Intents

Session 5

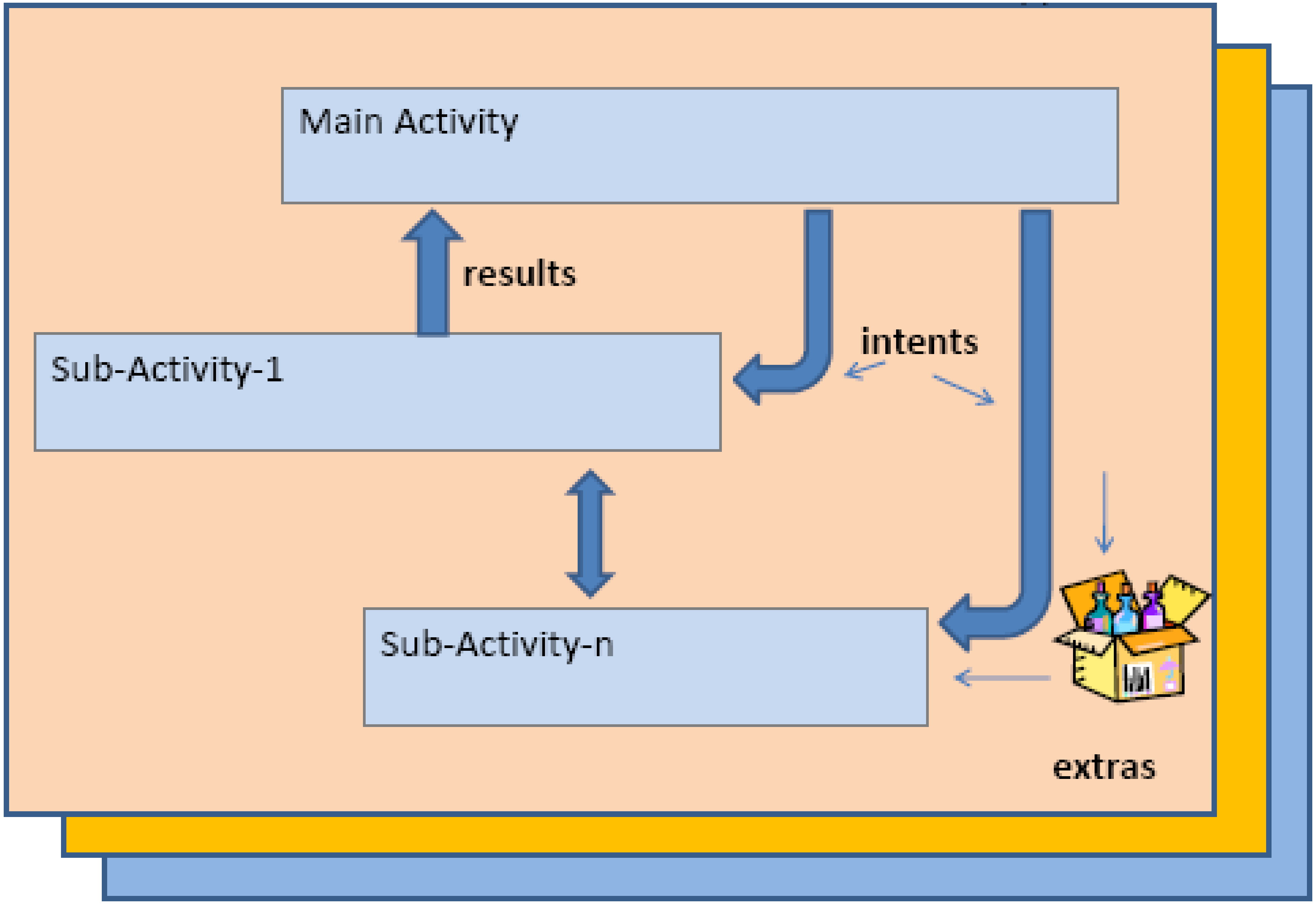
Objective

- Intents
- Main arguments of an Intent
- Action/data pairs
- Complete Example
- Examples of Using Standard Actions
- Starting Activities and Getting Results

Android Activities

- An Android application is composed of codes and resources
- Resources are separate from the source code, such as images, audio files, and so on
- Organize resources in res/ directory, using various sub-directories that group resources by type and configuration.
- There are two types of resources:
  - Default resources are those that should be used regardless of the device configuration
  - Alternative resources are those that you've designed for use with a specific configuration.

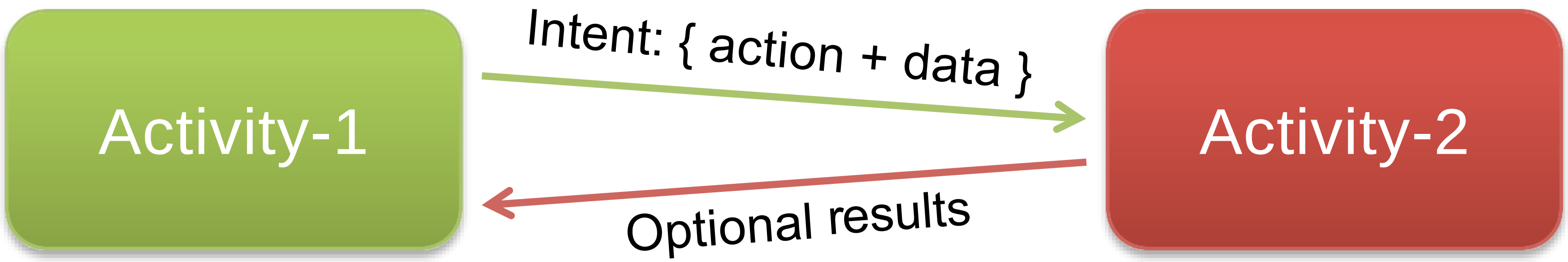
Intents


Main Activity
results
Sub-Activity-1
intents
Sub-Activity-n
extras

Intents

- Intents are invoked using the following options:
  - startActivity(intent): launches anActivity
  - sendBroadcast(intent): sends an intent to any interested Broadcast Receiver components
  - startService(intent) or bindService(intent, …): communicate with a backgroundService.
- The main arguments of an Intent are:
  - Action: The built-in action to be performed, such as ACTION_VIEW, ACTION_EDIT, ACTION_MAIN, …or user-created-activity
  - Data: The primary data to operate on, such as a phone number to be called (expressed as a Uri).

Main Arguments of an Intent



- Typically an intent is called as follows:

```
Intent myActivity = new Intent(action, data);

startActivity(myActivity);
```

Built-in or user-created activity

Primary data (as an URI)
tel://
http://
sendto://

Examples of Action / Data Pairs

- ACTION_DIALtel:123
  - Display the phone dialer with the given number filled in.
- ACTION_VIEW http://www.google.com
  - Show Google page in a browser view. Note how the VIEW action does what is considered the most reasonable thing for a particular URI.
- ACTION_EDITcontent://contacts/people/2
  - Edit information about the person whose identifier is "2".
- ACTION_VIEW content://contacts/people/2
  - Used to start an activity to display 2-nd person.
- ACTION_VIEW content://contacts/people/
  - Display a list of people, which the user can browse through. Selecting a particular person to view would result in a new intent

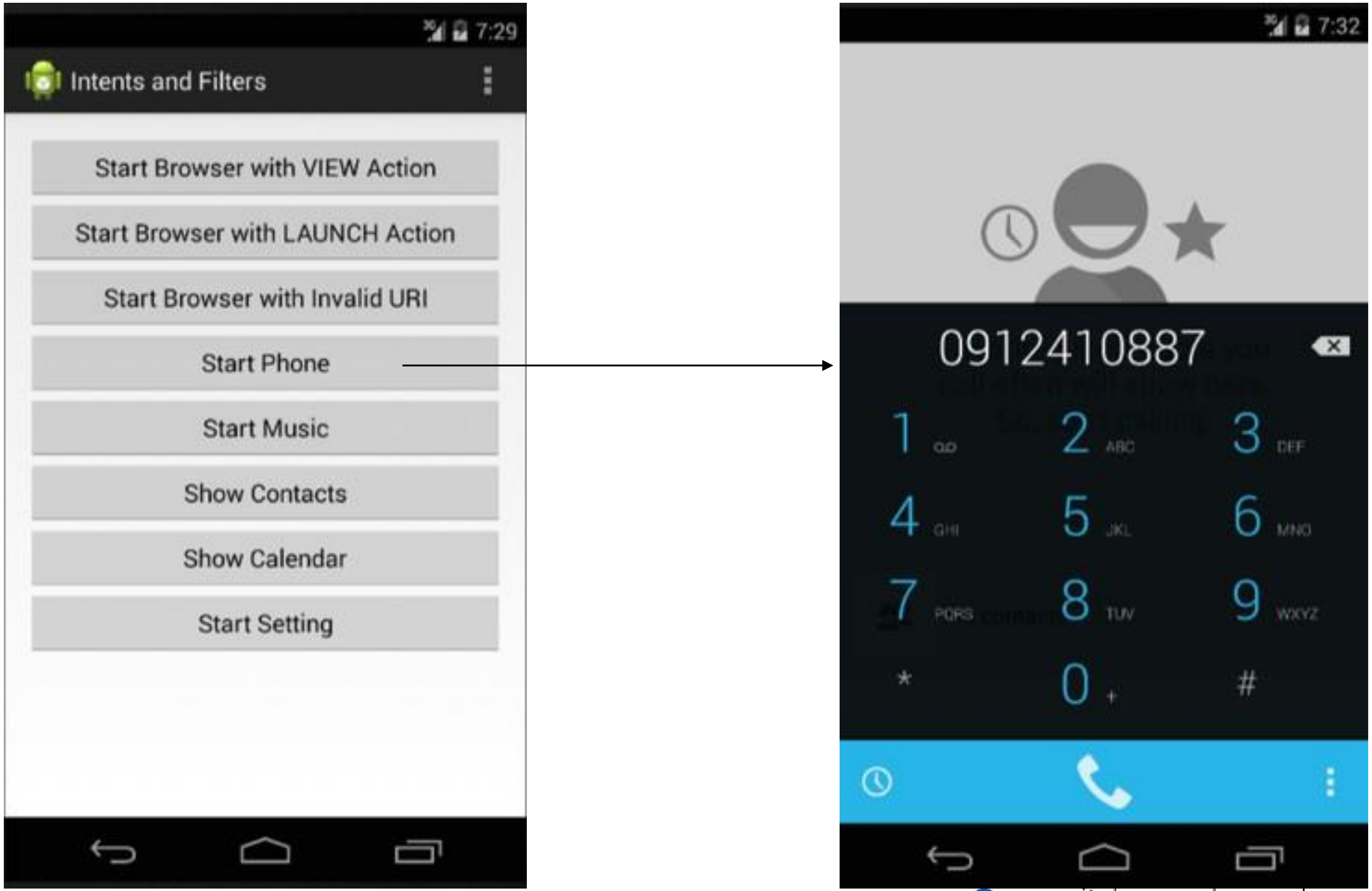
Built-in Standard Actions

ACTION_MAIN
ACTION_VIEW
ACTION_ATTACH_DATA
ACTION_EDIT
ACTION_PICK
ACTION_CHOOSER
ACTION_DIAL
ACTION_CALL
ACTION_SEND
ACTION_SENDTO

ACTION_GET_CONTENT
ACTION_ANSWER
ACTION_INSERT
ACTION_DELETE
ACTION_RUN
ACTION_SYNC
ACTION_PICK_ACTIVITY
ACTION_SEARCH
ACTION_WEB_SEARCH
ACTION_FACTORY_TEST

Complete Example

- Activity1 displays an interface to accept a phone number and requests (built-in) Activity2 to make the call.



Complete Example

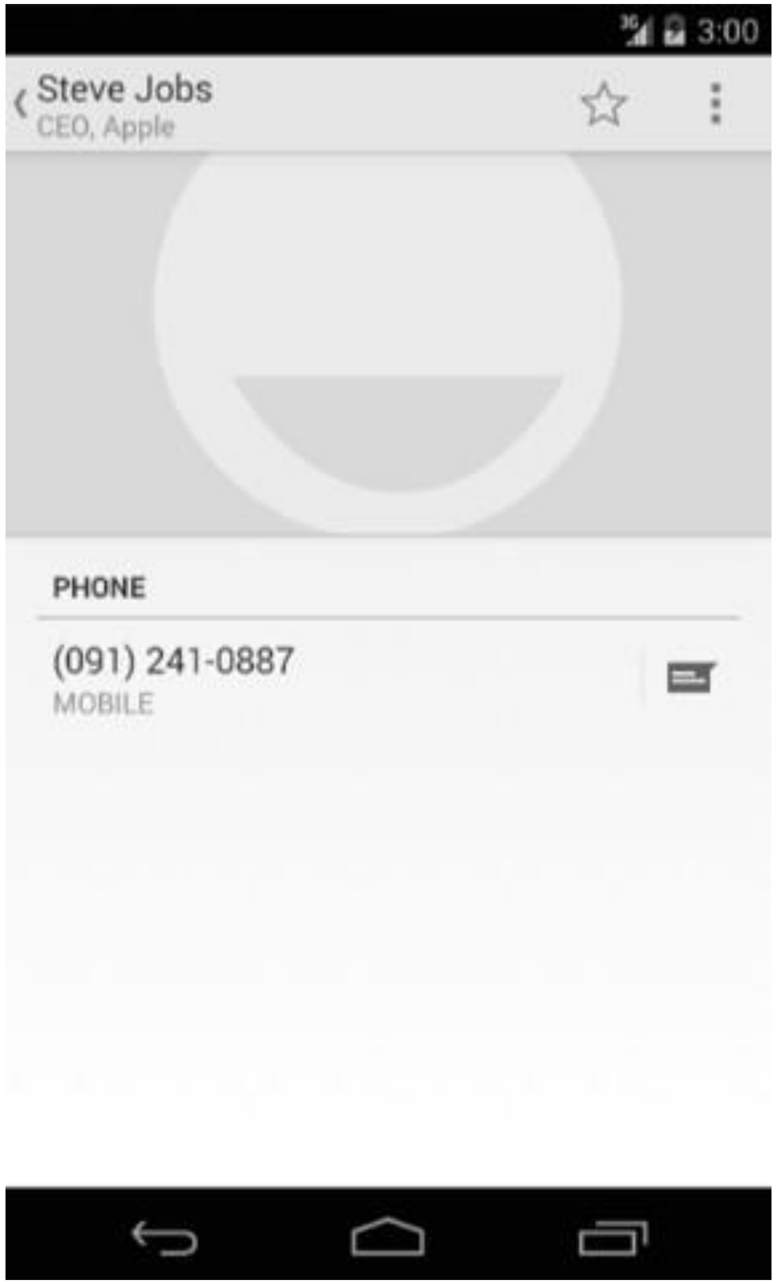
```
@Override
protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        Button startPhoneButton = (Button)findViewById(R.id.start_phone);
        startPhoneButton.setOnClickListener(new View.OnClickListener() {
              @Override
              public void onClick(View v) {
                     // TODO Auto-generated method stub
                     Intent intent = new Intent(android.content.Intent.ACTION_VIEW, Uri.parse("tel:0912410887"));
                              startActivity(intent);
                     }
              });
        }
 }
```

Using Standard Actions

- Show all your Contacts: Modify the previous example by replacing the method onClick with the following code:

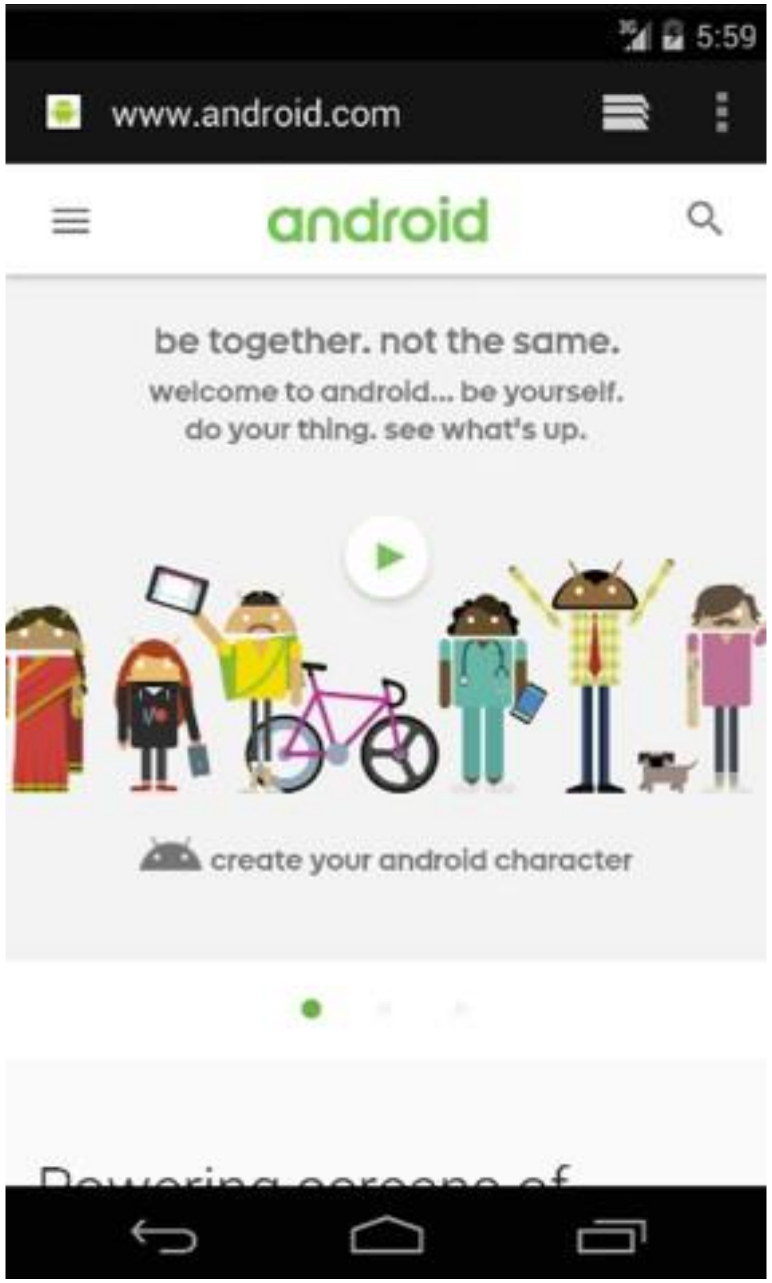
```
String myData= "content://contacts/people/";
Intent myActivity = new Intent(Intent.ACTION_VIEW, Uri.parse(myData));
startActivity(myActivity);
```



Using Standard Actions

- View your Webpage: Modify the previous example by replacing the method onClick with the following code:

```
String myData= "http://www.andorid.com";
Intent myActivity = new Intent(Intent.ACTION_EDIT,   Uri.parse(myData));
startActivity(myActivity);
```



5:59

www.android.com

android

be together. not the same.

welcome to android... be yourself.
do your thing. see what's up.

create your android character

Powering screens of

Using Standard Actions

- Geo Mapping an Address: Provide a geoCode expression holding a street address (or place, such as ‘golden gate ca’). Modify the previous example by replacing the method onClick with the following code:

```
String geoCode = "geo:0,0?q=1860+east+18th+street+cleveland+oh";
Intent intent = new Intent(Intent.ACTION_VIEW, Uri.parse(geoCode));
startActivity(intent);
```

- Modify the Manifest adding the following requests:

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

Using Standard Actions

- Geo Mapping an Address: Provide a geoCode expression holding a street address (or place, such as ‘golden gate ca’). Modify the previous example by replacing the method onClick with the following code:

```
String geoCode = "geo:41.5020952,-81.6789717";
Intent intent = new Intent(Intent.ACTION_VIEW, Uri.parse(geoCode));
startActivity(intent);
```

- Modify the Manifest adding the following requests:

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

Using Standard Actions

- Launching the Music Player:

```
Intent myActivity = new Intent("android.intent.action.MUSIC_PLAYER");
startActivity(myActivity);
```

- Playing a song stored in the SD card:

```
Intent myActivity = new Intent(android.content.Intent.ACTION_VIEW);
Uri data = Uri.parse("file:///sdcard/amarcord.mp3");
String type = "audio/mp3";
myActivity2.setDataAndType(data, type);
startActivity(myActivity);
```

Using Standard Actions

- Sending MMS: Add picture #1 from SD to MMS

```
Uri uri = Uri.parse("content://media/external/images/media/1"); Intent
myActivity = new Intent(Intent.ACTION_SEND);
myActivity.putExtra("address", "555-1234");
myActivity.putExtra("sms_body", "some text message goes here");
myActivity.putExtra(Intent.EXTRA_STREAM, uri);
myActivity.setType("image/png");
startActivity(myActivity);
```

- Sending Email:

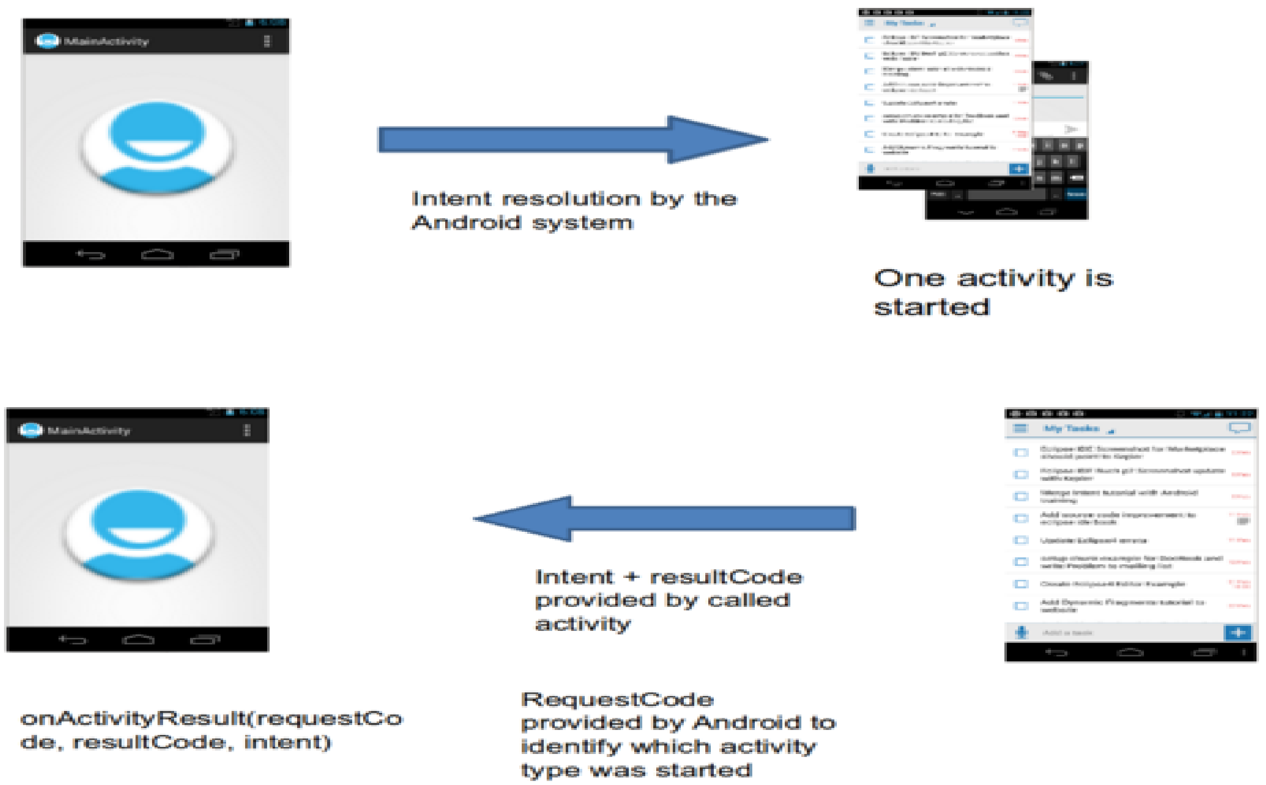
```
Uri uri = Uri.parse("mailto:v.matos@csuohio.edu");
Intent myActivity = new Intent(Intent.ACTION_SENDTO, uri);
// You may skip the next two pieces [subject/text]
myActivity.putExtra(Intent.EXTRA_SUBJECT, "subject goes here");
myActivity.putExtra(Intent.EXTRA_TEXT, "The email's body goes here");
startActivity(myActivity);
```

Starting Activities and Getting Results

- The startActivity(Intent) method is used to start a new activity, which will be placed at the top of the activity stack.

Sometimes you want to get a result back from the called sub-activity when it ends.

- For example, you may start an activity that let the user pick a person from a list of contacts; when it ends, it returns the person that was selected.



Intent resolution by the Android system

One activity is started

Intent + resultCode provided by called activity

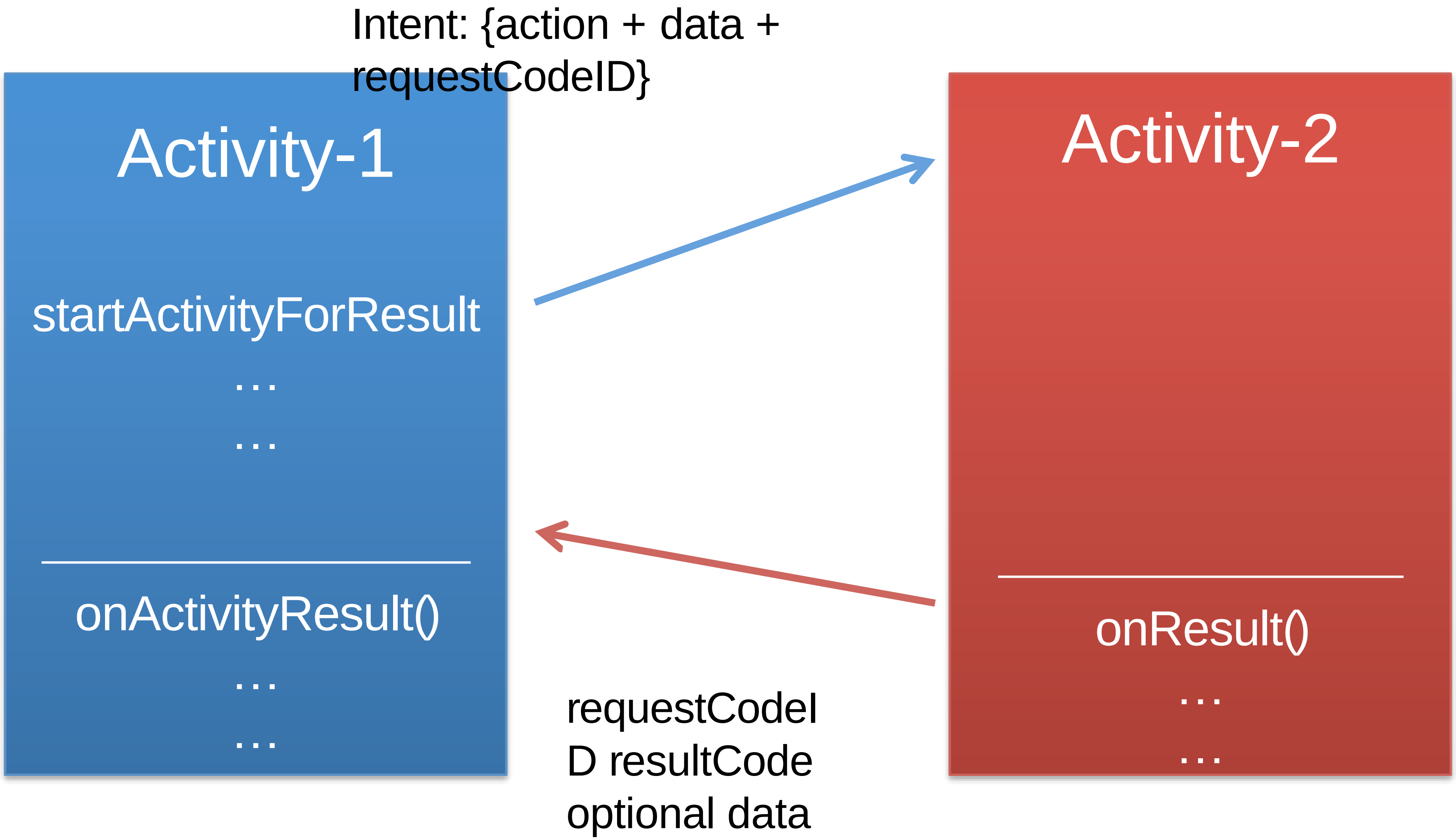
onActivityResult(requestCode, resultCode, intent)

RequestCode provided by Android to identify which activity type was started

Starting Activities and Getting Results

- Before an activity exits, it can call setResult(resultCode) to return a termination signal back to its parent.
- Always supply a result code, which can be the standard results Activity.RESULT_CANCELED, Activity.RESULT_OK, or any custom values.
- All of this information can be capture back on the parent’s onActivityResult(intrequestCodeID, intresultCode, Intent data) along with the integer identifier it originally supplied.
- If a child activity fails for any reason (such as crashing), the parent activity will receive a result with the code RESULT_CANCELED.

Starting Activities and Getting Results


Intent: {action + data + requestCodeID}
Activity-1
startActivityForResult
…
…
onActivityResult()
…
…
Activity-2
onResult()
…
…
requestCodeID resultCode optional data

Summary

- In this session, we learnt:
  - Intents
  - Main arguments of an Intent
  - Action/data pairs
  - Complete Example
  - Examples of Using Standard Actions
  - Starting Activities and Getting Results