Assignment 02

COS30017 - Software Development for Mobile Devices

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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 activites, *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.
```

```java
     * @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

```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"
```

```xml
        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

```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"
```

```xml
    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"
```

```xml
            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
<?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"
```

```xml
        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>
```
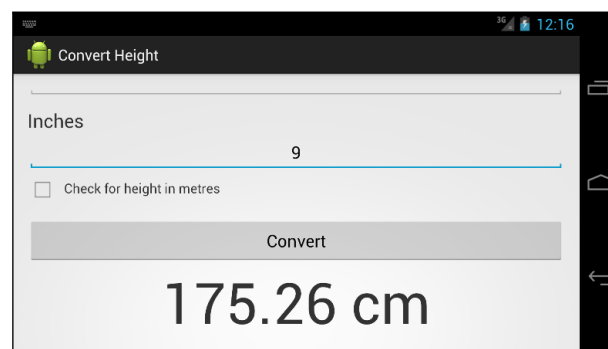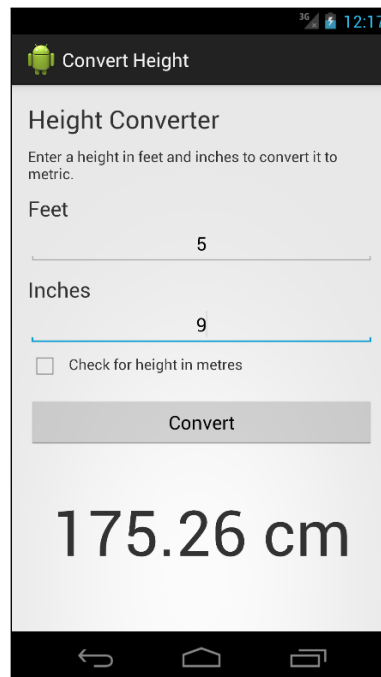
1.3. Screenshots

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

In this app, the image and description resource IDs are passed through the intent to the recieving Activity which then sets the resource using those IDs.

1.5. ImageGallery.java

```java
/**
 * Create intent for lasagna press.
 */
@Click(R.id.lasagna_image)
void lasangaImage() {
```

```java
    Intent imageIntent = new Intent(this, ImageActivity_.class);
    imageIntent.putExtra("image_name", R.drawable.lasagna);
    imageIntent.putExtra("desc", R.string.lasagna);
    startActivity(imageIntent);
}


/**
 * Create intent for pasta press.
 */
@Click(R.id.pasta_image)
void pastaImage() {
    Intent imageIntent = new Intent(this, ImageActivity_.class);
    imageIntent.putExtra("image_name", R.drawable.pasta);
    imageIntent.putExtra("desc", R.string.pasta);
    startActivity(imageIntent);
}


/**
 * Create intent for porridge press.
 */
@Click(R.id.porridge_image)
void porridgeImage() {
    Intent imageIntent = new Intent(this, ImageActivity_.class);
    imageIntent.putExtra("image_name", R.drawable.porridge);
    imageIntent.putExtra("desc", R.string.porridge);
    startActivity(imageIntent);
}


/**
 * Create intent for sardines press.
 */
@Click(R.id.sardines_image)
void sardinesImage() {
    Intent imageIntent = new Intent(this, ImageActivity_.class);
    imageIntent.putExtra("image_name", R.drawable.sardines);
    imageIntent.putExtra("desc", R.string.sardines);
    startActivity(imageIntent);
}
```

1.6. ImageActivity.java

```java
/**
 * Set the image and description passed in the intent to show on the screen.
```

```java
 */
@AfterViews
public void showImage() {
    Intent intent = getIntent();
    imageContainer.setImageResource(intent.getIntExtra("image_name", 0));
    description.setText(intent.getIntExtra("desc", 0));
}
```

1.7. Layouts

1.7.1. activity_image_gallery.xml

```xml
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="fill_parent"
    android:layout_height="fill_parent"
    android:padding="5dp"
    tools:context=".ImageGallery">

    <TableLayout
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:stretchColumns="*">
        <TableRow
            android:paddingBottom="20dp">
            <ImageView
                android:id="@+id/lasagna_image"
                android:src="@drawable/lasagna"
                android:scaleType="center"
                android:layout_weight="1"/>
            <ImageView
                android:id="@+id/pasta_image"
                android:src="@drawable/pasta"
                android:scaleType="center"
                android:layout_weight="1"/>
        </TableRow>

        <TableRow>
            <ImageView
                android:id="@+id/porridge_image"
                android:src="@drawable/porridge"
                android:scaleType="center"
                android:layout_weight="1"/>
```

```xml
        <ImageView
            android:id="@+id/sardines_image"
            android:src="@drawable/sardines"
            android:scaleType="center"
            android:layout_weight="1"/>
      </TableRow>
    </TableLayout>
</LinearLayout>
```
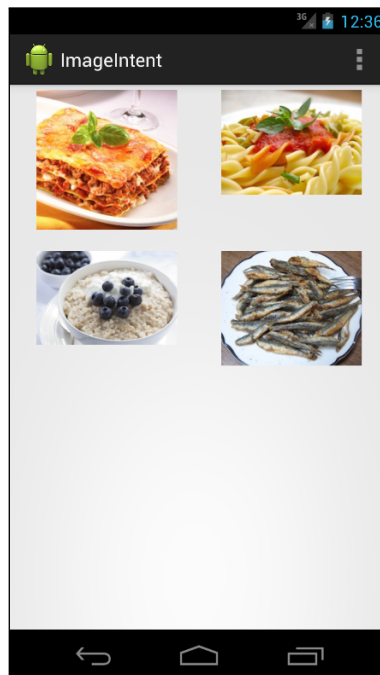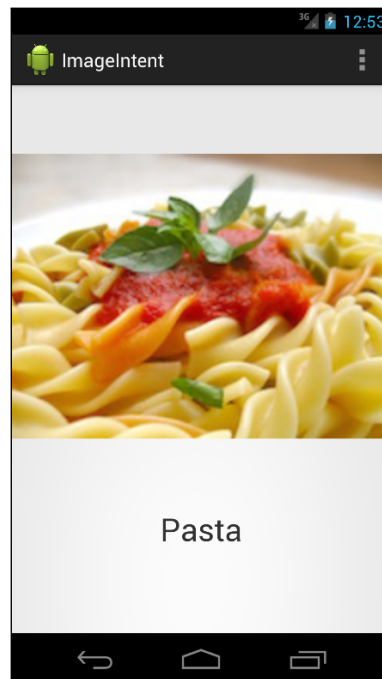
1.7.2. activity_image.xml

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

<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:orientation="vertical" android:layout_width="match_parent"
    android:layout_height="match_parent">
    <ImageView
        android:id="@+id/image_container"
        android:layout_width="fill_parent"
        android:layout_height="400dp"/>

    <TextView
        android:id="@+id/description"
        android:layout_width="fill_parent"
        android:layout_height="wrap_content"
        android:gravity="center"
        android:textSize="30sp"/>
</LinearLayout>
```

1.8. Screenshots

2. Task 3