

# PROGRAMMING HANDHELD SYSTEMS

ADAM PORTER

PERMISSIONS

# TODAY'S TOPICS

ANDROID PERMISSIONS

DEFINING & USING APPLICATION PERMISSIONS

COMPONENT PERMISSIONS & PERMISSIONS-  
RELATED APIs

# PERMISSIONS

ANDROID PROTECTS RESOURCES & DATA WITH PERMISSIONS

USED TO LIMIT ACCESS TO:

USER INFORMATION – E.G, CONTACTS

COST-SENSITIVE API'S – E.G., SMS/MMS

SYSTEM RESOURCES – E.G., CAMERA

# PERMISSIONS

PERMISSIONS ARE REPRESENTED AS STRINGS

IN ANDROIDMANIFEST.XML, APPS DECLARE  
THE PERMISSIONS

THEY USE THEMSELVES

THEY REQUIRE OF OTHER COMPONENTS

# USING PERMISSIONS

APPLICATIONS SPECIFY PERMISSIONS THEY USE  
THROUGH A <USES-PERMISSION> TAG

USERS MUST ACCEPT THESE PERMISSIONS  
BEFORE AN APPLICATION CAN BE INSTALLED

# USING PERMISSIONS

```
<manifest ... >
```

```
...
```

```
<uses-permission android:name=  
    "android.permission.CAMERA"/>
```

```
<uses-permission android:name=  
    "android.permission.INTERNET"/>
```

```
<uses-permission android:name=  
    "android.permission.ACCESS_FINE_LOCATION"/>
```

```
...
```

```
</manifest >
```

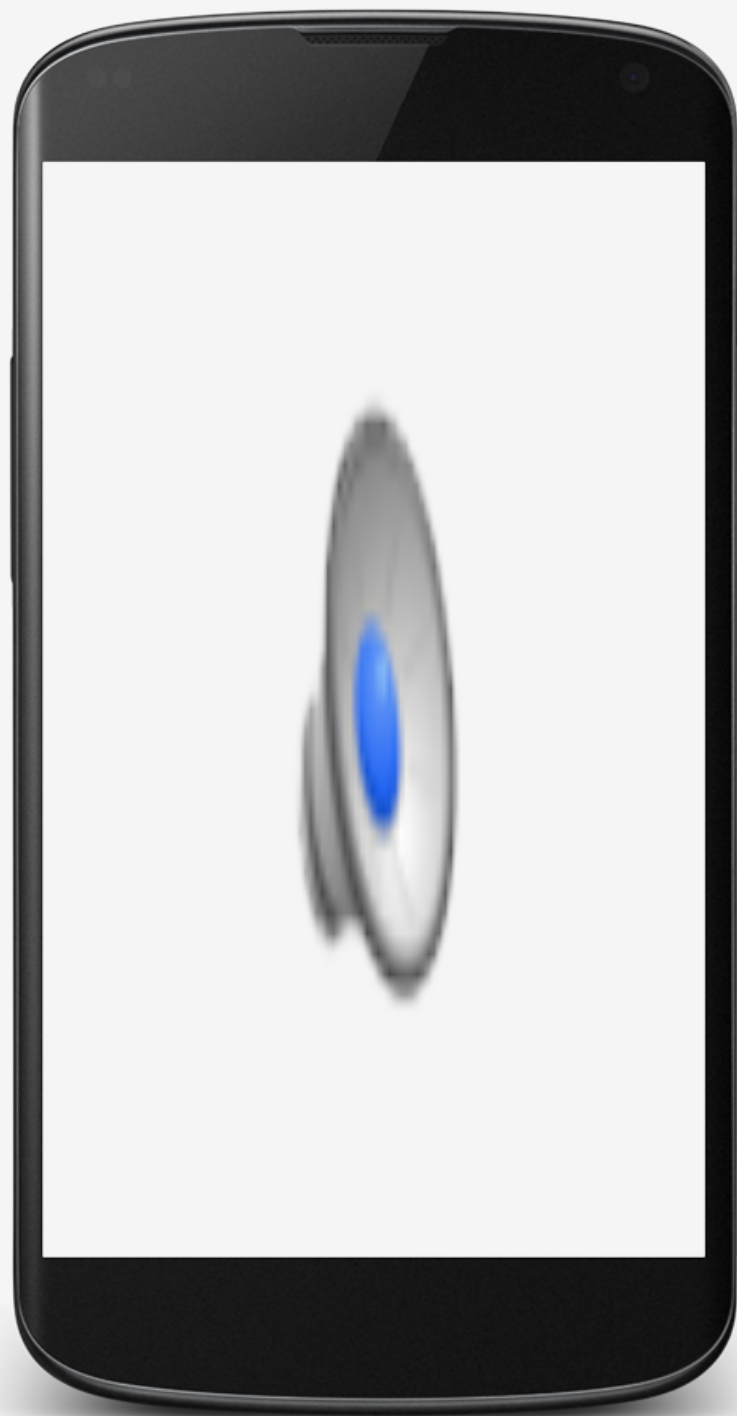
SEE: [http://developer.android.com/reference/  
android/Manifest.permission.html](http://developer.android.com/reference/android/Manifest.permission.html)

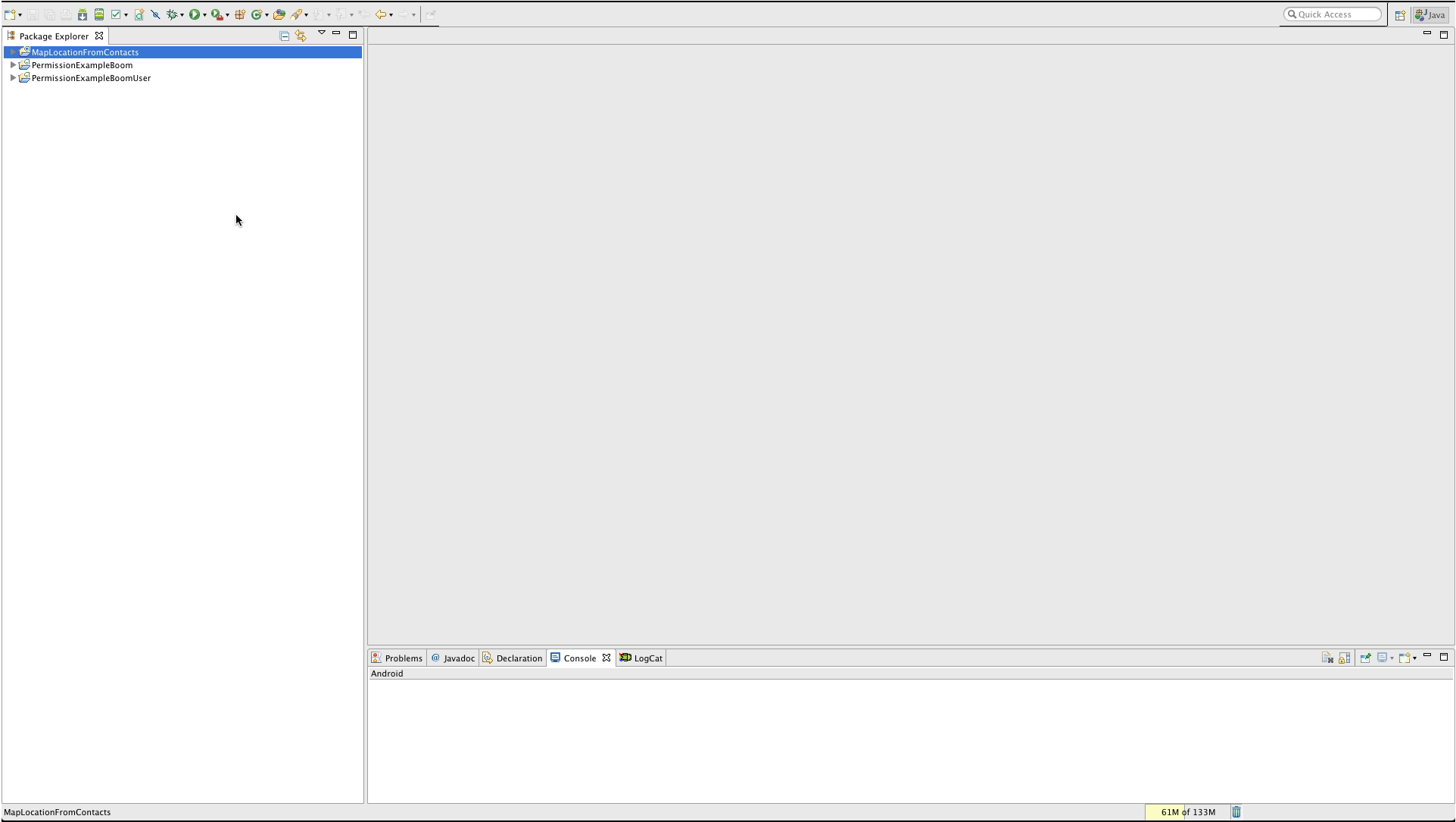
# MAPLOCATIONFROMCONTACTS

SELECT A CONTACT FROM CONTACTS  
DATABASE

DISPLAY A MAP CENTERED ON SELECTED  
CONTACT'S ADDRESS







# DEFINING PERMISSIONS

APPS CAN ALSO DEFINE AND ENFORCE THEIR  
OWN PERMISSIONS

# DEFINING PERMISSIONS

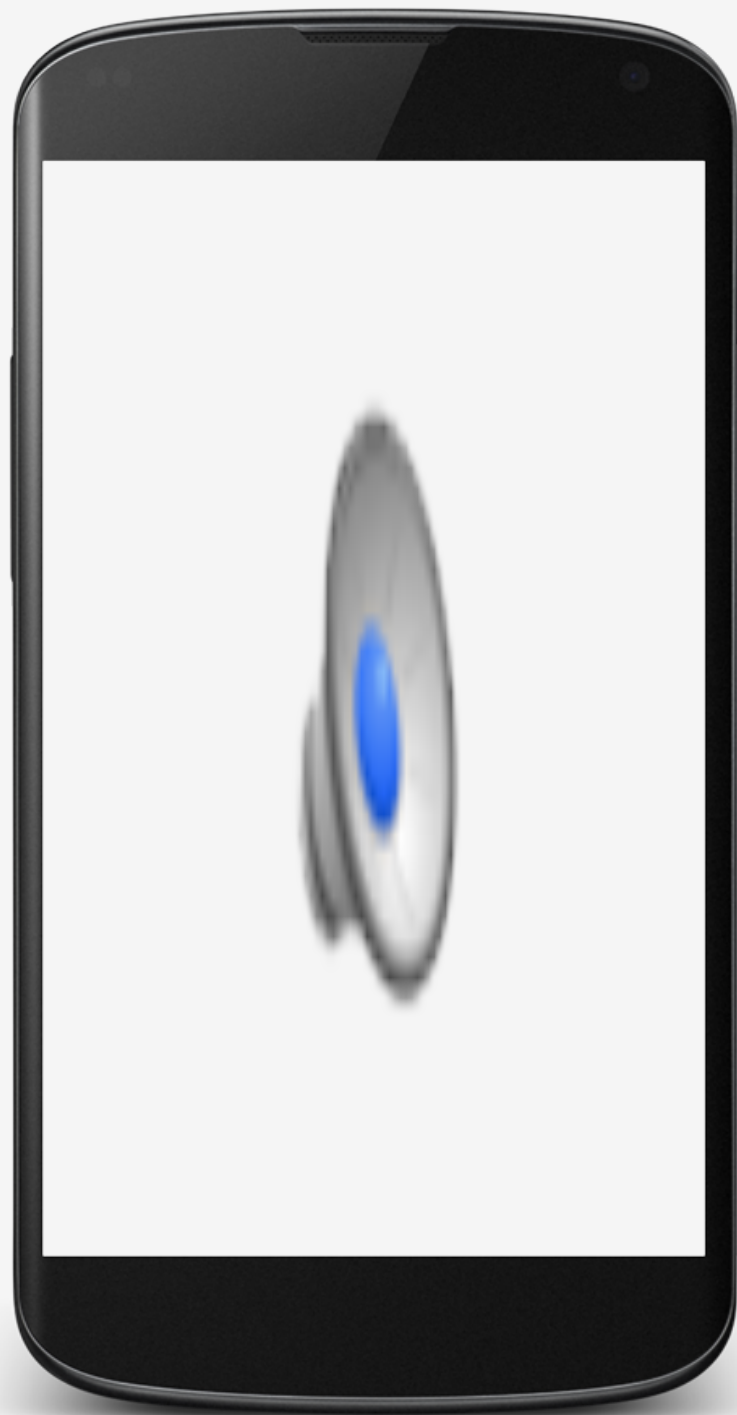
SUPPOSE YOUR APPLICATION PERFORMS A  
PRIVILEGED/DANGEROUS OPERATION

YOU MIGHT NOT WANT TO ALLOW JUST ANY  
APPLICATION TO INVOKE YOURS

SO YOU CAN DEFINE & ENFORCE YOUR OWN  
PERMISSION

# PERMISSIONEXAMPLEBOOM

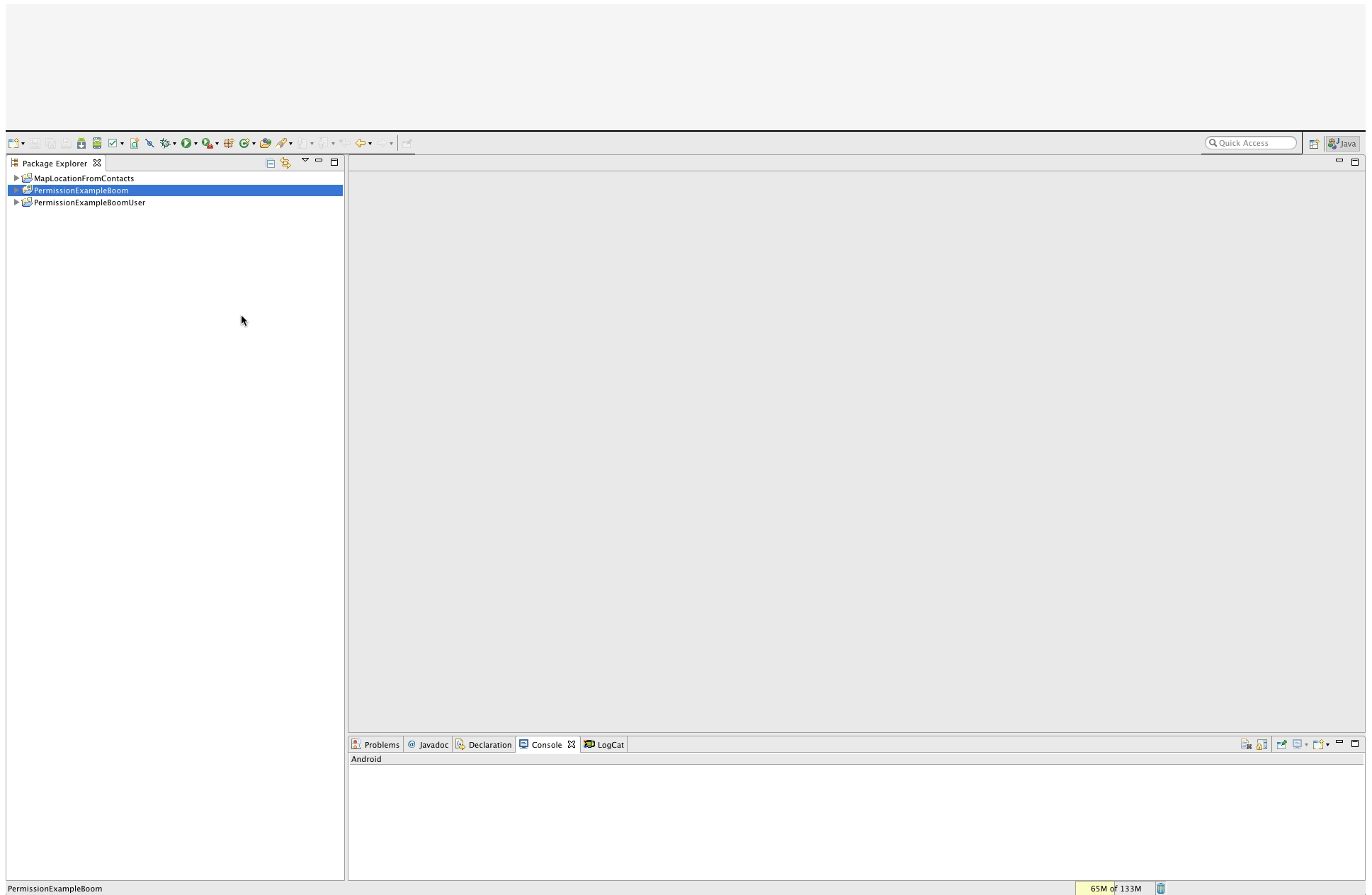
SIMPLE APPLICATION THAT PERFORMS A  
(JUST PRETEND) DANGEROUS ACTION



# DEFINE & ENFORCING PERMISSIONS

IF YOU DON'T WANT JUST ANYONE TO RUN  
PERMISSIONEXAMPLEBOOM

DEFINE & ENFORCE AN APPLICATION-SPECIFIC  
PERMISSION





# USING THE NEW PERMISSION

APPS THAT WANT TO USE  
PERMISSIONEXAMPLEBOOM MUST NOW  
ACQUIRE THE CORRECT PERMISSION

Quick Access

Java

ProblemsJavadocDeclarationConsoleLogCat

Saved Filters

All messages (no filters) (212)

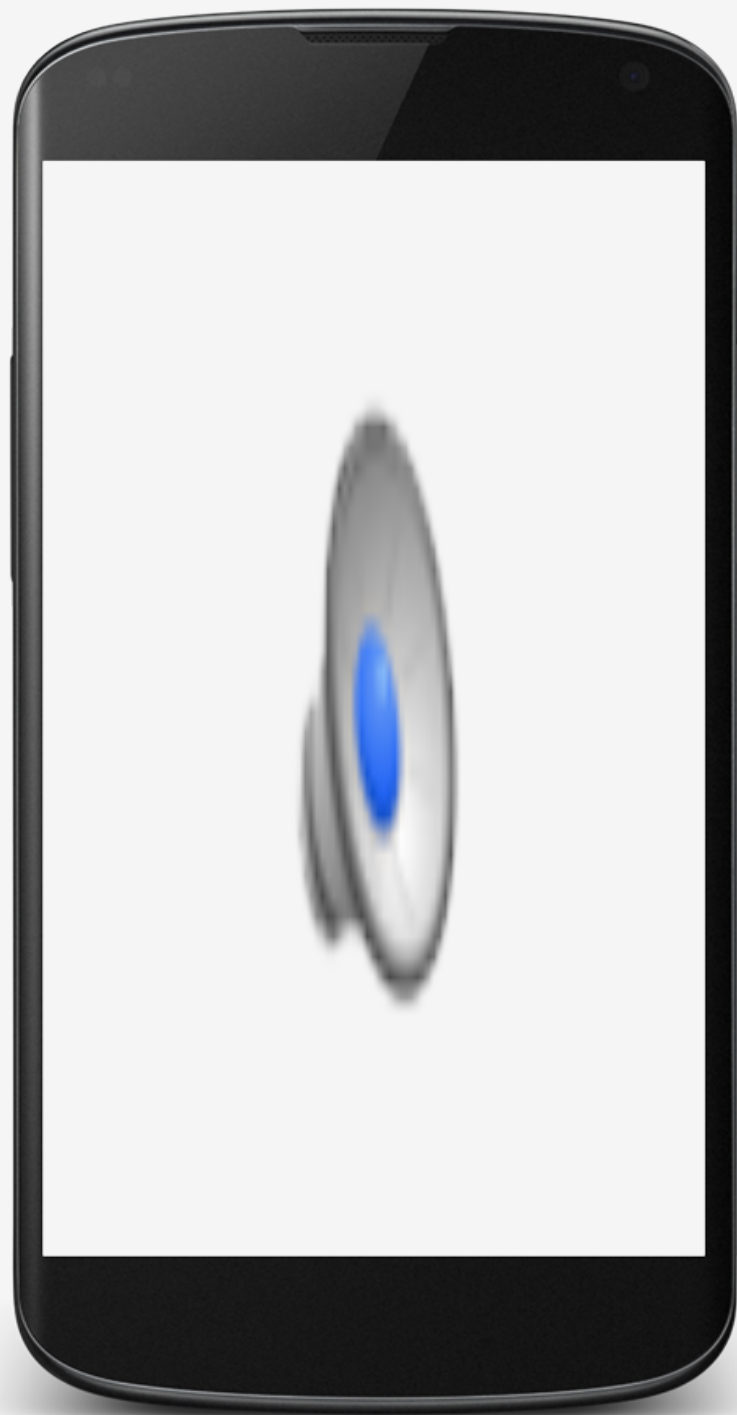
course.examples.permissionexample.boomUser (

Search for messages. Accepts Java regexes. Prefix with pid., app., tag: to limit scope.

verbose

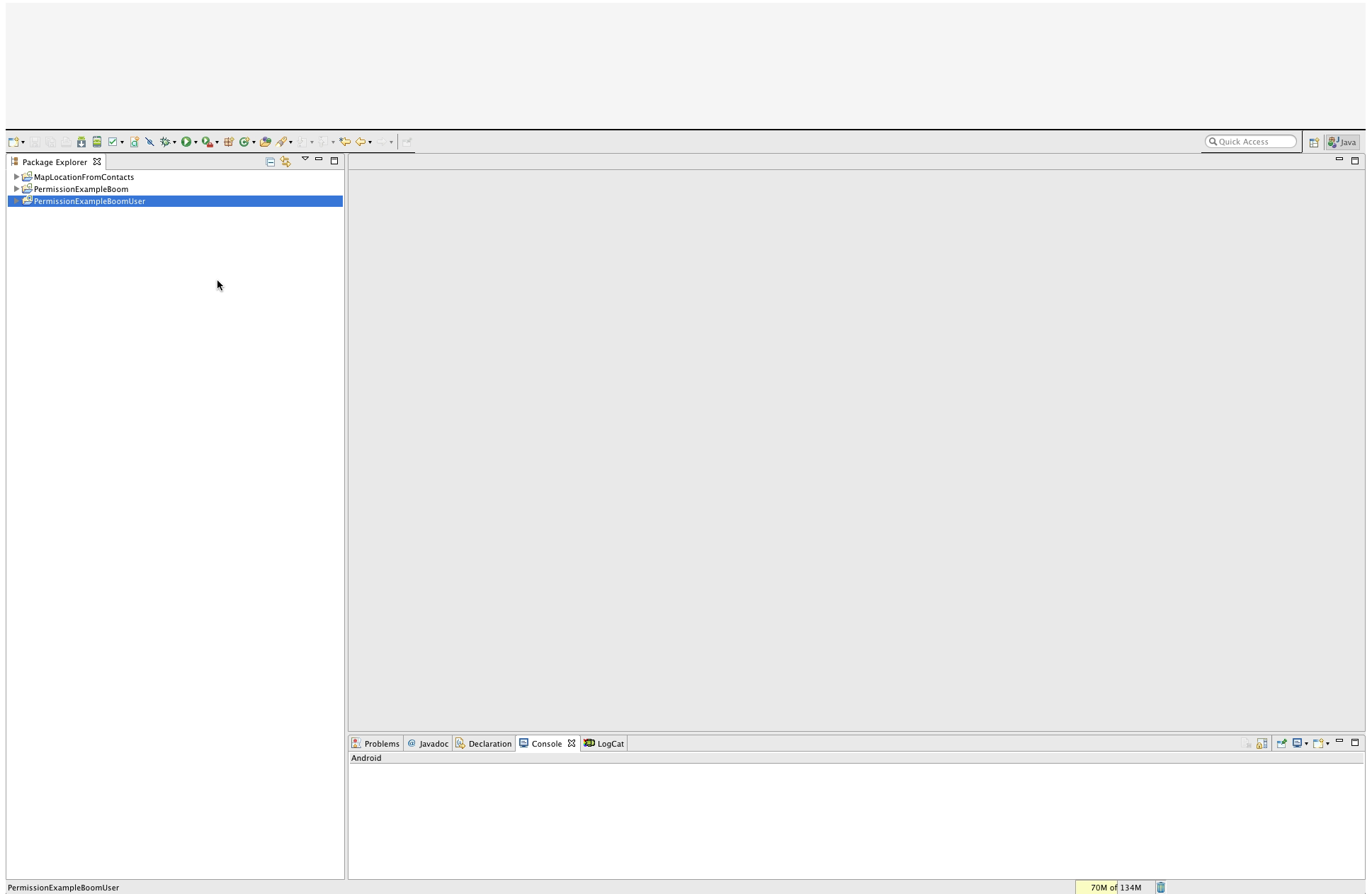
Log Time	PID	TID	Application	Tag	Text
----------	-----	-----	-------------	-----	------

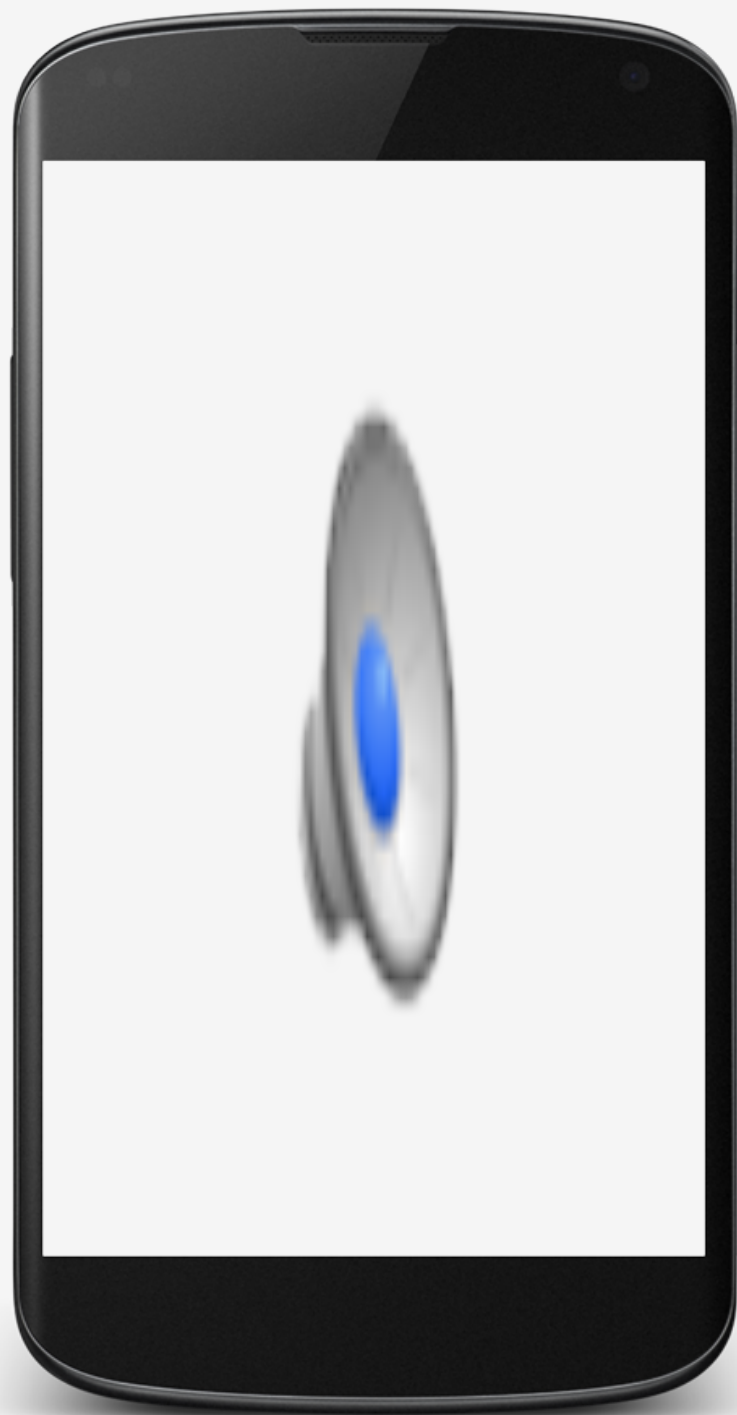
73M of 134M



# USES-PERMISSION

AN APPLICATION CAN DECLARE/ACCEPT THE PERMISSIONS OF THE APPLICATIONS IT USES





# COMPONENT PERMISSIONS

INDIVIDUAL COMPONENTS CAN SET THEIR OWN PERMISSIONS, RESTRICTING WHICH OTHER COMPONENTS CAN ACCESS THEM

COMPONENT PERMISSIONS TAKE PRECEDENCE OVER APPLICATION-LEVEL PERMISSIONS

# ACTIVITY PERMISSIONS

RESTRICTS WHICH COMPONENTS CAN START  
THE ASSOCIATED ACTIVITY

CHECKED WITHIN EXECUTION OF

`startActivity()`

`startActivityForResult()`

THROWS `SecurityException` ON  
PERMISSIONS FAILURE



# SERVICE PERMISSIONS

RESTRICTS WHICH COMPONENTS CAN START  
OR BIND TO THE ASSOCIATED SERVICE

CHECKED WITHIN EXECUTION OF

`Context.startService()`

`Context.stopService()`

`Context.bindService()`

THROWS `SecurityException` ON  
PERMISSIONS FAILURE

# BROADCASTRECEIVER PERMISSIONS

RESTRICTS WHICH COMPONENTS CAN SEND &  
RECEIVE BROADCASTS

PERMISSIONS CHECKED IN MULTIPLE PLACES

MORE ON THIS WHEN WE DISCUSS  
BROADCASTRECEIVERS

# CONTENTPROVIDER PERMISSIONS

RESTRICT WHICH COMPONENTS CAN READ &  
WRITE THE DATA IN A CONTENTPROVIDER

MORE ON THIS WHEN WE DISCUSS  
CONTENTPROVIDERS

NEXT TIME

THE FRAGMENT CLASS