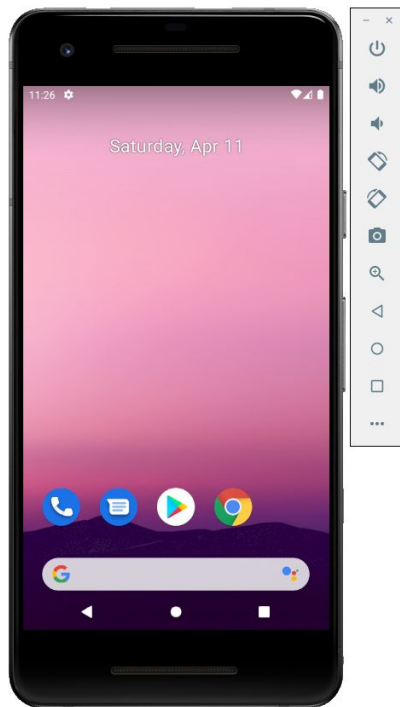
# Activities

- Main entry points in Android applications
- Functions called on app lifecycle changes
- Gets called via **Intents**



# Tools

- **Android Emulator** (available in Android Studio)
- **JADX** (decompiler)
- **adb** (to act on the smartphone and debug)



<https://www.ditig.com/adb-cheat-sheet>

# Challenge Time

<https://workshop.m0lecon.it>



<https://hextree.io>