Android Telephony
Android Smartphone Programming

University of Freiburg

Matthias Keil / Tim Aicher
Institute for Computer Science
Faculty of Engineering
University of Freiburg

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Outline
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Telephony
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- Package *android.telephony* provides classes to monitor basic phone information, tools to manipulate phone numbers and to work with SMS[1].
- Most important class is *TelephonyManager*[4].
- Provides access to information about telephony services of the device.
  - For example network type or call state, which indicates idle or ringing.

```
1  Context.getSystemService(Context.
       TELEPHONY_SERVICE).
```

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Telephony
Working with calls
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- Very limited access to work with calls for security reasons.
- Possibility to place a call from activity if permissions are set.
- Extend Android manifest:

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

- There are ways to interfere a bit more: Listen to phone state change to ringing and then mute phone.

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Example place a call
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- How? Create *Intent* with predefined action.

```
try {
    Intent callIntent = new Intent(Intent.
        ACTION_CALL);
    callIntent.setData(Uri.parse("tel:1234567")
        );
    startActivity(callIntent);
} catch (ActivityNotFoundException e) { ... }
```

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Example mute phone
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- Extend Android manifest:

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

- Use *AudioManager*[2] to manipulate ringer mode.
- Get instance of AudioManager:

```
AudioManager Context.getSystemService(Context
    .AUDIO_SERVICE)
```

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Example mute phone continued
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- Method to change the ringer mode used with parameters *RINGER_MODE_NORMAL*, *RINGER_MODE_SILENT* or *RINGER_MODE_VIBRATE*:

```
1  void AudioManager.setRingerMode(int
      ringerMode)
```

SMS
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- Class *SmsManager* can be used to send and receive SMS from an application[3].
- Extend Android manifest with needed permissions:
  - android.permission.SEND_SMS
  - android.permission.RECEIVE_SMS
  - android.permission.READ_SMS
  - android.permission.WRITE_SMS

```
1  <uses-permission
2  xmlns:android="http://schemas.android.com/apk
      /res/android"
3  android:name="enter permission name here">
4  </uses-permission>
```

SMS
How to use SmsManager
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- Receive reference to SmsManager

```
1  static SmsManager SmsManager.getDefault();
```

- Send message

```
1  void SmsManager.sendTextMessage(
2  String destinationAddress,
3  String srcAddress,
4  String text,
5  PendingIntent sentIntent,
6  PendingIntent deliveryIntent);
```

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Contacts
Check Phone Numbers
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- How to check if a phone number is present in the Contact List?
- Use ContactsContract.PhoneLookup

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

```
1  Uri uri = Uri.withAppendedPath(PhoneLookup.
     CONTENT_FILTER_URI, Uri.encode(
     phoneNumber));
2  Cursor cur = context.getContentResolver().
     query(uri, new String[]{PhoneLookup.
     DISPLAY_NAME, ...);
```

Summary
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- Functionality to monitor phone information included in class *TelephonyManager*.
- Application can place calls, but not much more for security reasons.
- Muting phone when phone state changes to ringing allows more interference.
- *SmsManager* allows sending of SMS.

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