Week 4 Lecture

Intents, Multiple Activities
Menus, Dialogs
& Shared Preferences

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Project Demo

What are we building this week?

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Using Multiple Activities

How to create, and navigate to, additional Activities?

03

Displaying Menus & Dialogs

How to add menus and display dialogs for user interaction?

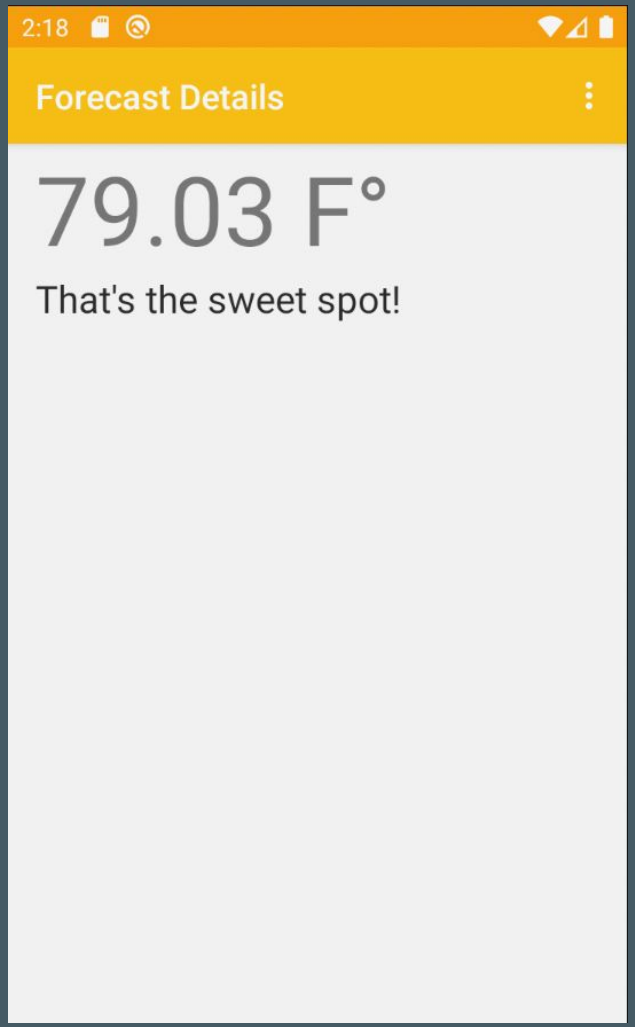
04

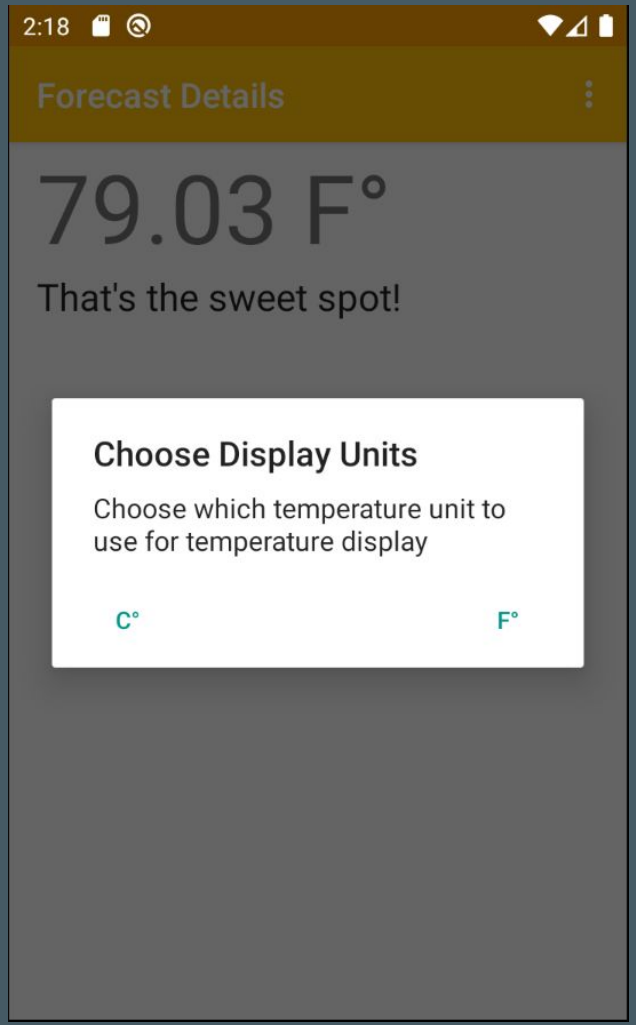
Saving Data With SharedPreferences

How to use SharedPreferences to store simple data?

Project Demo

What are we building this week?


2:18
Forecast Details
79.03 F°
That's the sweet spot!


2:18
Forecast Details
79.03 F°
That's the sweet spot!
Choose Display Units
Choose which temperature unit to use for temperature display
C°
F°

Week 4 Project Updates

- Create a ForecastDetailsActivity
- Pass clicked forecast data to ForecastDetailsActivity and dislpay it
- Create a menu with a single item to control our temp display units
- Show an AlertDialog when settings item is clicked to select display setting
- Update UI formatting based on selected setting

Using Multiple Activities

How to create, and navigate to, additional Activities?

How do we navigate to a new screen?

How do we navigate to a new screen?

- Create a new Activity class
- Declare the new Activity in our AndroidManifest.xml
- Navigate to the new Activity using an Intent

Create a new Activity class

NewActivity.kt

```
class NewActivity : Activity {
    ...

}
```

Declare new Activity in AndroidManifest.xml

AndroidManifest.xml

```
<manifest ... >

  <activity android:name=" .NewActivity" />

</manifest>
```

Navigate to new Activity using an Intent

MainActivity.kt

```
enterButton.setOnClickHandler {

  val intent = Intent(this, NewActivity::class.java)
  startActivity(intent)

}
```

What is an Intent?

What is an Intent?

- Communicates to the system that some action should be carried out
- Start an Activity, send message to a BroadcastReciver, send a tweet or an email, make a phone call
- Primarily includes an ACTION and DATA

What is an Intent?

- ACTION_VIEW -> content://contacts/people/1
- ACTION_DIAL -> content://contacts/people/1
- ACTION_SEND -> EXTRA_EMAIL, EXTRA_SUBJECT

Implicit vs Explicit Intents

Choosing a generic actions vs specifying a specific app component

Implicit vs Explicit Intents

- Implicit intents describe an action like ACTION_SEND for sending an email
  - Implicit intents can be handled by an component in the system registered to handle that intent type
- Explicit intents describe a specific app component to interact with
  - Can open a specific Activity using an explicit intent

Intent Filters

AndroidManifest.xml

```
<!-- Intent filter for launcher Activity -->
<intent-filter>
     <action android:name="android.intent.action.MAIN" />
     <category android:name="android.intent.category.LAUNCHER" />
</intent-filter>
```

Intent Filters

AndroidManifest.xml

```
<!-- Intent filter for possible email app -->
 <intent-filter>

   <action android:name="android.intent.action.VIEW"/>

   <action android:name="android.intent.action.SENDTO"/>

   <data android:scheme="mailto"/>

 </intent-filter>
```

Passing Data With Intents

MainActivity.kt

```
// Pass student ID and student name with Intent so it can be used
// by NewActivity when it's started
//
val intent = Intent(this, NewActivity::class.java)
intent.putExtra("key_id", "student616")
intent.putExtra("key_name", "Peter Parker")
startActivity(intent)
```

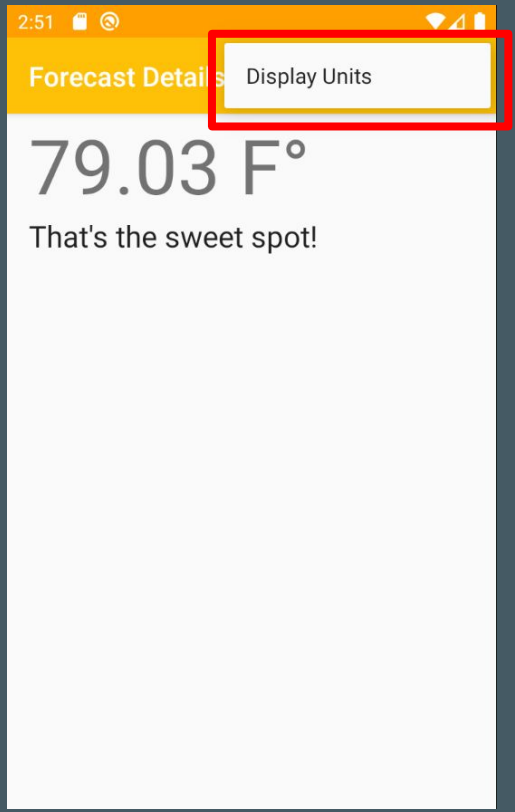
Displaying Menus & Dialogs

How to add menus and display dialogs for user interaction?

How can we display a menu?

How To Display A Menu?

- Define a menu resource
- Add individual menu items to the menu
- Add text & icons to each menu item
- Respond to item clicks



Create A Menu Resource

res/menu/settings_menu.xml

```
<?xml version="1.0" encoding="utf-8"?>
<menu xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:android="http://schemas.android.com/apk/res/android">
    <item
        android:id="@+id/tempDisplaySetting"
        android:title="Display Units" />
</menu>
```

Create A Menu Resource

MainActivity.kt

```
override fun onCreateOptionsMenu(menu: Menu?): Boolean {
    val inflater: MenuInflater = menuInflater
    inflater.inflate(R.menu.settings_menu, menu)
    return true
}
```

Create A Menu Resource

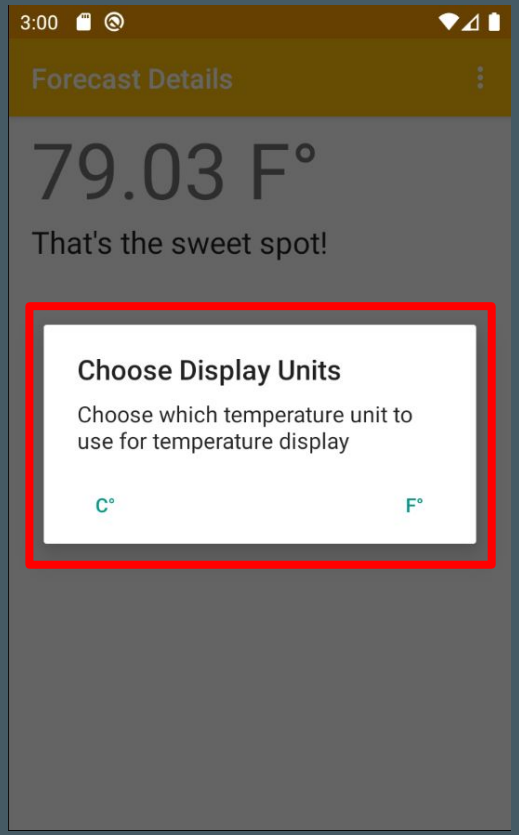
MainActivity.kt

```
override fun onOptionsItemSelected(item: MenuItem): Boolean {
    return when (item.itemId) {
        R.id.tempDisplaySetting -> {
            // Respond to item click
            true
        }
        else -> super.onOptionsItemSelected(item)
    }
}
```

How to display a dialog?

How To Display A Dialog?

- Create and show an AlertDialog
- Use AlertDialog.Builder to customize the dialog
- Update title, message, and buttons
- Respond to button clicks and dialog dismissal



Show An AlertDialog

MainActivity.kt

```
// Build/customize the dialog
val dialogBuilder = AlertDialog.Builder(this)
    .setTitle("Choose Display Units")
    .setMessage("Choose which temperature unit to display")
    .setPositiveButton("F°") { _, _ -> }
    .setNeutralButton("C°") { _,_ -> }

// Show the dialog
dialogBuilder.show()
```

Saving Data With SharedPreferences

How to use SharedPreferences to save simple data?

How to store persistent data in our app?

How To Store Persistent Data?

- Database
- Files
- SharedPreferences

Database

- Store large, complex data sets
- Supports complex queries, paging, reactive updates
- Go to option for caching network data

Files

- Images, vides, maps, books, audio, etc
- Can be used for custom storage of other data types like settings or network responses

SharedPreferences

- Default solution for saving simple data
- Works off of key/value pairs
- Great for simple, local users settings
- Saved to disk under the hood

Working With SharedPreferences

MainActivity.kt

```
val preferences =
context.getSharedPreferences("settings", Context.MODE_PRIVATE)

// Save a key/value pair to SharedPreferences
preferences.edit().putString("key_temp_display", setting.name).commit()

// Retrieve a key/value pair from SharedPreferences
val settingValue = preferences.getString("key_temp_display", default)
```

Demo

Check Canvas For Additional Resources & Assignments