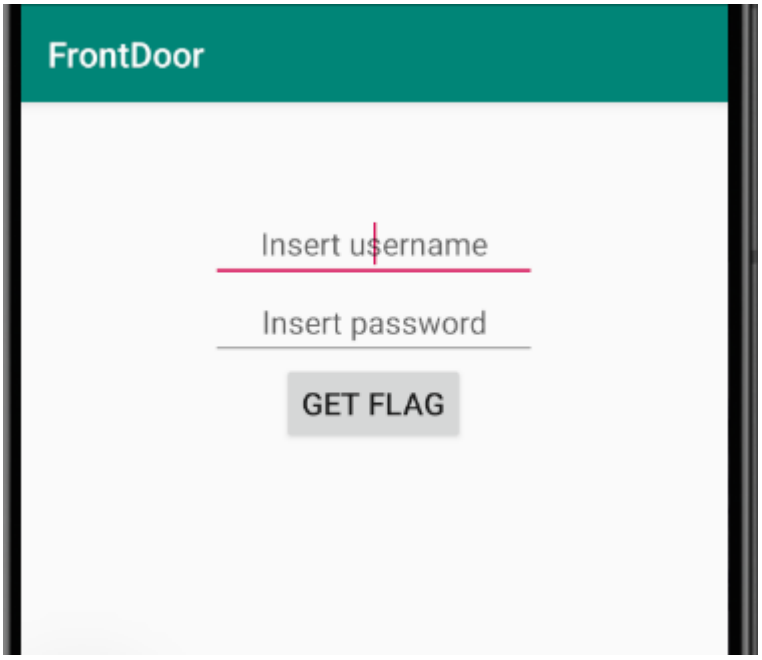
1-frontdoor- exploiting

هبدأ بقي في CTF علشان نعمل exploit للتطبيق وده اول CTF معانا هو frontdoor

1-install app on emulator

```
adb install frontdoor.apk
```



هنا هو بيطلب username and password بس احنا منعرفش ايه هما username , password
علشان كده لازم نروح نحلل التطبيق

2- analyze app with jadx-gui

```
jadx-gui frontdoor.apk
```

هنشوف اول حاجة ملف MeniFast.xml

3-Check AndroidMeniFast.xml file

مفهوش غير activity واحد اللي هو MainActivity ومش هعرف نستفاد منه بأي معلومات

AndroidManifest.xml | Flag | MainActivity | R | BuildConfig

```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    android:versionCode="1"
    android:versionName="1.0"
    android:compileSdkVersion="28"
    android:compileSdkVersionCodename="9"
    package="com.mobisec.frontdoor"
    platformBuildVersionCode="28"
    platformBuildVersionName="9">
    <uses-sdk
        android:minSdkVersion="22"
        android:targetSdkVersion="28"/>
    <uses-permission android:name="android.permission.INTERNET"/>
    <application
        android:theme="@style/AppTheme"
        android:label="@string/app_name"
        android:icon="@mipmap/ic_launcher"
        android:debuggable="true"
        android:allowBackup="true"
        android:supportsRtl="true"
        android:usesCleartextTraffic="true"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:appComponentFactory="android.support.v4.app.CoreComponentFactory">
        <activity android:name="com.mobisec.frontdoor.MainActivity">
            <intent-filter>
                <action android:name="android.intent.action.MAIN"/>
                <category android:name="android.intent.category.LAUNCHER"/>
            </intent-filter>
        </activity>
    </application>
</manifest>
```

هرموح بقي نشوف ملف اللي هو بيعمل Check Flag

4- analyze flag file

Flag

```java
package com.mobisec.frontdoor;

import java.io.BufferedReader;
import java.io.InputStreamReader;
import java.net.HttpURLConnection;
import java.net.URL;
import java.nio.charset.StandardCharsets;

/* loaded from: classes2.dex */
class Flag {
    private static String sUrl = "http://10.0.2.2:31337/getflag";
    private static boolean debug = false;

    Flag() {
    }

    public static String getFlag(String username, String password) throws Exception {
        String urlParameters;
        if (debug) {
            urlParameters = "username=testuser&password=passtestuser123";
        } else {
            urlParameters = "username=" + username + "&password=" + password;
        }
        byte[] postData = urlParameters.getBytes(StandardCharsets.UTF_8);
        int postDataLength = postData.length;
        String request = sUrl + "?" + urlParameters;
        URL url = new URL(request);
        HttpURLConnection conn = (HttpURLConnection) url.openConnection();
        conn.setRequestMethod("GET");
        conn.setRequestProperty("Content-Type", "application/x-www-form-urlencoded");
        conn.setRequestProperty("charset", "utf-8");
        conn.setRequestProperty("Content-Length", Integer.toString(postDataLength));
        conn.setUseCaches(false);
        BufferedReader rd = new BufferedReader(new InputStreamReader(conn.getInputStream()));
        String content = BuildConfig.FLAVOR;
        while (true) {
            String line = rd.readLine();
            if (line != null) {
                content = content + line + "\n";
            } else {
                return content;
            }
        }
    }
}
```

هنا اه هو بيبعت request لل server اللي هو 10.0.2.2:31337 وبيجيب flag وفيه قيمة اللي هي debug =false ودي بيشوف لو هو debug بيبعت في url parameters ان username =testuser and password =passtestuser123 وبكده احنا عرفنا ايه هو username ,password فأول ما ندخل username,password ده هيطلع قيمة flag

```java
class Flag {
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    Flag() {
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            urlParameters = "username=testuser&password=passtestuser123";
        } else {
            urlParameters = "username=" + username + "&password=" + password;
```

بس عاوين نغير قيمة debug ل true يبقي paramters هما username ,password فلازم نروح نفك التطبيق ونغير القيمة بتاعت debug ل true

5- decompile the app

```
apktool d frontdoor.apk
```

6- open flag.smali file and chagne the value of debug

before change the value

```
0
1     .line 15
2     const/4 v0, 0x0
3
4     sput-boolean v0, Lcom/mobisec/frontdoor/Flag;->debug:Z
5
6     return-void
7 .end method
```

after change value

```
    .line 15
    const/4 v0, 0x1

    sput-boolean v0, Lcom/mobisec/frontdoor/Flag;->debug:Z

    return-void
.end method
```

6-build the app with apktool

```
apktool b frondoor
```

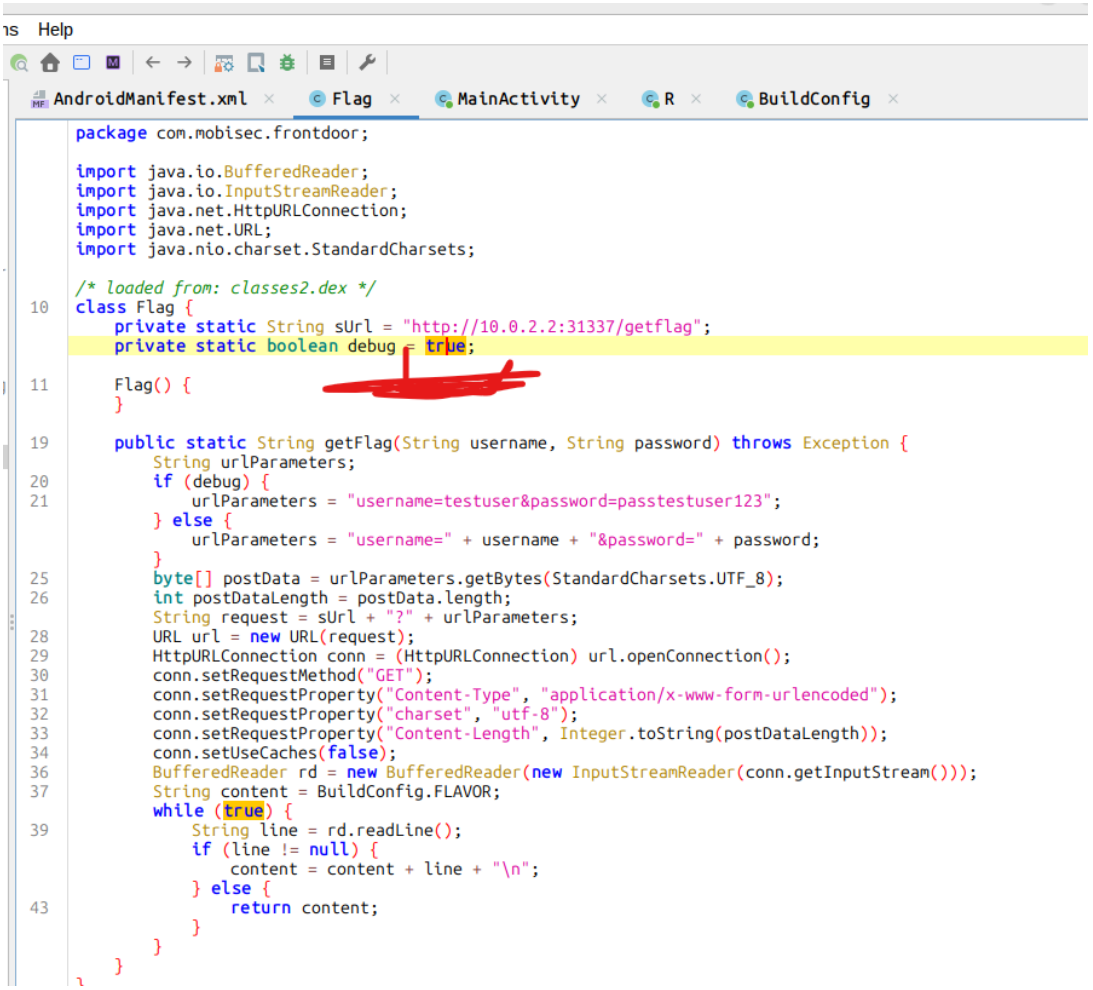
7- signing the new apk & use zipalign to config lines

```
zipalign -v 4 frontdoor/dist/frondoor.apk out.apk
```

8- sign key

```
apksigner sign --ks-key-alias hextree -ks ~/android-app-hack.keystore
out.apk
```

9-the value is changed on the new app



كده بقي هو هيحط default ان url parameters is
username=testuser&password=passtestuser123

هنا اه بقي اللي اللي هيحصل هو هنا اول ما اعمل click on button هياخد username ,password اللي هدخلهم وبيوعتهم لل function اللي هي getflag

```
@Override // android.view.View.OnClickListener
public void onClick(View v) {
String username = usernameWidget.getText().toString();
String password = passwordWidget.getText().toString();
flagWidget.setText("Getting flag....");
flagWidget.setTextColor(ViewCompat.MEASURED_STATE_MASK);
try {
String result = Flag.getFlag(username, password);
flagWidget.setText(result);
} catch (Exception e) {
Log.e("MOBISEC", "Exception while getting the flag:" + Log.getStackTraceString(e));
flagWidget.setText("An error occurred");
}
}
});
}
}
```

هنا بقي function ا get flag اللي بتشوف فيمة debug فهي هتبقي true علشان احنا غيرناها فبيعت بقي parmater اللي هو محددهم ويكمل request عادي

```java
package com.mobisec.frontdoor;

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        String urlParameters;
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            urlParameters = "username=" + username + "&password=" + password;
        }
        byte[] postData = urlParameters.getBytes(StandardCharsets.UTF_8);
        int postDataLength = postData.length;
        String request = sUrl + "?" + urlParameters;
        URL url = new URL(request);
        HttpURLConnection conn = (HttpURLConnection) url.openConnection();
        conn.setRequestMethod("GET");
        conn.setRequestProperty("Content-Type", "application/x-www-form-urlencoded");
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            String line = rd.readLine();
            if (line != null) {
                content = content + line + "\n";
            } else {
                return content;
            }
        }
    }
}
```

برده كان في حل تاني بدل ما اغير كل ده هو اخد username ,passwrod وادخلهم انا وخلاص

the flag is **MOBISEC{noob_hackers_only_check_for_backdoors}**