Android Telephony

Android Smartphone Programming

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Outline

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Telephony

- 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.

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

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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

- 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)
```

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

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

SMS

- 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

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

SMS

How to use SmsManager

- Receive reference to SmsManager

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

- Send message

```java
void SmsManager.sendTextMessage(
String destinationAddress,
String srcAddress,
String text,
PendingIntent sentIntent,
PendingIntent deliveryIntent);
```

Contacts

Check Phone Numbers

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

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

```
Uri uri = Uri.withAppendedPath(PhoneLookup.
    CONTENT_FILTER_URI, Uri.encode(
    phoneNumber));
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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