

Assignment 02

COS30017 - Software Development for Mobile Devices

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September 11, 2014

1. Task 1

1.1. Three activities

Activities are connected using intents. Intents allow new activities to be launched on events that occur in the main activity. Furthermore, data can be passed between the activities if necessary to give the activity context. The main activity in this app, *MainActivity.java* uses intents to launch the other two activities, *HeightActivity.java* and *TempActivity.java*. If the user presses the back button in one of the second two activities they will return to the *MainActivity.java*

```
@Click(R.id.temp_convert_button)
void tempConvertButton(){
    Intent tempConvertIntent = new Intent(this, TempActivity_.class);
    startActivity(tempConvertIntent);
}

@click(R.id.height_convert_button)
void heightConvertButton() {
    Intent heightConvertIntent = new Intent(this, HeightActivity_.class);
    startActivity(heightConvertIntent);
}
```

When one of the form-based activity's orientation changes, the *onSaveInstanceState* event is called. By overriding that method, the form data can be saved and then retrieved after the activity is recreated by overriding *onRestoreInstanceState* and restoring that data to the correct views in the activity.

```
/**
 * Save the instance data so that it can be retained
 * after the orientation has changed.
```

```
    * @param savedInstanceState
    */
    @Override
    public void onSaveInstanceState(Bundle savedInstanceState) {
        savedInstanceState.putString(STATE_RESULT, result.getText().toString());

        super.onSaveInstanceState(savedInstanceState);
    }

    /**
     * Restore the data from before orientation change
     * @param savedInstanceState
     */
    @Override
    public void onRestoreInstanceState(Bundle savedInstanceState) {
        super.onRestoreInstanceState(savedInstanceState);

        result.setText(savedInstanceState.getString(STATE_RESULT));
    }
}
```

1.2. Layouts

1.2.1. activity_main.xml

```
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:paddingLeft="@dimen/activity_horizontal_margin"
    android:paddingRight="@dimen/activity_horizontal_margin"
    android:paddingTop="@dimen/activity_vertical_margin"
    android:paddingBottom="@dimen/activity_vertical_margin"
    tools:context=".MainActivity">

    <TextView
        android:id="@+id/instruction_text"
        android:text="@string/main_instruction"
        android:textSize="@dimen/text_normal"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content" />

    <Button
        android:id="@+id/temp_convert_button"
```

```
        android:text="@string/convert_temp"
        android:layout_width="fill_parent"
        android:layout_height="wrap_content"
        android:layout_below="@id/instruction_text" />

<Button
    android:id="@+id/height_convert_button"
    android:text="@string/convert_height"
    android:layout_width="fill_parent"
    android:layout_height="wrap_content"
    android:layout_below="@id/temp_convert_button" />

</RelativeLayout>
```

1.2.2. activity_height.xml

```
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:paddingLeft="@dimen/activity_horizontal_margin"
    android:paddingRight="@dimen/activity_horizontal_margin"
    android:paddingTop="@dimen/activity_vertical_margin"
    android:paddingBottom="@dimen/activity_vertical_margin"
    tools:context=".ConvertActivity">

    <TextView
        android:id="@+id/title"
        android:text="@string/title_height"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:textSize="@dimen/title_font_size"/>

    <TextView
        android:id="@+id/instructions"
        android:text="@string/instructions"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/title"
        android:layout_marginTop="@dimen/text_top_margin"/>

    <TextView
        android:id="@+id/feet_label"
```

```
        android:layout_width="fill_parent"
        android:layout_height="wrap_content"
        android:text="@string/feet"
        android:textSize="@dimen/label_size"
        android:layout_below="@id/instructions"
        android:layout_marginTop="@dimen/text_top_margin"/>
<EditText
    android:inputType="number"
    android:id="@+id/feet"
    android:layout_below="@id/feet_label"
    android:layout_width="fill_parent"
    android:layout_height="@dimen/text_input_height"
    android:gravity="center"/>

<TextView
    android:id="@+id/inches_label"
    android:layout_width="fill_parent"
    android:layout_height="wrap_content"
    android:text="@string/inches"
    android:textSize="@dimen/label_size"
    android:layout_below="@id/feet"
    android:layout_marginTop="@dimen/text_top_margin"/>

<EditText
    android:id="@+id/inches"
    android:inputType="number"
    android:layout_below="@id/inches_label"
    android:layout_width="fill_parent"
    android:layout_height="@dimen/text_input_height"
    android:gravity="center"/>

<CheckBox
    android:id="@+id/meters_checkbox"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_below="@id/inches"/>

<TextView
    android:id="@+id/checkbox_description"
    android:layout_width="fill_parent"
    android:layout_height="@dimen/text_height"
    android:text="@string/metres"
    android:layout_toRightOf="@id/meters_checkbox"
    android:layout_below="@id/inches"
```

```
        android:gravity="center_vertical"/>

<Button
    android:id="@+id/convert_button"
    android:layout_width="fill_parent"
    android:layout_height="wrap_content"
    android:layout_below="@id/meters_checkbox"
    android:text="@string/convert"
    android:layout_marginTop="@dimen/text_top_margin"/>

<TextView
    android:id="@+id/result"
    android:layout_width="fill_parent"
    android:layout_height="fill_parent"
    android:layout_below="@id/convert_button"
    android:textSize="@dimen/result_text_size"
    android:gravity="center"/>
</RelativeLayout>
```

1.2.3. activity_temp.xml

```
<?xml version="1.0" encoding="utf-8"?>

<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:paddingLeft="@dimen/activity_horizontal_margin"
    android:paddingRight="@dimen/activity_horizontal_margin"
    android:paddingTop="@dimen/activity_vertical_margin"
    android:paddingBottom="@dimen/activity_vertical_margin">

    <TextView
        android:id="@+id/title"
        android:text="@string/title_temp"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:textSize="@dimen/title_font_size"/>

    <TextView
        android:id="@+id/instructions"
        android:text="@string/instructions_temp"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
```

```
        android:layout_below="@+id/title"
        android:layout_marginTop="@dimen/text_top_margin"/>

<TextView
    android:id="@+id/fahr_label"
    android:layout_width="fill_parent"
    android:layout_height="wrap_content"
    android:text="@string/fahrenheit"
    android:textSize="@dimen/label_size"
    android:layout_below="@id/instructions"
    android:layout_marginTop="@dimen/text_top_margin"/>

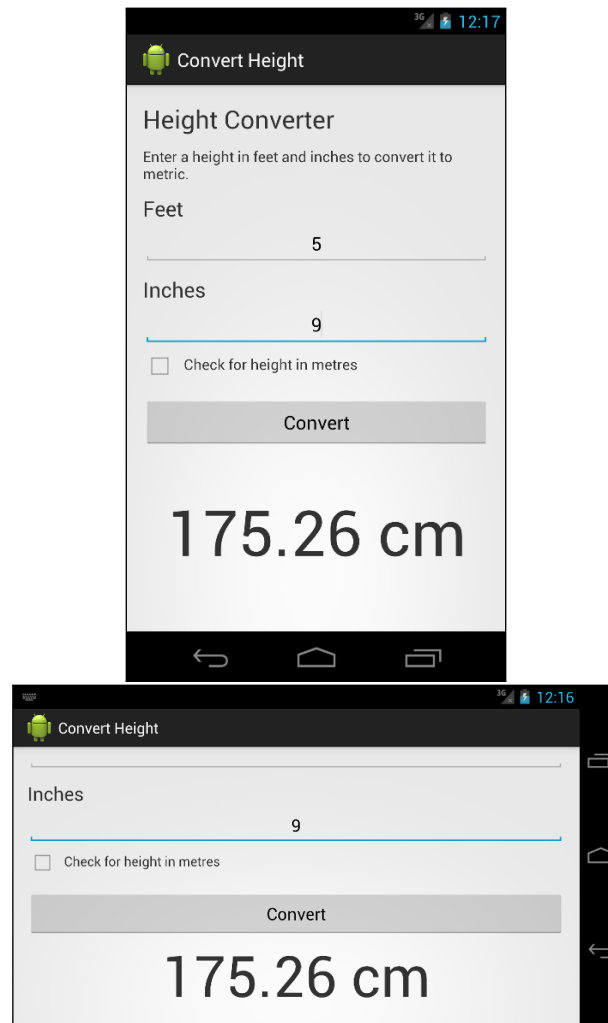
<EditText
    android:inputType="number"
    android:id="@+id/fahr"
    android:layout_below="@id/fahr_label"
    android:layout_width="fill_parent"
    android:layout_height="@dimen/text_input_height"
    android:gravity="center"/>

<Button
    android:id="@+id/convert_button"
    android:layout_width="fill_parent"
    android:layout_height="wrap_content"
    android:layout_below="@id/fahr"
    android:text="@string/convert"
    android:layout_marginTop="@dimen/text_top_margin"/>

<TextView
    android:id="@+id/result_temp"
    android:layout_width="fill_parent"
    android:layout_height="fill_parent"
    android:layout_below="@id/convert_button"
    android:textSize="@dimen/result_text_size"
    android:gravity="center"/>
</RelativeLayout>
```

1.3. Screenshots

The following two screenshots show how the orientation change doesn't cause the data in the activity to disappear, due to it being passed in the state change bundle and then restored to the activity when it is recreated.



1.4. Task 2