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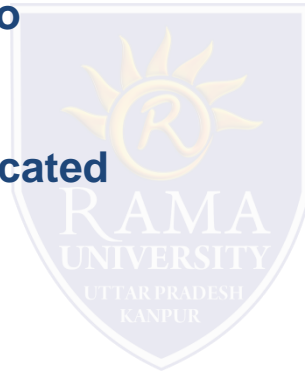
FACULTY OF ENGINEERING & TECHNOLOGY
MOBILE SECURITY

LECTURE -13

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OUTLINE

- **How to obfuscate code in Android?**
 - **Configure your gradlefile**
 - **Use Android default Proguard rules or create your own**
 - **Edit your proguard-rules.pro**
 - **Release your app and test**
 - **Check if your code is obfuscated**
- **MCQ**
- **References**



HOW TO OBFUSCATE CODE IN ANDROID?

How to obfuscate code in Android?

1. Configure your gradlefile

- ❑ In your app/build.gradle file, set minifyEnabled to true, see snippet below:

```
android {
  buildTypes {
    release {
      minifyEnabled true
      proguardFiles getDefaultProguardFile('proguard-android.txt')
    }
  }
  ...
}
```

HOW TO OBFUSCATE CODE IN ANDROID?

How to obfuscate code in Android?

2. Use Android default Proguard rules or create your own

- ❑ In Android, default proguard-rules is set at sdk/tools/proguard/proguard-rules.txt. Most of the time, you need to customize proguard rules, let's say if you are using a 3rd party library. You should consider checking your 3rd party lib's documentation regarding obfuscation and include it in your custom proguard rules

If you are using Android's default proguard:

```
android {
    buildTypes {
        release {
            minifyEnabled true
            proguardFiles getDefaultProguardFile('proguard-android.txt')
        }
    }
    ...
}
```

HOW TO OBFUSCATE CODE IN ANDROID?

How to obfuscate code in Android?

2. Use Android default Proguard rules or create your own

If you are creating your own proguard-rule:

```
android {
  buildTypes {
    release {
      minifyEnabled true
      proguardFiles getDefaultProguardFile('proguard-android.txt'),
        'proguard-rules.pro'
    }
  }
  ...
}
```

HOW TO OBFUSCATE CODE IN ANDROID?

How to obfuscate code in Android?

3. Edit your proguard-rules.pro

- ❑ Third party libraries provide info on how to obfuscate a project in which they are included, example is [SQLCipher](#):

```
-libraryjars libs/commons-codec.jar
-libraryjars libs/guava-r09.jar
-libraryjars libs/sqlcipher.jar

-optimizationpasses 5
-dontusemixedcaseclassnames
-dontskipnonpubliclibraryclasses
-dontskipnonpubliclibraryclassmembers
-dontpreverify
-verbose
-optimizations !code/simplification/arithmetic,!field/*,!class/merging/*,!code/allocation/variable

-keep public class * extends android.app.Activity
-keep public class * extends android.app.Application

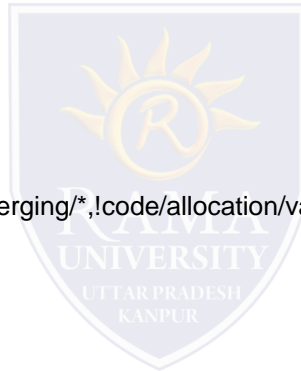
-dontwarn javax.annotation.**

-dontwarn android.app.**
-dontwarn android.support.**
-dontwarn android.view.**
-dontwarn android.widget.**

-dontwarn com.google.common.primitives.**

-dontwarn **CompatHoneycomb
-dontwarn **CompatHoneycombMR2
-dontwarn **CompatCreatorHoneycombMR2

-keepclasseswithmembernames class * {
native <methods>;
}
```



HOW TO OBFUSCATE CODE IN ANDROID?

How to obfuscate code in Android?

3. Edit your proguard-rules.pro

```
-keepclasseswithmembers class * {  
    public <init>(android.content.Context, android.util.AttributeSet);  
}
```

```
-keepclasseswithmembers class * {  
    public <init>(android.content.Context, android.util.AttributeSet, int);  
}
```

```
-keepclassmembers class * extends android.app.Activity {  
    public void *(android.view.View);  
}
```

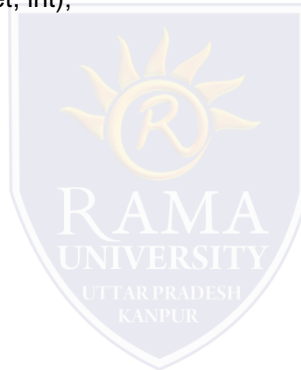
```
-keepclassmembers enum * {  
    public static **[] values();  
    public static ** valueOf(java.lang.String);  
}
```

```
-keep class * implements android.os.Parcelable {  
    public static final android.os.Parcelable$Creator *;  
}
```

```
-keepclassmembers class **.R$* {  
    public static <fields>;  
}
```

```
-keep public class net.sqlcipher.** {  
    *;  
}
```

```
-keep public class net.sqlcipher.database.** {  
    *;  
}
```



HOW TO OBFUSCATE CODE IN ANDROID?

How to obfuscate code in Android?

4. Release your app and test

Important: **Test your apk!** You may encounter app crash when customizing your own Proguard file because there are some files that you need to save from being obfuscated. Again, check step no. 3

5. Check if your code is obfuscated



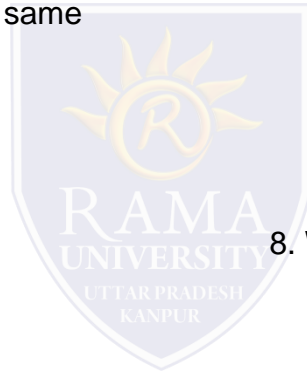
MCQ

1. 5. “Unauthorized” data leakage doesn’t essentially mean intended or malicious.

- a) True
- b) False

6. Unintentional data leakage can still result in the same penalties and reputational damage.

- a) True
- b) False



4. 7. When leakage of data is done purposely or because of the lack of employee’s concern toward confidential data is called _____ done by employees of an organization.

- a) Ill-intentional data leakage
- b) Malfunctioned in database
- c) A malfunction in online data
- d) ill-intension of an outsider

8. Which of them is not an example of physical data leakage?

- a) dumpster diving
- b) shoulder surfing
- c) printers and photocopiers
- d) phishing

REFERENCES

- ❑ <https://levelup.gitconnected.com/android-obfuscation-e608f79f0d09>
- ❑ <https://www.preemptive.com/obfuscation>

