

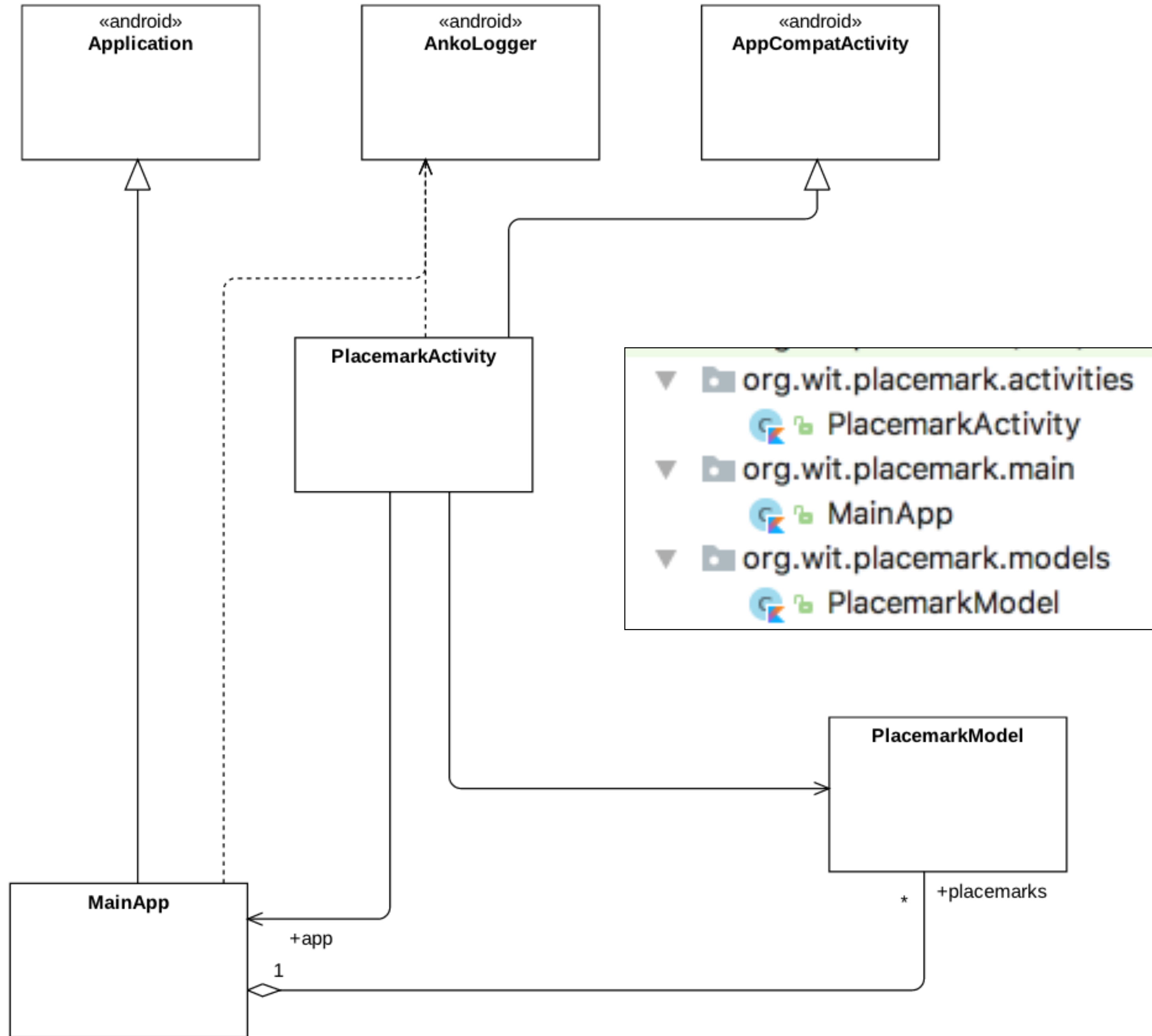
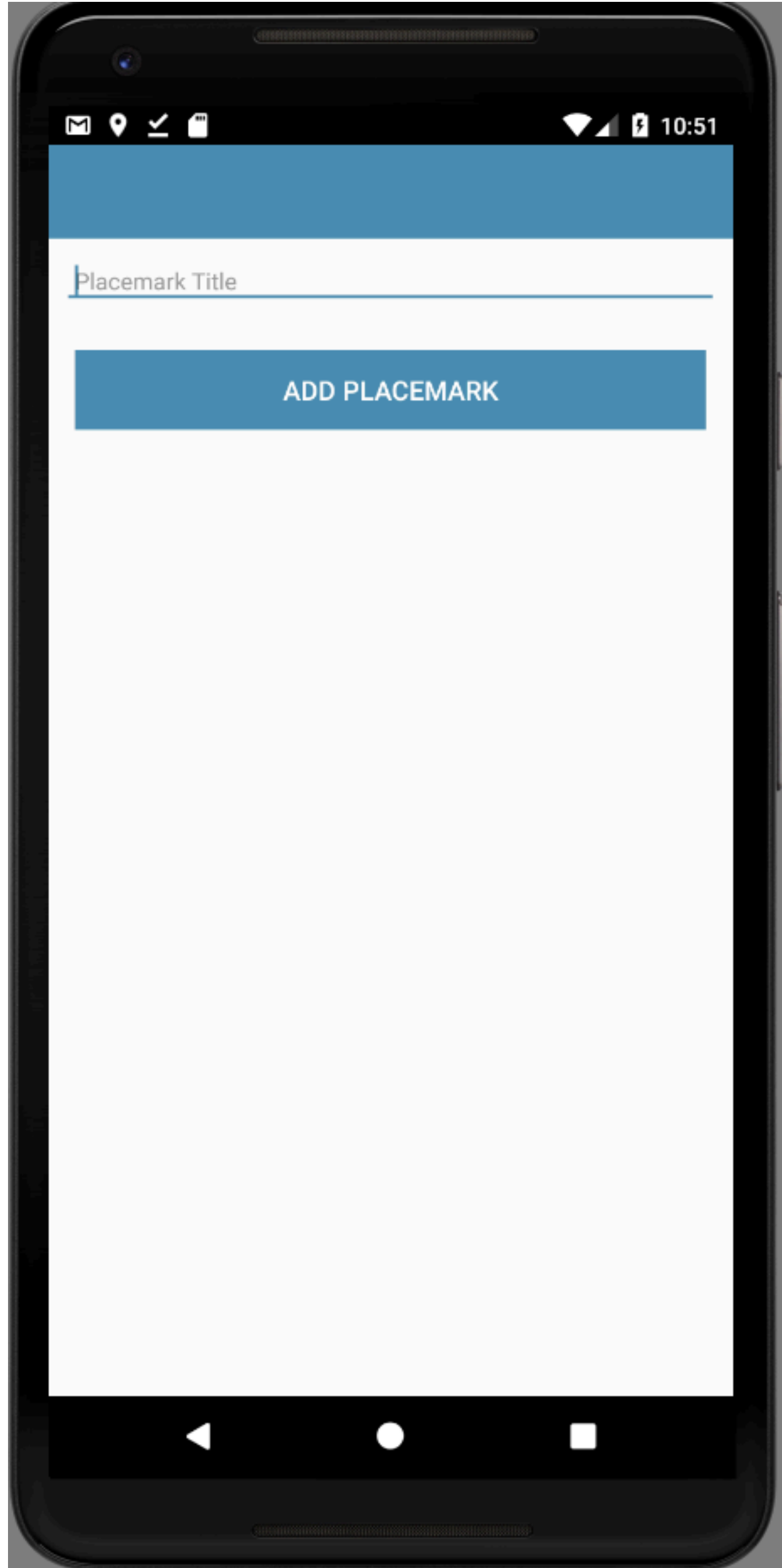
# RecyclerView + Adapters

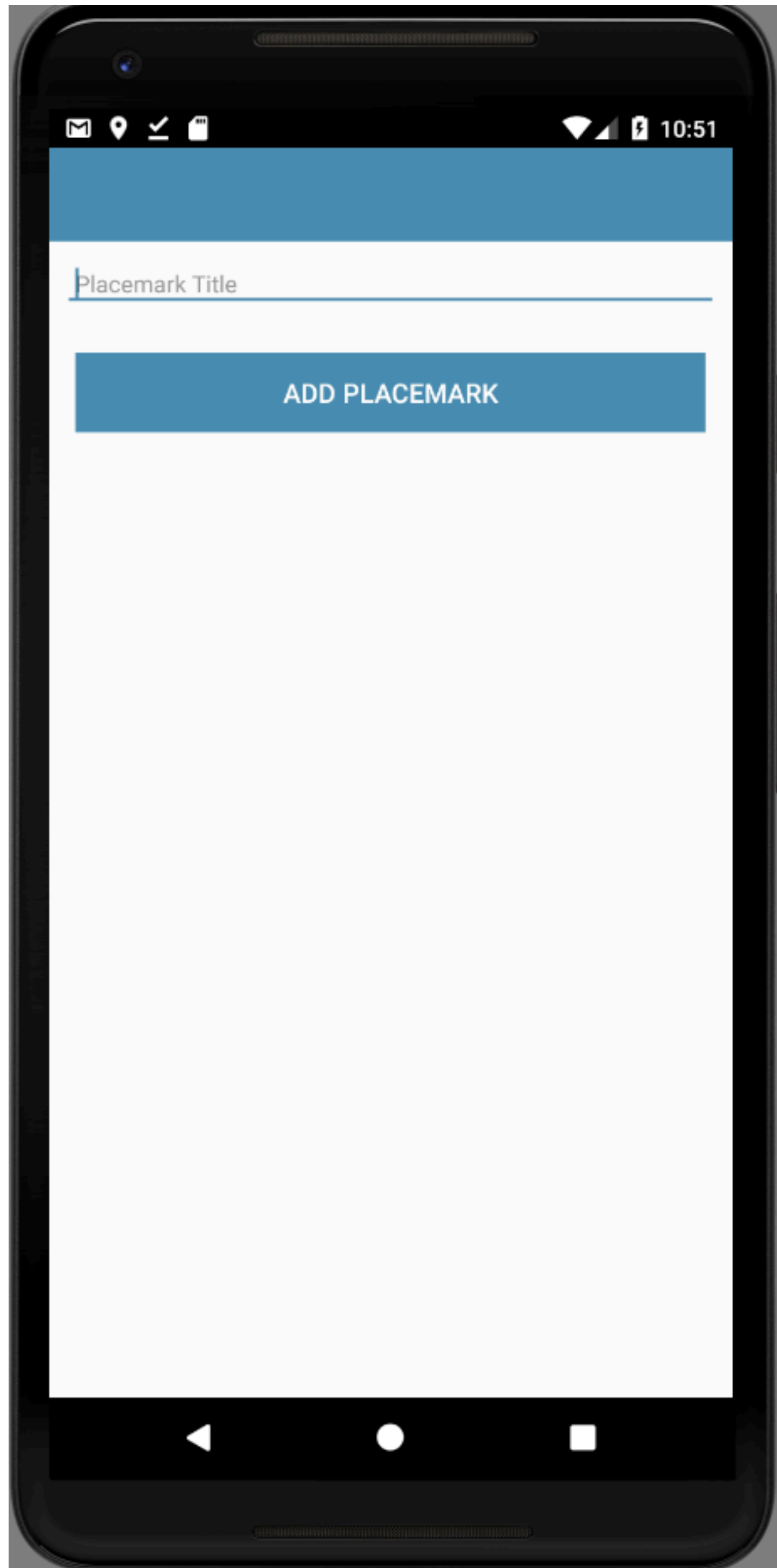
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## RecyclerView + Adapters

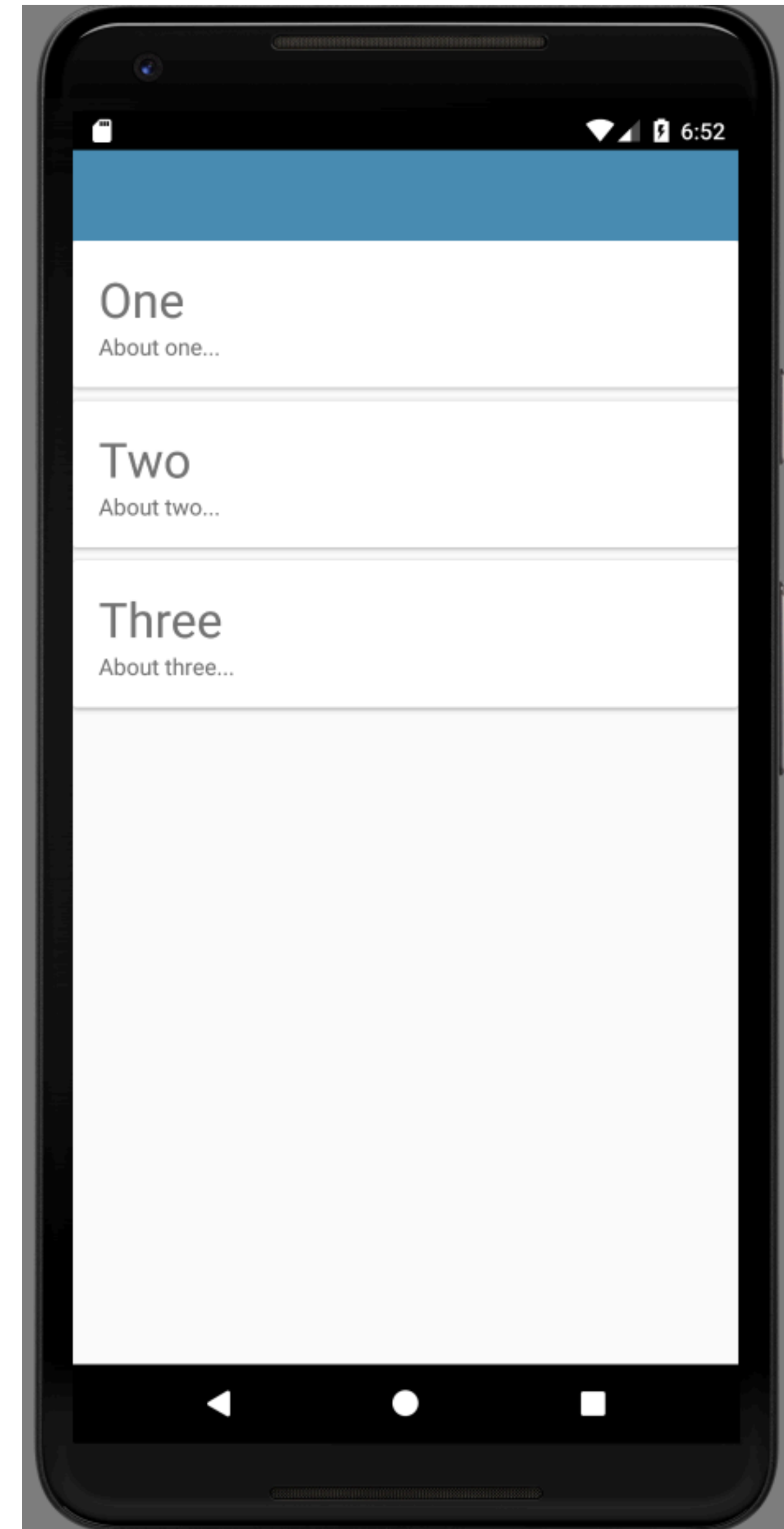
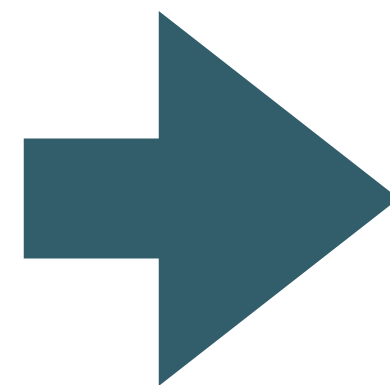


Managing lists is facilitated  
by the RecyclerView +  
Adapters - 2 key patterns in  
Android development





Introduce new  
Activity to  
manage List of  
Placemarks

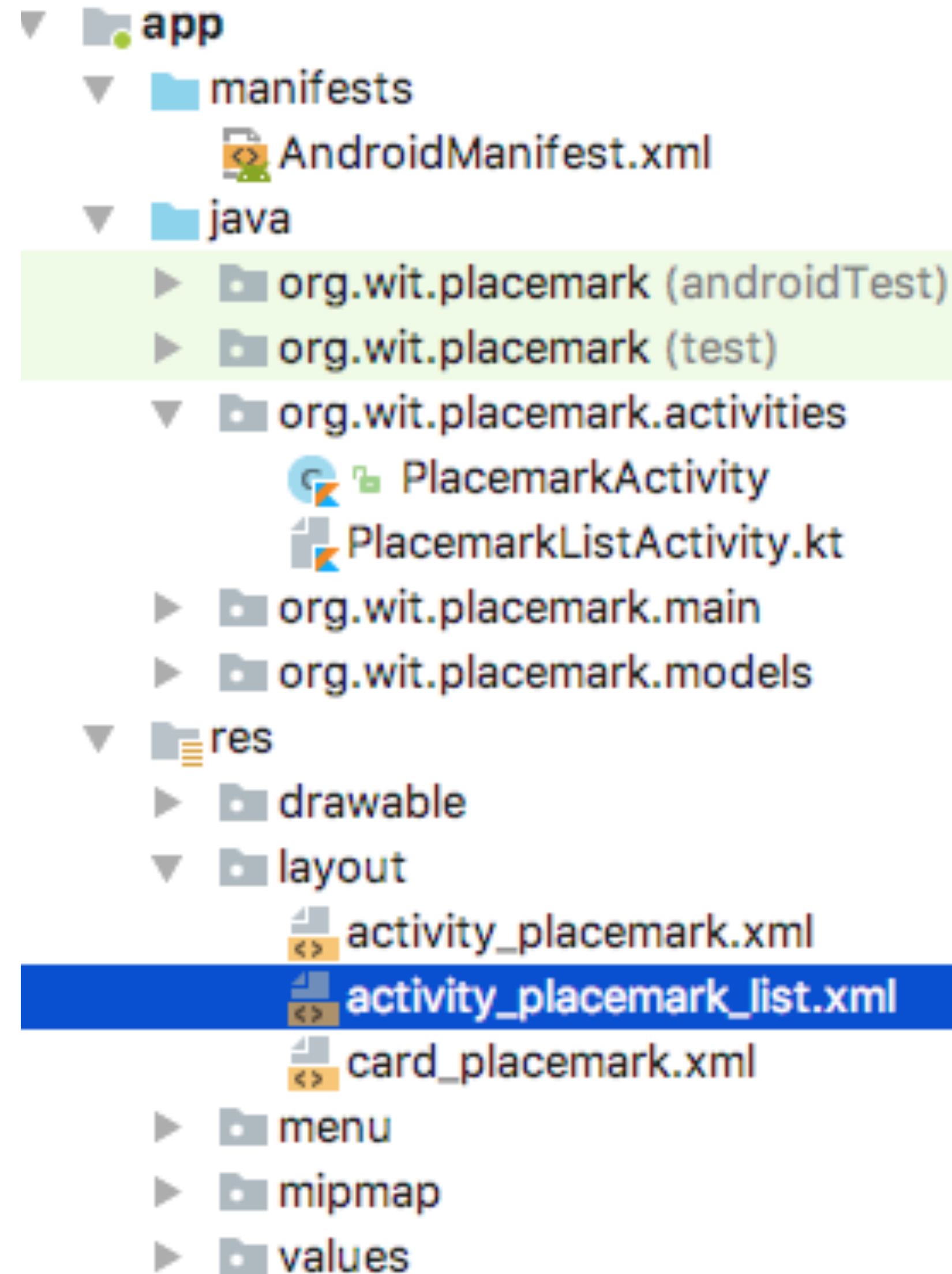


New artefacts:

- PlacemarkActivityList.kt
- activity\_placemark\_list.xml
- card\_placemark.xml

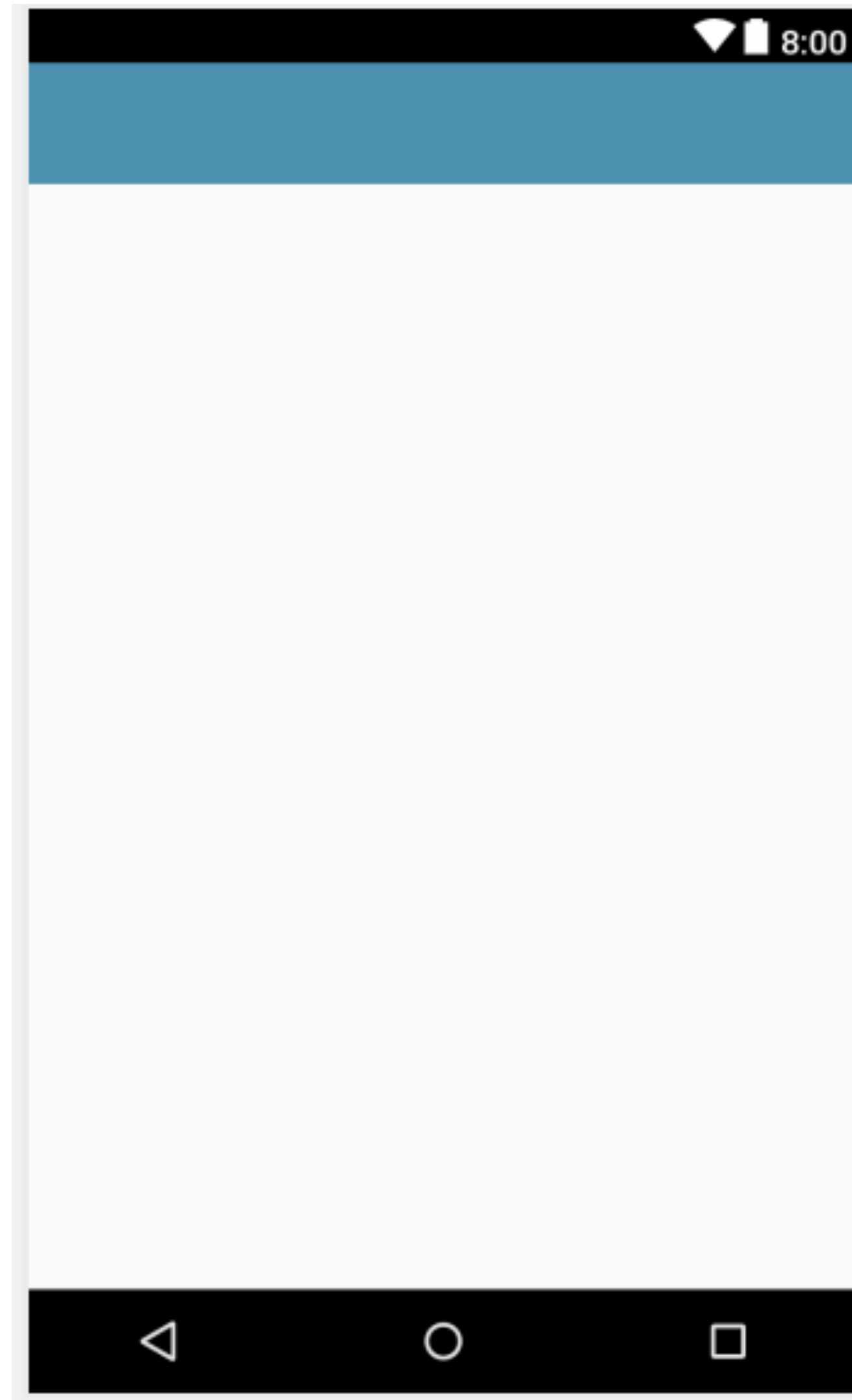
Edits:

- AndroidManifest.xml





# PlacemarkActivityList.kt



activity\_placemark\_list.xml

```
package org.wit.placemark.activities

import android.support.v7.app.AppCompatActivity
import android.os.Bundle
import org.wit.placemark.R
import org.wit.placemark.main.MainApp

class PlacemarkListActivity : AppCompatActivity() {

    lateinit var app: MainApp

    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_placemark_list)
        app = application as MainApp
    }
}
```

```
<?xml version="1.0" encoding="utf-8"?>
<android.support.design.widget.CoordinatorLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context="org.wit.placemark.activities.PlacemarkListActivity">

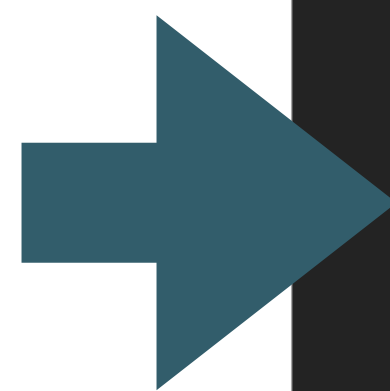
    <android.support.design.widget.AppBarLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:background="@color/colorAccent"
        android:fitsSystemWindows="true"
        app:elevation="0dip"
        app:theme="@style/ThemeOverlay.AppCompat.Dark.ActionBar">

        <android.support.v7.widget.Toolbar
            android:id="@+id/toolbarMain"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            app:titleTextColor="@color/colorPrimary"/>
        </android.support.design.widget.AppBarLayout>

</android.support.design.widget.CoordinatorLayout>
```

# AndroidManifest.xml

New  
Activity  
Entry



```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="org.wit.placemark">

    <application
        android:name=".main.MainApp"
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportsRtl="true"
        android:theme="@style/AppTheme">
        <activity android:name=".activities.PlacemarkActivity">
        </activity>
        <activity android:name=".activities.PlacemarkListActivity">
            <intent-filter>
                <action android:name="android.intent.action.MAIN"/>
                <category android:name="android.intent.category.LAUNCHER"/>
            </intent-filter>
        </activity>
    </application>

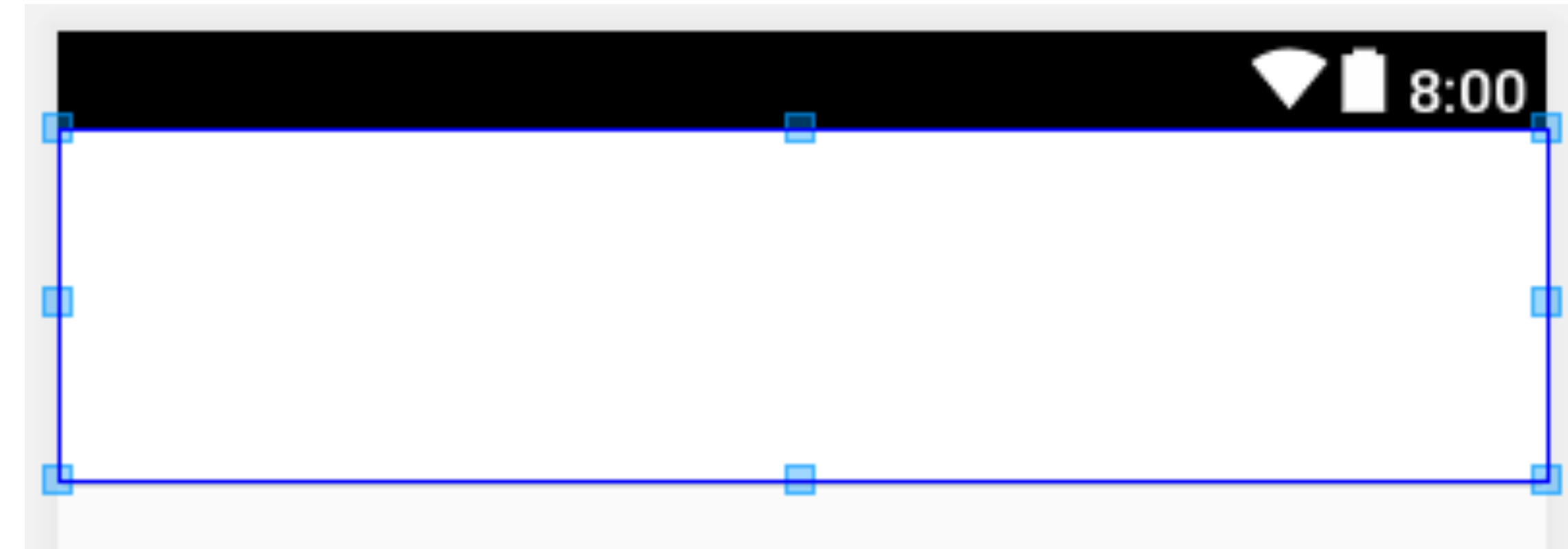
</manifest>
```



```
...  
implementation 'com.android.support:cardview-v7:28.0.0'  
...
```

```
<?xml version="1.0" encoding="utf-8"?>  
<android.support.v7.widget.CardView  
    xmlns:android="http://schemas.android.com/apk/res/android"  
    android:layout_width="match_parent"  
    android:layout_height="wrap_content"  
    android:layout_marginBottom="8dp"  
    android:elevation="24dp">  
  
    <RelativeLayout  
        android:layout_width="match_parent"  
        android:layout_height="wrap_content"  
        android:padding="16dp">  
  
        <TextView  
            android:id="@+id/placemarkTitle"  
            android:layout_width="wrap_content"  
            android:layout_height="wrap_content"  
            android:layout_alignParentTop="true"  
            android:textSize="30sp"/>  
  
        <TextView  
            android:id="@+id/description"  
            android:layout_width="wrap_content"  
            android:layout_height="wrap_content"  
            android:layout_below="@id/placemarkTitle"/>  
  
    </RelativeLayout>  
</android.support.v7.widget.CardView>
```

## card\_placemark.xml



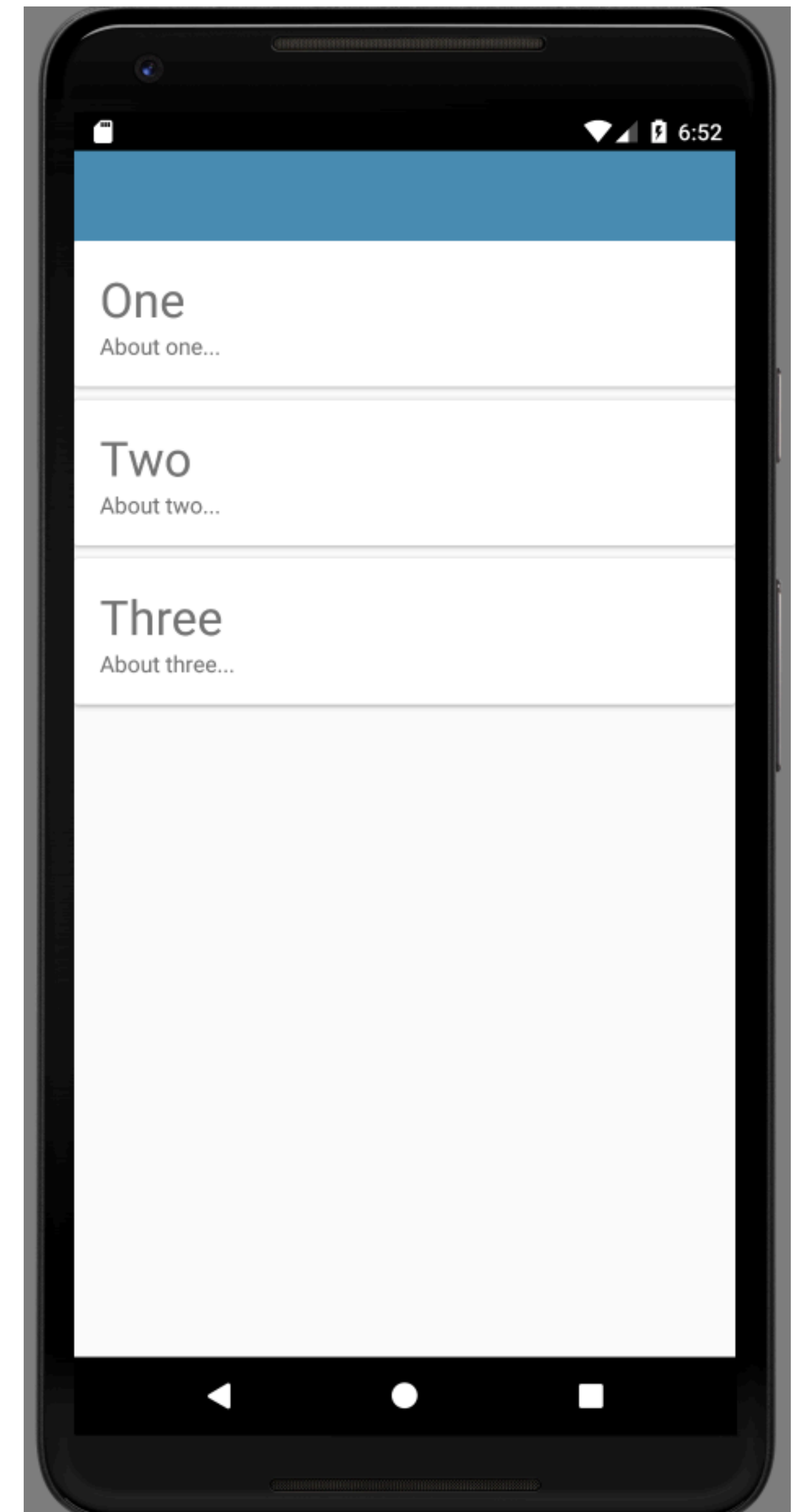
# activity\_placemark\_list.xml

```
<?xml version="1.0" encoding="utf-8"?>
<android.support.design.widget.CoordinatorLayout
    xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context="org.wit.placemark.activities.PlacemarkListActivity">

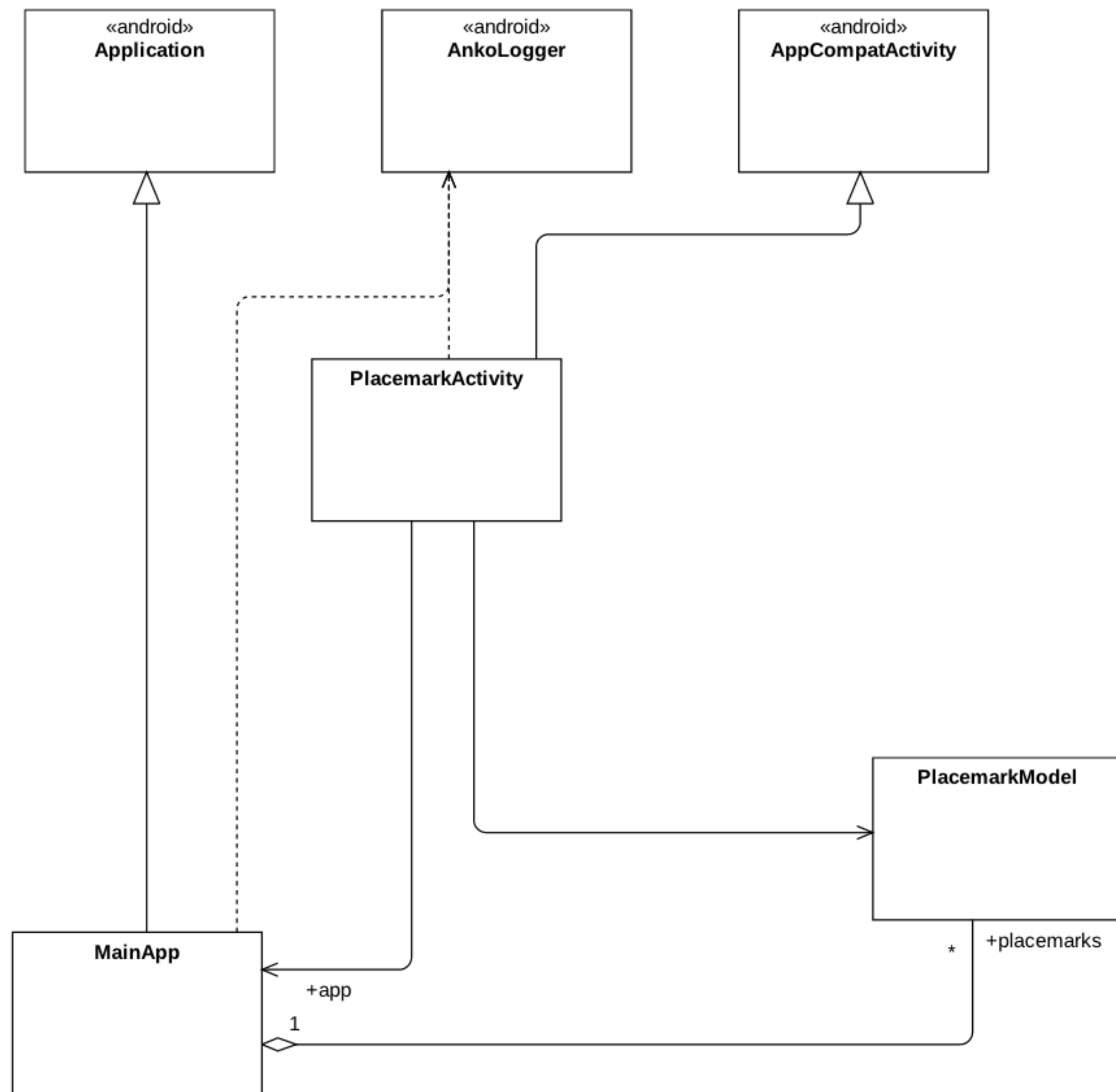
    <android.support.design.widget.AppBarLayout
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:background="@color/colorAccent"
        android:fitsSystemWindows="true"
        app:elevation="0dip"
        app:theme="@style/ThemeOverlay.AppCompat.Dark.ActionBar">

        <android.support.v7.widget.Toolbar
            android:id="@+id/toolbarMain"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            app:titleTextColor="@color/colorPrimary"/>
        </android.support.design.widget.AppBarLayout>
    </android.support.design.widget.CoordinatorLayout>
```

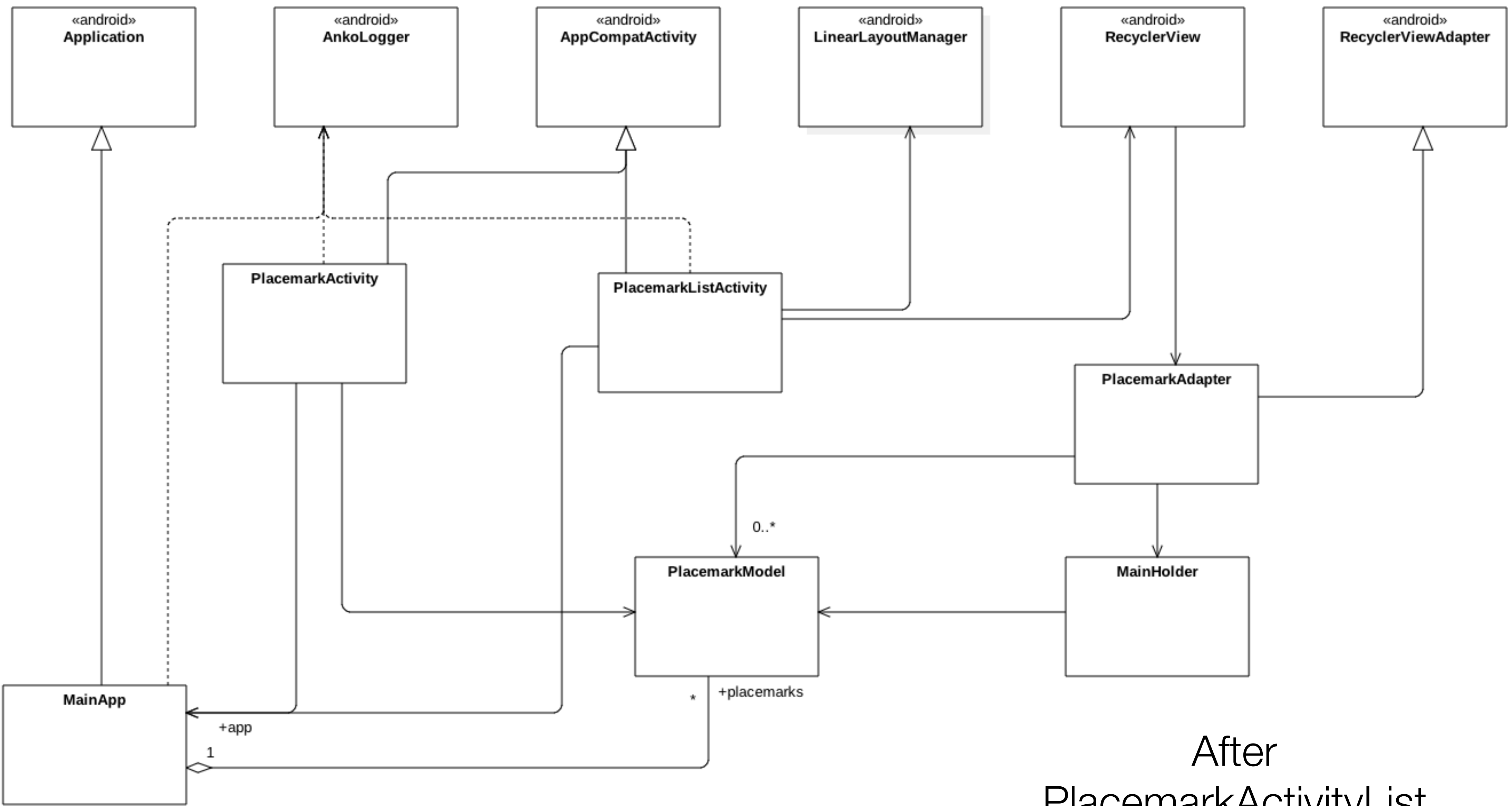
```
...
<android.support.v7.widget.RecyclerView
    android:id="@+id/recyclerView"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:scrollbars="vertical"
    app:layout_behavior="@string/appbar_scrolling_view_behavior"/>
...
```



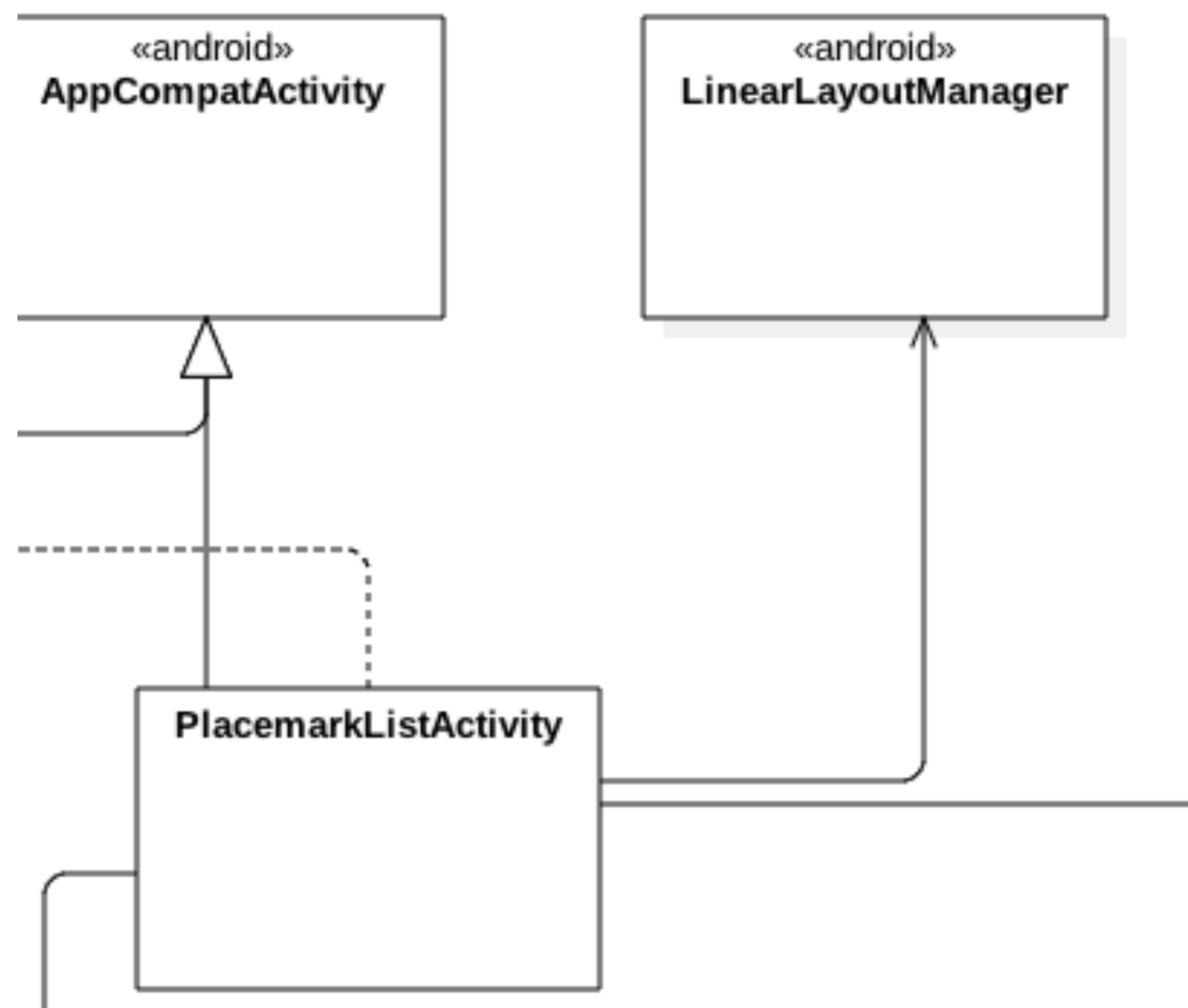




Before  
PlacemarkActivityList  
introduced



After  
PlacemarkActivityList  
introduced



```
class PlacemarkListActivity : AppCompatActivity() {

    lateinit var app: MainApp

    override fun onCreate(savedInstanceState: Bundle?) {
        super.onCreate(savedInstanceState)
        setContentView(R.layout.activity_placemark_list)
        app = application as MainApp

        val layoutManager = LinearLayoutManager(this)
        recyclerView.layoutManager = layoutManager
        recyclerView.adapter = PlacemarkAdapter(app.placemarks)
    }
}
```



```

class PlacemarkAdapter constructor(private var placemarks: List<PlacemarkModel>) : RecyclerView.Adapter<PlacemarkAdapter.MainHolder>() {

    override fun onCreateViewHolder(parent: ViewGroup?, viewType: Int): MainHolder {
        return MainHolder(LayoutInflater.from(parent?.context).inflate(R.layout.card_placemark, parent, false))
    }

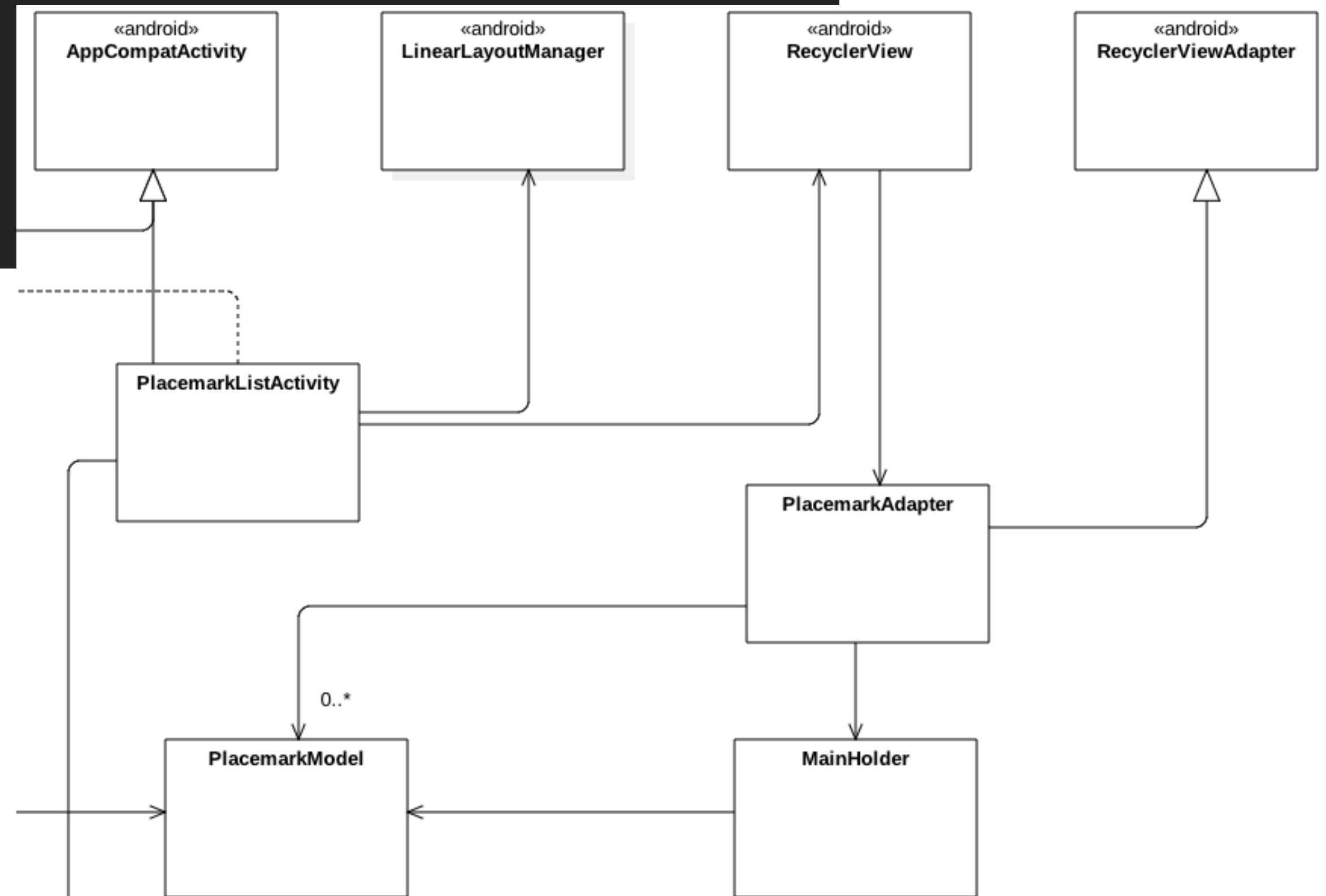
    override fun onBindViewHolder(holder: MainHolder, position: Int) {
        val placemark = placemarks[holder.adapterPosition]
        holder.bind(placemark)
    }

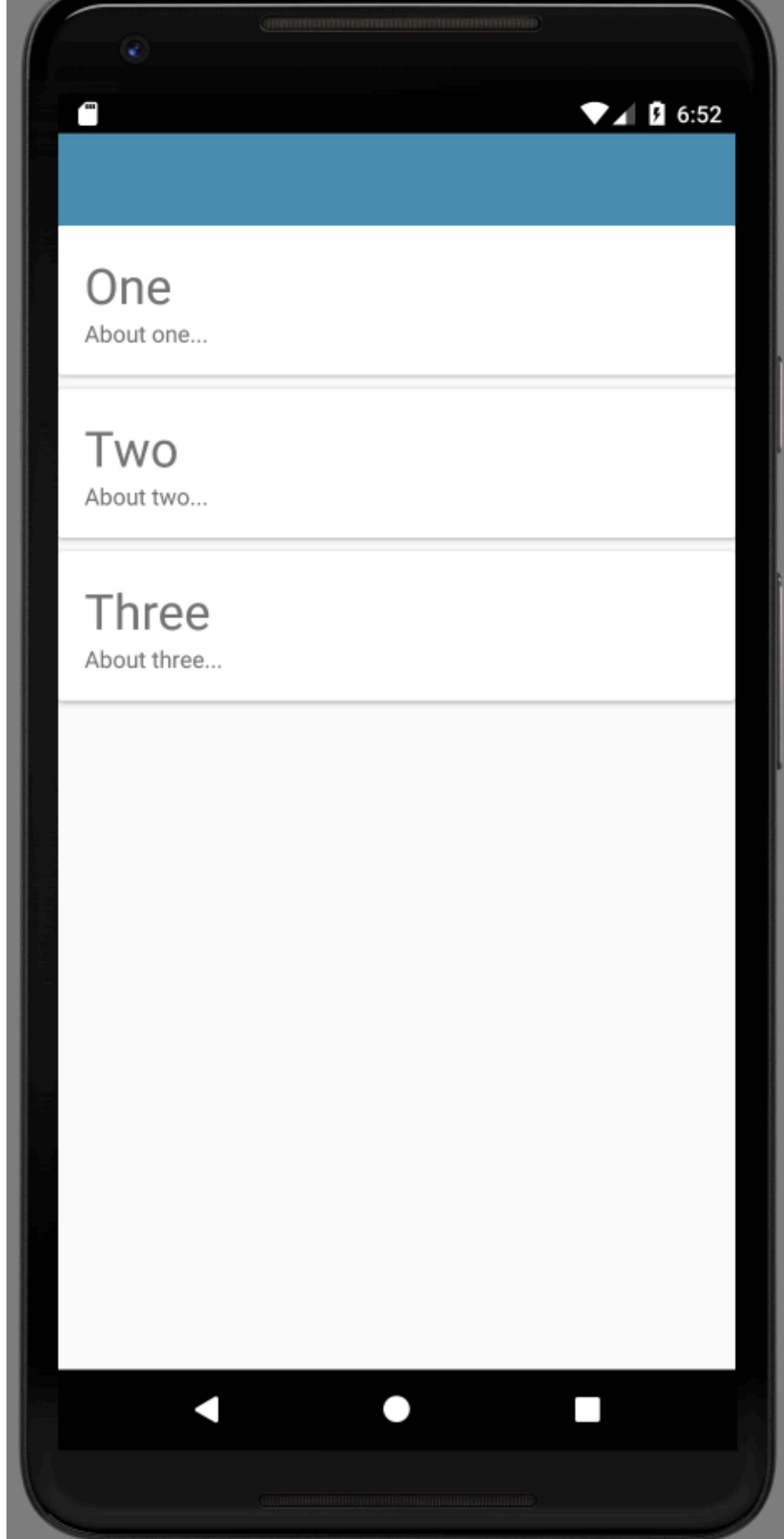
    override fun getItemCount(): Int = placemarks.size

    class MainHolder constructor(itemView: View) : RecyclerView.ViewHolder(itemView) {

        fun bind(placemark: PlacemarkModel) {
            itemView.placemarkTitle.text = placemark.title
            itemView.description.text = placemark.description
        }
    }
}

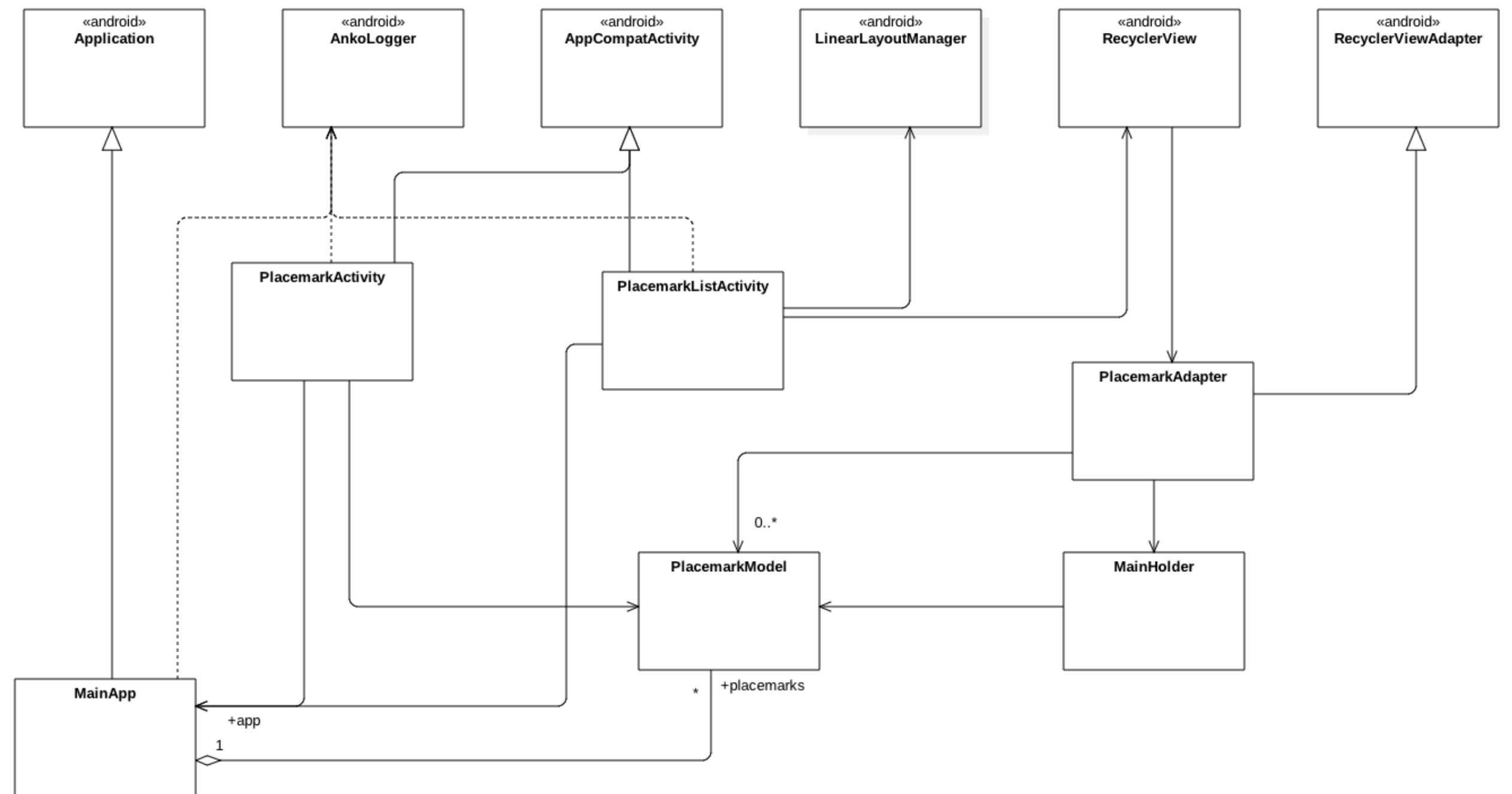
```





## MainApp

```
...
override fun onCreate() {
    super.onCreate()
    info("Placemark started")
    placemarks.add(PlacemarkModel("One", "About one..."))
    placemarks.add(PlacemarkModel("Two", "About two..."))
    placemarks.add(PlacemarkModel("Three", "About three..."))
}
...
```





New menu option

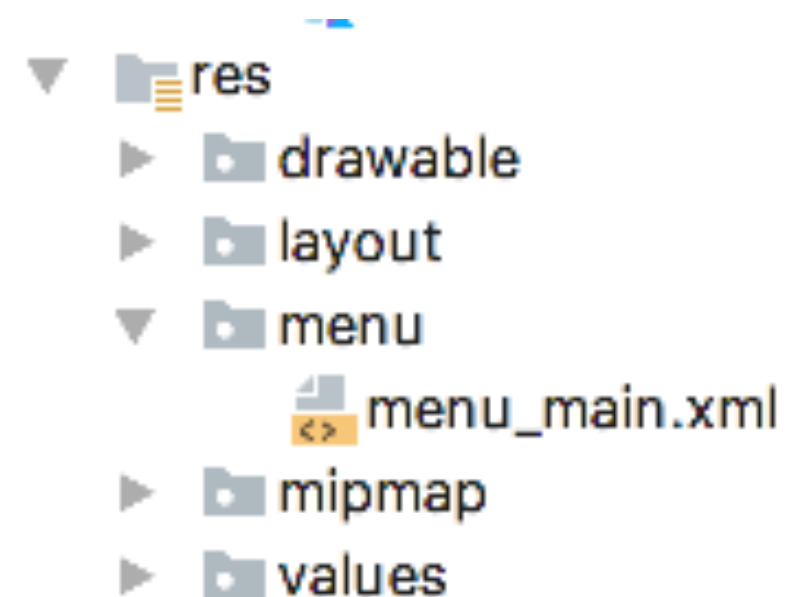
strings.xml

```
<string name="menu_addPlacemark">Add</string>
```

menu\_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<menu xmlns:android="http://schemas.android.com/apk/res/android"
      xmlns:app="http://schemas.android.com/apk/res-auto">

  <item
    android:id="@+id/item_add"
    android:icon="@android:drawable/ic_menu_add"
    android:title="@string/menu_addPlacemark"
    app:showAsAction="always"/>
</menu>
```



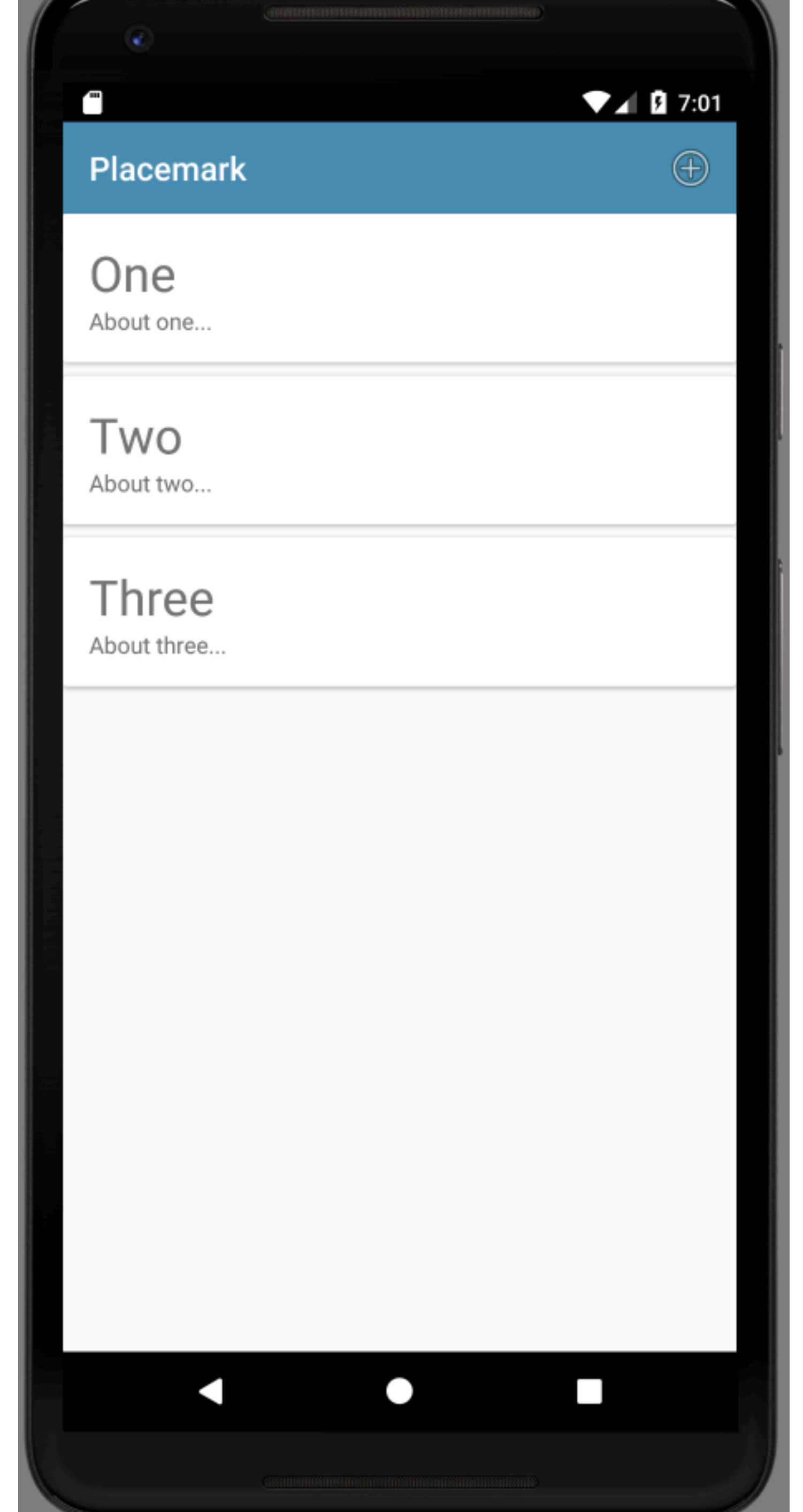


## PlacemarkListActivity

```
...  
    toolbarMain.title = title  
    setSupportActionBar(toolbarMain)  
...
```

... and then override the method to load the menu resource:

```
...  
    override fun onCreateOptionsMenu(menu: Menu?): Boolean {  
        menuInflater.inflate(R.menu.menu_main, menu)  
        return super.onCreateOptionsMenu(menu)  
    }  
...
```



## PlacemarkListActivity: Menu Click Event Handler:

```
override fun onOptionsItemSelected(item: MenuItem?): Boolean {  
    when (item?.itemId) {  
        R.id.item_add -> startActivityForResult<PlacemarkActivity>(AppCompatActivity.RESULT_OK)  
    }  
    return super.onOptionsItemSelected(item)  
}
```

## PlacemarkActivity: save placemarks to the array in MainApp

```
...  
    if (placemark.title.isNotEmpty()) {  
        app.placemarks.add(placemark.copy())  
        info("add Button Pressed: $placemarkTitle")  
        app.placemarks.forEach { info("add Button Pressed: ${it}")}  
        setResult(AppCompatActivity.RESULT_OK)  
        finish()  
    }  
...  
...
```

