


Android Telephony
Android Smartphone Programming

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

```
1 <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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- How? Create *Intent* with predefined action.

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



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- Extend Android manifest:

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

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

```
1 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)
```



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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>
```



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SMS

How to use *SmsManager*
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- Receive reference to *SmsManager*

```
1 static SmsManager 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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- 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, ...});
```



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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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