Accelerating Information Technology Innovation

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Lesson 5 – Event Handlers

MISTI

Agenda

- EventListeners and callback methods
- Switching Activities
- Passing data between Activities

Handling events

- Listen to events using callback methods:
  - onClick()
  - onLongClick()
  - onFocusChange()
  - onKey()
  - onTouch()
  - onCreateContextMenu()

Example: Event-handling with Buttons

Method 1: Define call-backs using code

```
// Create an anonymous implementation of OnClickListener
private OnClickListener mCorkyListener = new OnClickListener() {
    public void onClick(View v) {
      // do something when the button is clicked
    }
};

protected void onCreate(Bundle savedValues) {
    ...
    // Capture our button from layout
    Button button = (Button)findViewById(R.id.corky);
    // Register the onClick listener with the implementation above
    button.setOnClickListener(mCorkyListener);
    ...
}
```

Method 2: Define call-backs in Layout XML files

```
<Button android:id="@+id/button1" android:layout_width="80px"
    android:layout_height="fill_parent" android:onClick="clickhandler"
    android:text="1">

</Button>
```

```
public void clickhandler(View clickedobject) {
    int idofclickedobject = clickedobject.getId();

    switch (idofclickedobject) {
    case R.id.button1:
        //do something
        break;
    }
}
```

Multiple Activities

- An android application consists of multiple Activity objects
- Each Activity is like one “page” of the app
- Only one activity can be the *main* activity

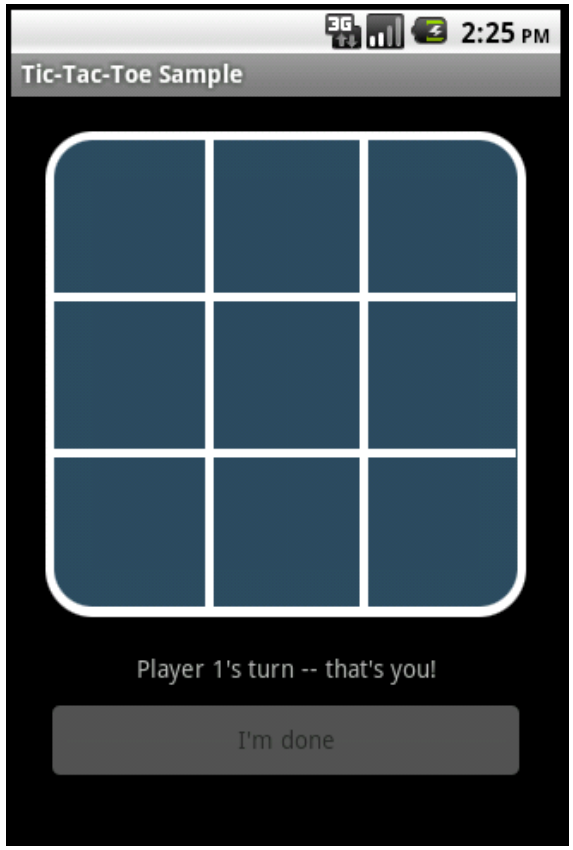
```
<application android:label="Snake on a Phone">
  <activity android:name="Snake"
    android:theme="@android:style/Theme.NoTitleBar"
    android:screenOrientation="portrait"
    android:configChanges="keyboardHidden|orientation">
        <intent-filter>
            <action android:name="android.intent.action.MAIN" />
            <category android:name="android.intent.category.LAUNCHER" />
        </intent-filter>
    </activity>

    define other activities here...

</application>
```

Multiple Activities, example:

Main Activity (first thing you see when App starts)



Second Activity (clicking on a button on the Main Activity brings user to this one)

Switching between Activities

Step 1: Define all Activities in your App in the AndroidManifest.xml file

Main Activity

Second Activity

```
<application android:name = ".MyApplication" android:icon="@drawable/icon" android:label="@string/app_name">
    <activity android:name=".OneActivity"
              android:label="@string/app_name">
        <intent-filter>
            <action android:name="android.intent.action.MAIN" />
            <category android:name="android.intent.category.LAUNCHER" />
        </intent-filter>
    </activity>

    <activity android:name=".AnotherActivity" android:label="picture capture">
    </activity>

</application>
```

Step 2: Switch from Main Activity to the activity defined in **AnotherActivity.class**, using Intent objects.

```
Intent intent = new Intent(this, AnotherActivity.class);
startActivity(intent);
```

Passing data between Activities

in your current activity, create an intent

```
Intent i = new Intent(getApplicationContext(), ActivityB.class);
i.putExtra(key, value);
startActivity(i);
```

then in the other activity, retrieve those values.

```
Bundle extras = getIntent().getExtras();
if(extras !=null) {
    String value = extras.getString(key);
}
```

Note: you can use the putExtra method to add data in key value pairs to the Intent. The key must be a String object but the value can be any of the following: integer, integer[], float, float[], double, double[], String, String[], etc…

Then, you fetch that data in the second activity using the .getExtras().getString(key) approach.

Other ways to exchange data between Activities

- Intent approach is best for *primitive* data types that don't need to last forever (i.e. they are *not persistent*)
- For *primitive* types that need to last forever (i.e. *persistent* objects), use Preferences
- For *non-primitive* types that are *not persistent*:
  - Public Static Fields
  - Maintain global application state in the Application class (all Activity objects have access to this).
- For non-primitive types that are *persistent*:
  - Use ContentProvider, SQL Database on the phone, Files, etc.