

# 6

# Fragments

## Fragments in Android

Tablet have larger display screen than small devices, so they can support multiple UI panes/user behavior at the same time.

A Fragment represents a behavior or a portion of user interface in an Activity. You can combine multiple fragments in a single activity to build a multi-pane UI and reuse a fragment in multiple activities.

Let us take Quote Viewer as an example application. It uses two activities, the first one shows the titles of Shakespeare plays and allows user to select one title as shown in figure 1. The second one shows a quote from selected play as shown in the figure 2.

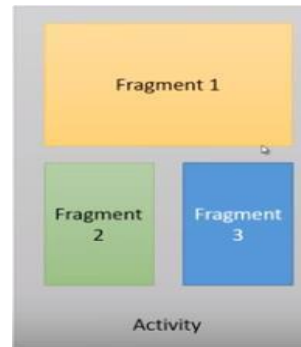


Figure1: First activity shows three titles

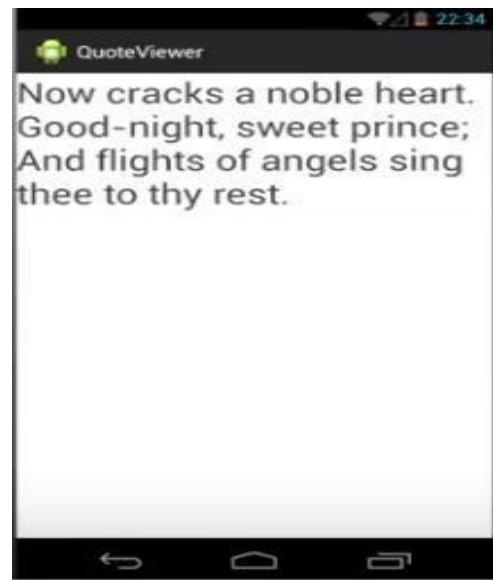


Figure2: Second activity shows selected play

This interface is reasonable for a phone or small screen device but it is inefficient on large device. So it is better to use two cooperating layout units on one screen as shown in figure3.

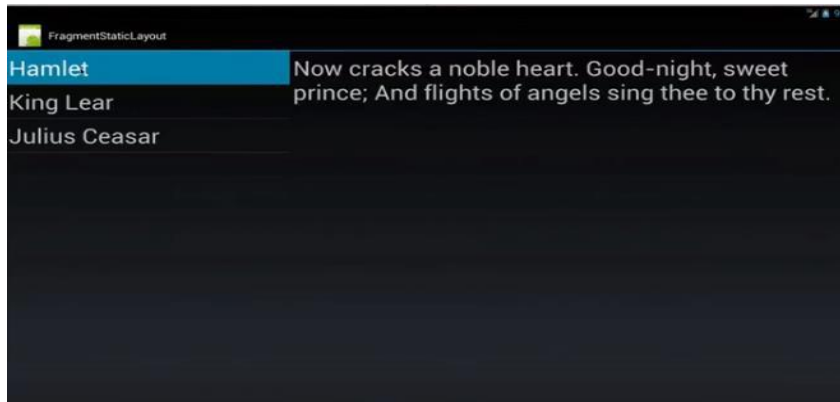


Figure3: Two fragments in one activity

In figure 3, the activity contains two fragments: first one shows three titles and second one shows selected play.

## Procedure:

We are going to create two fragments and let one fragment access data from the other one.(figure 4)

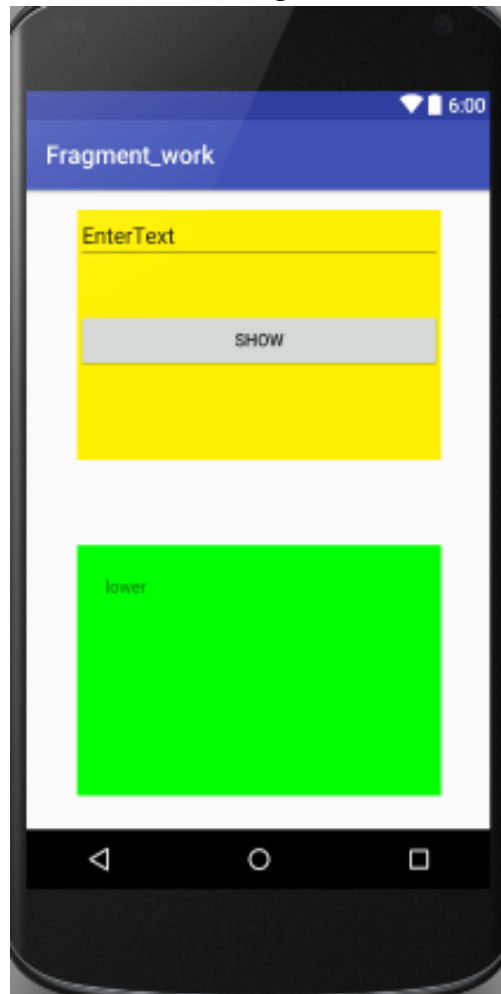


Figure 4

## Step 1: Create Upper Fragment

After creating a new project in the android studio (with Empty Activity). Do the following:

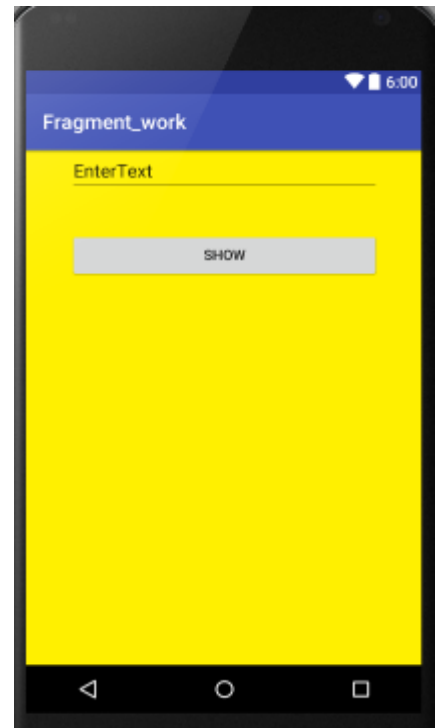
- ❖ Add new java class named “**upperfragmentclass.java**”, extend **Fragment** class and write the following code:

```
package edu.birzeit.fragment_work;
import android.support.v4.app.Fragment;
import android.os.Bundle;
import android.support.annotation.Nullable;
import android.view.ViewGroup;
import android.view.View;
import android.app.Activity;
import android.view.LayoutInflater;
import android.widget.Button;
import android.widget.EditText;
public class upperfragmentclass extends Fragment {
    private static EditText toptextinput;
    Topsectionlistner activityCommander;
    public interface Topsectionlistner{
        public void createTxt(String top);
    }
    @Override
    public void onAttach(Activity context) {
        super.onAttach(context);
        try {
            activityCommander=(Topsectionlistner)context;
        } catch (ClassCastException e){
            throw new ClassCastException(context.toString());
        }
    }
    @Override
    public View onCreateView(LayoutInflater inflater, @Nullable ViewGroup
container, @Nullable Bundle savedInstanceState) {
        View view= inflater.inflate(R.layout.upperfragment,container,false);
        Button upperbutton = (Button) view.findViewById(R.id.movbutton);
        toptextinput=(EditText) view.findViewById(R.id.uppertextinput1);
        upperbutton.setOnClickListener(
            new View.OnClickListener(){
                public void onClick(View v){
                    buttonisclicked(v);
                }
            });

        return view;
    }
    public void buttonisclicked(View v){
        activityCommander.createTxt(toptextinput.getText().toString());
    }
}
```

- ❖ Add new .xml file to layout folder named “upperfragment.xml” and add the following content:

```
<?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:background="#ffff00">
    <Button
        android:id="@+id/movbutton"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="38dp"
        android:width="300dp"
        android:text="hello1"
        android:layout_below="@+id/uppertextinput1"
        android:layout_centerHorizontal="true" />
    <EditText
        android:id="@+id/uppertextinput1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:width="300dp"
        android:inputType=""
        android:text="hello 2"
        android:layout_centerHorizontal="true"
        android:layout_alignLeft="@+id/movbutton"
        android:layout_alignStart="@+id/movbutton" />
</RelativeLayout>
```



## ✚ Step 2: Create Lower Fragment

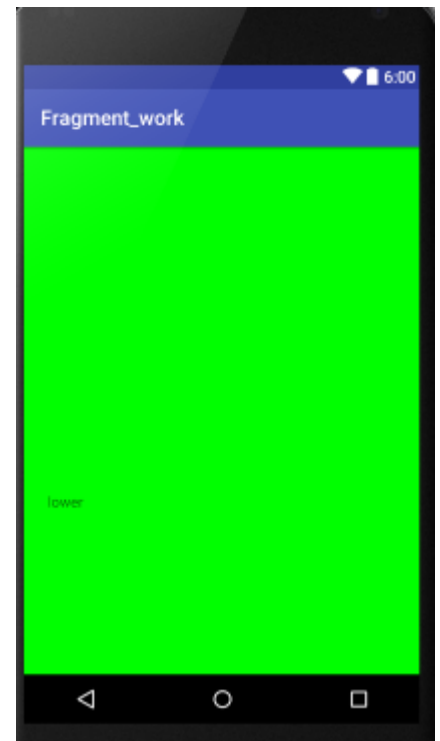
- ❖ Add new java class named “lowerfragmentclass.java”, extend **Fragment** class and write the following code:

```
package edu.birzeit.fragment_work;
import android.support.v4.app.Fragment;
import android.os.Bundle;
import android.support.annotation.Nullable;
import android.view.ViewGroup;
import android.view.View;
import android.view.LayoutInflater;
import android.widget.TextView;
public class lowerfragmentclass extends Fragment {
    private static TextView buttomtext1;

    @Override
    public View onCreateView(LayoutInflater inflater, @Nullable ViewGroup
container, @Nullable Bundle savedInstanceState) {
        View view = inflater.inflate(R.layout.lowerfragment, container,
false);
        buttomtext1=(TextView) view.findViewById(R.id.LowertextView1);
        return view;
    }
    public void setText(String top){
        buttomtext1.setText(top);
    }
}
```

- ❖ Add new .xml file to layout folder named “**Lowerfragment.xml**” and add the following content:

```
<RelativeLayout
xmlns:android="http://schemas.android.com/apk/res/a
ndroid"
xmlns:tools="http://schemas.android.com/tools"
android:layout_width="match_parent"
android:layout_height="match_parent"
android:background="#00ff00">
<TextView
    android:text="lower"
    android:layout_width="300dp"
    android:id="@+id/LowertextView1"
    android:layout_marginBottom="155dp"
    android:layout_marginLeft="23dp"
    android:layout_marginStart="23dp"
    android:layout_height="20dp"
    android:layout_alignParentBottom="true"
    android:layout_alignParentLeft="true"
    android:layout_alignParentStart="true" />
</RelativeLayout>
```



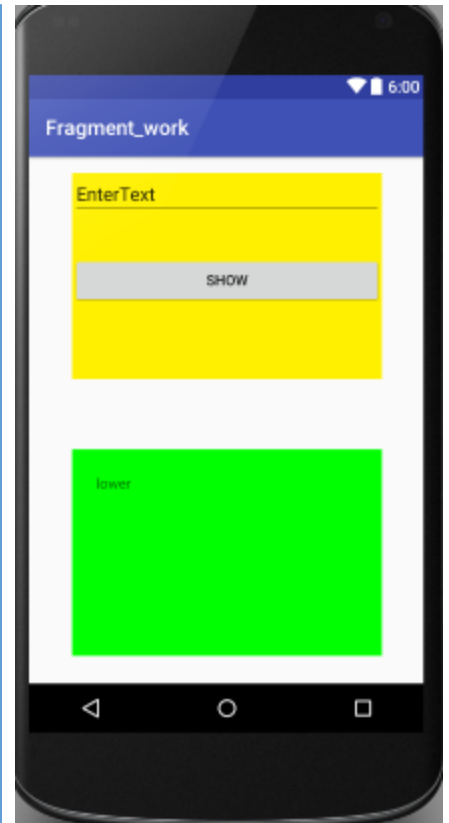
### ✚ Step 3: Edit Main Activity

- ❖ Implement “**upperfragmentclass.Topsectionlistner**” in **MainActivity.java** and add the following code:

```
package edu.birzeit.fragment_work;
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
public class MainActivity extends AppCompatActivity implements
upperfragmentclass.Topsectionlistner{
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
    }
    @Override
    public void createTxt(String top) {
        lowerfragmentclass
bottomfragment=(lowerfragmentclass)getSupportFragmentManager().findFragmentById(R.id.fragment2);
        bottomfragment.setText(top);
    }
}
```

❖ Add the following code to **activity\_main.xml** :

```
<?xml version="1.0" encoding="utf-8"?>
<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:paddingBottom="@dimen/activity_vertical_margin"
    android:paddingLeft="@dimen/activity_horizontal_margin"
    android:paddingRight="@dimen/activity_horizontal_margin"
    android:paddingTop="@dimen/activity_vertical_margin"
    tools:context="edu.birzeit.fragment_work.MainActivity">
    <fragment
        android:layout_width="300dp"
        android:layout_height="200dp"
        android:name="edu.birzeit.fragment_work.upperfragmentclass"
        android:id="@+id/fragment1"
        tools:layout="@layout/upperfragment"
        android:layout_alignParentTop="true"
        android:layout_centerHorizontal="true"
        />
    <fragment
        android:name="edu.birzeit.fragment_work.lowerfragmentclass"
        android:id="@+id/fragment2"
        tools:layout="@layout/lowerfragment"
        android:layout_marginBottom="11dp"
        android:layout_alignParentBottom="true"
        android:layout_alignRight="@+id/fragment1"
        android:layout_alignEnd="@+id/fragment1"
        android:layout_width="300dp"
        android:layout_height="200dp" />
</RelativeLayout>
```



## ToDo

This part will be given to you by the teacher assistant in the lab time.

