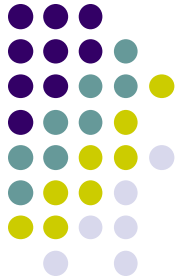
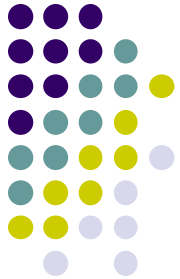
Telephony & SMS



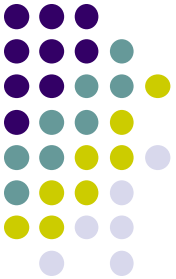
- Dialing vs. Calling
- Dialing tutorial
- Calling overview
- SMS Overview
- Built in SMS App
- SmsManager

Background and Use Cases



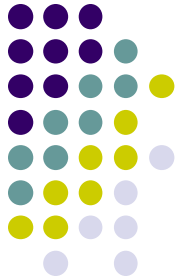
- SMS and Calls used everywhere to communicate
- Useful in social apps or business apps to communicate with individuals or organizations
- Very widespread
- Enhances communication, solves problem of user manually dialing numbers

Dialing vs. Calling



- Dial - use the phone’s native dialing app
  - Preferred technique
  - Don't need to monitor the phone's state.
  - Can change number in dialer
- Call - place call from within the app
  - Request the user's permission
  - Make a phone call from within the app
  - Ability to monitor the phone's state.
  - Enables phone calls if the phone app has been disabled in Settings.

Formatting a number

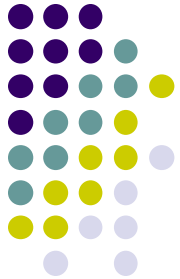


- App must prepare a Uniform Resource Identifier (URI) for the phone number
- URI - string prefixed by "tel:", tel:14155551212
- Hard-code phone number or provide an EditText field
- The PhoneNumberUtils class provides utility methods for normalizing and formatting phone number strings.
- normalizeNumber() can remove extraneous characters (dashes or parentheses)

Display

- Use a button to let the user start the call.
- When the user taps the button, the click handler initiates the call, either dialing or calling

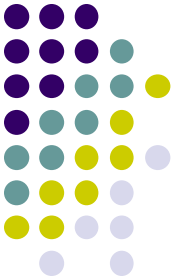
Dialing



- Call dialNumber() method upon tapping button

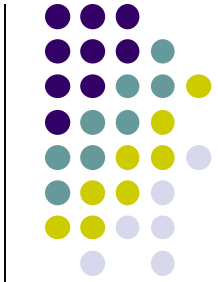
```
public void dialNumber() {
    TextView textView = (TextView) findViewById(R.id.number_to_call);
    // Use format with "tel:" and phone number to create phoneNumber.
    String phoneNumber = String.format("tel: %s",
                                       textView.getText().toString());
    // Create the intent.
    Intent dialIntent = new Intent(Intent.ACTION_DIAL);
    // Set the data for the intent as the phone number.
    dialIntent.setData(Uri.parse(phoneNumber));
    // If package resolves to an app, send intent.
    if (dialIntent.resolveActivity(getPackageManager()) != null) {
        startActivity(dialIntent);
    } else {
        Log.e(TAG, "Can't resolve app for ACTION_DIAL Intent.");
    }
}
```

Calling



- Add permissions to enable making a call
- Check if telephony is enabled; if not, disable the phone feature.
- Check if the user grants permission, request permission if needed.
- Extend PhoneStateListener, register the listener using the TelephonyManager class.
- Use an implicit intent with ACTION_CALL to make the phone call.

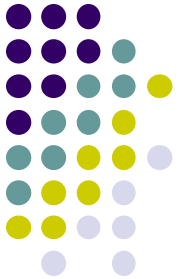
SMS



Two ways of sending a text message:

- Built-in SMS Application
- SmsManager API

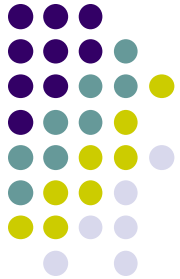
SMS Permissions



- Both methods require send-SMS permission

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

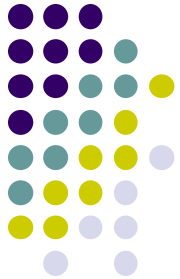
Sending SMS – Built in SMS App



To call the default SMS application from phone:

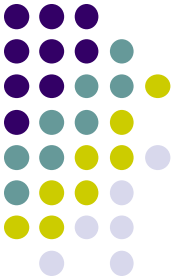
```
Intent sendIntent = new Intent(Intent.ACTION_VIEW);
sendIntent.putExtra("sms_body", "default content");
sendIntent.setType("vnd.android-dir/mms-sms");
startActivity(sendIntent);
```

Sending SMS – SmsManager Api



- Call getDefault() to get the SmsManager instance with the default subscription ID
- Call divideMessage() to make sure the message is shorter than the text message length limit
- Iterate through the array of message strings, call sendTextMessage() to send them

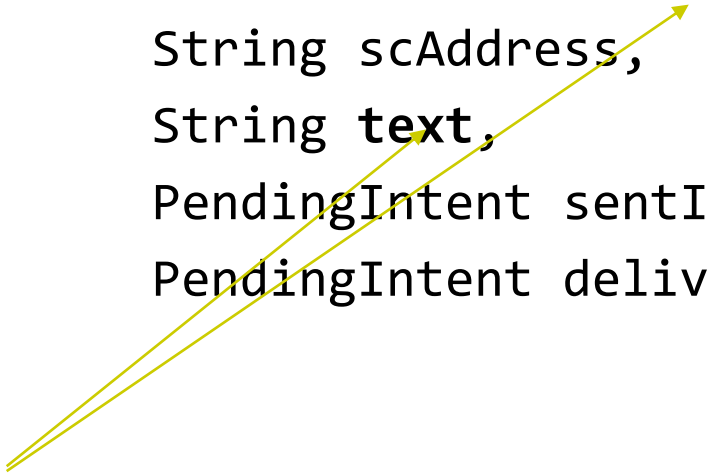
Sending SMS – SmsManager Api



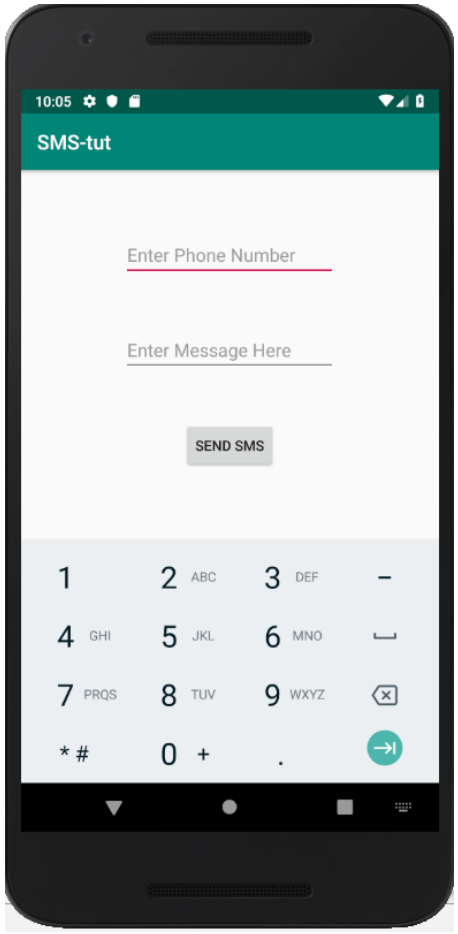
```
sendMessage.setOnClickListener(new View.OnClickListener() {
  @Override
  public void onClick(View v) {
      String msg = message.getText().toString();
      String phoneNumber = phone.getText().toString();
      if(!TextUtils.isEmpty(msg) && !TextUtils.isEmpty(phoneNumber)){
          if(checkPermission(Manifest.permission.SEND_SMS)){
              SmsManager smsManager = SmsManager.getDefault();
              smsManager.sendTextMessage(phoneNumber,null,msg,null,null);
              Toast.makeText(MainActivity.this,"Message Sent!",
   Toast.LENGTH_SHORT).show();
          }else{
              Toast.makeText(MainActivity.this,"Permission denined",
   Toast.LENGTH_SHORT).show();
          }
      }else{
          Toast.makeText(MainActivity.this,"Enter a message and a phone
   number", Toast.LENGTH_SHORT).show();
      }
  }
});
```

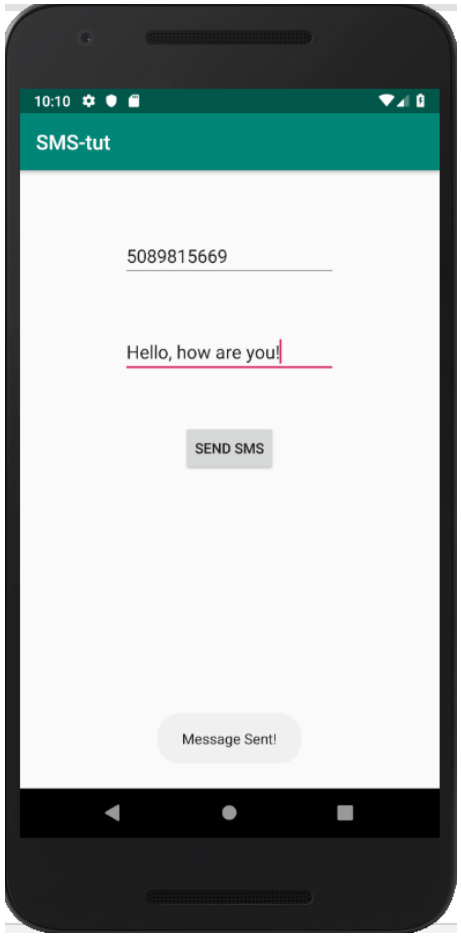
Sending SMS

```
public void sendTextMessage (
                String destinationAddress,
                String scAddress,
                String text,
                PendingIntent sentIntent,
                PendingIntent deliveryIntent)
```



The destination and text are two not-null parameter fields.
The rest fields can be null in certain scenarios.


10:05
SMS-tut
Enter Phone Number
Enter Message Here
SEND SMS


10:10
SMS-tut
5089815669
Hello, how are you!
SEND SMS
Message Sent!

References

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