



**NEW MEDIA &
COMMUNICATION
TECHNOLOGY**

Mobile App Development

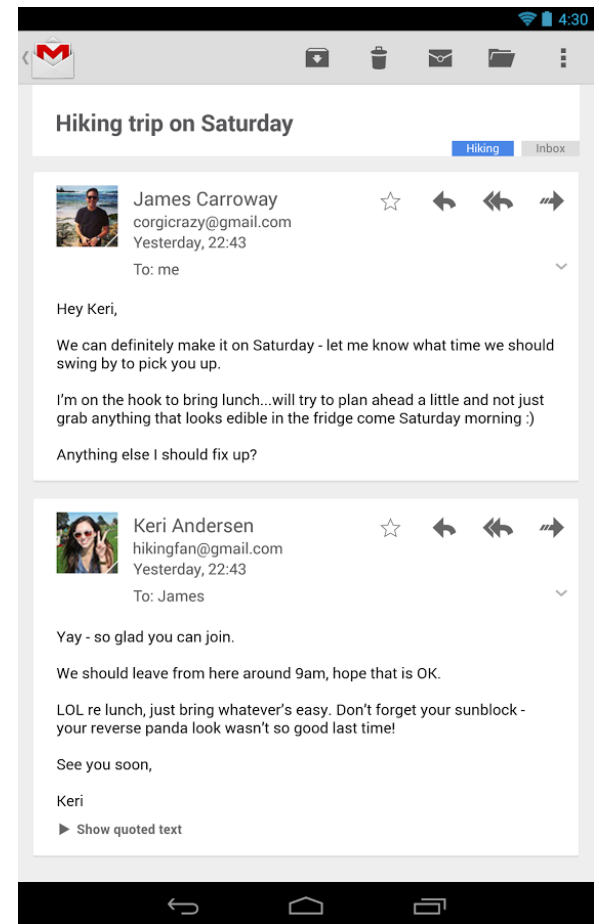
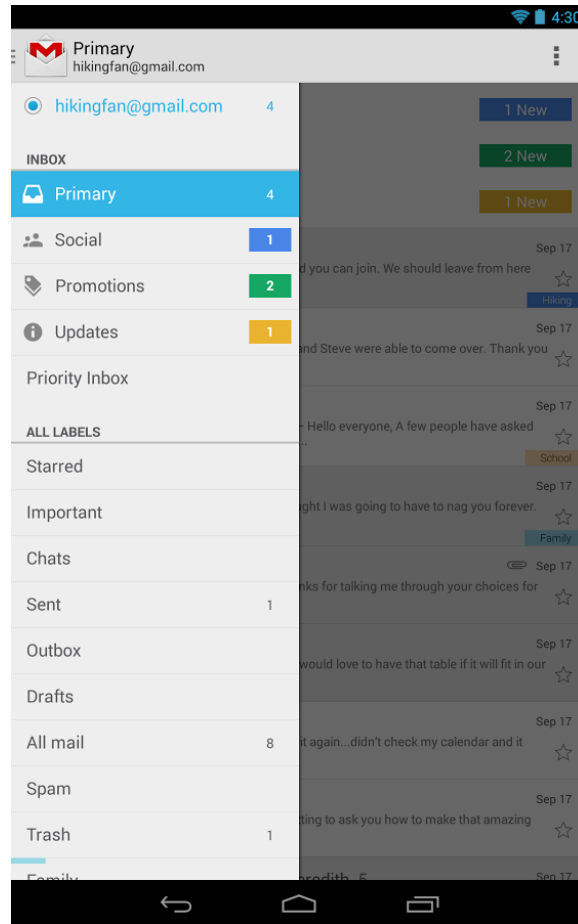
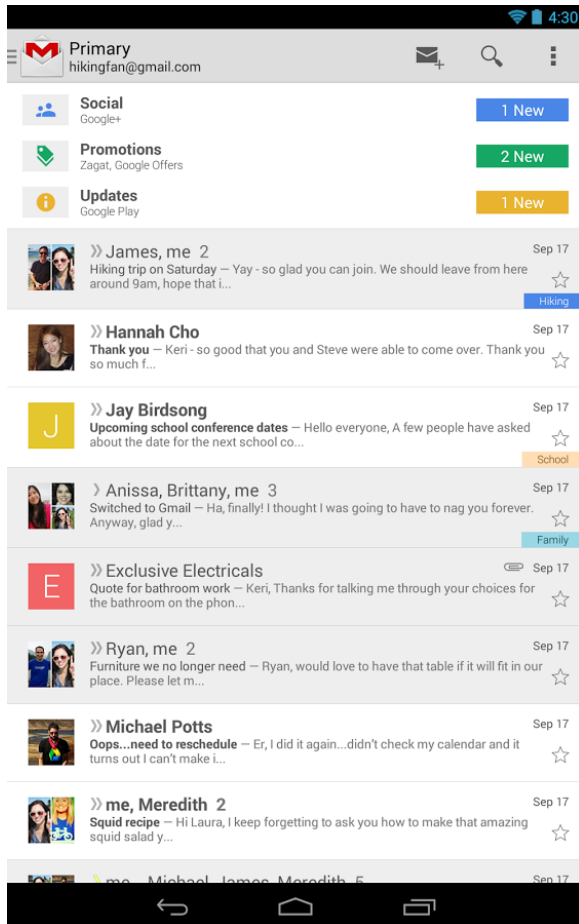


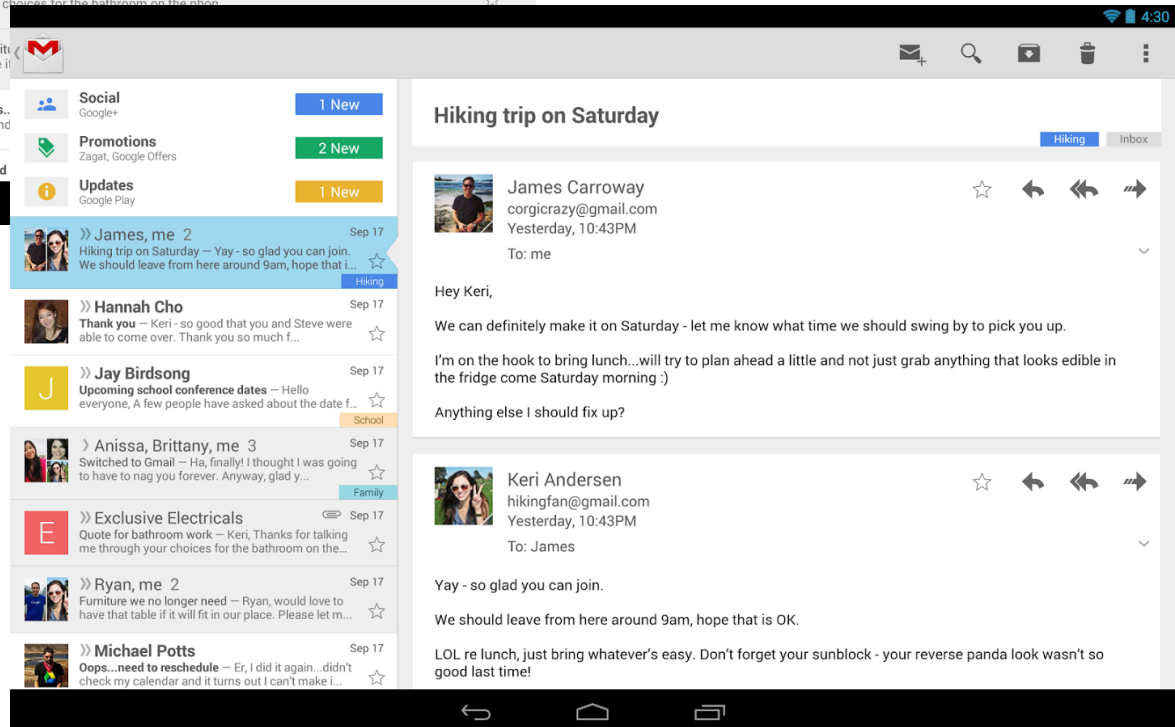
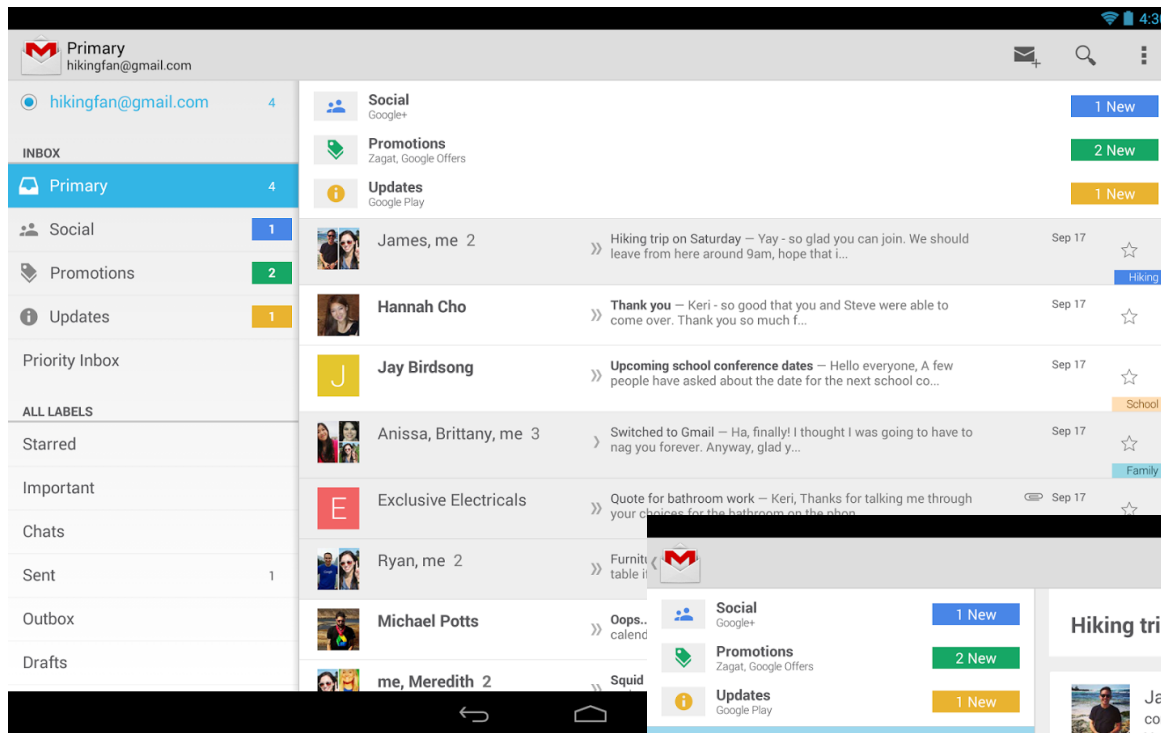
A Fragment represents:

- 1.** *A behavior*
- 2.** *A portion of the user interface
in an Activity.*

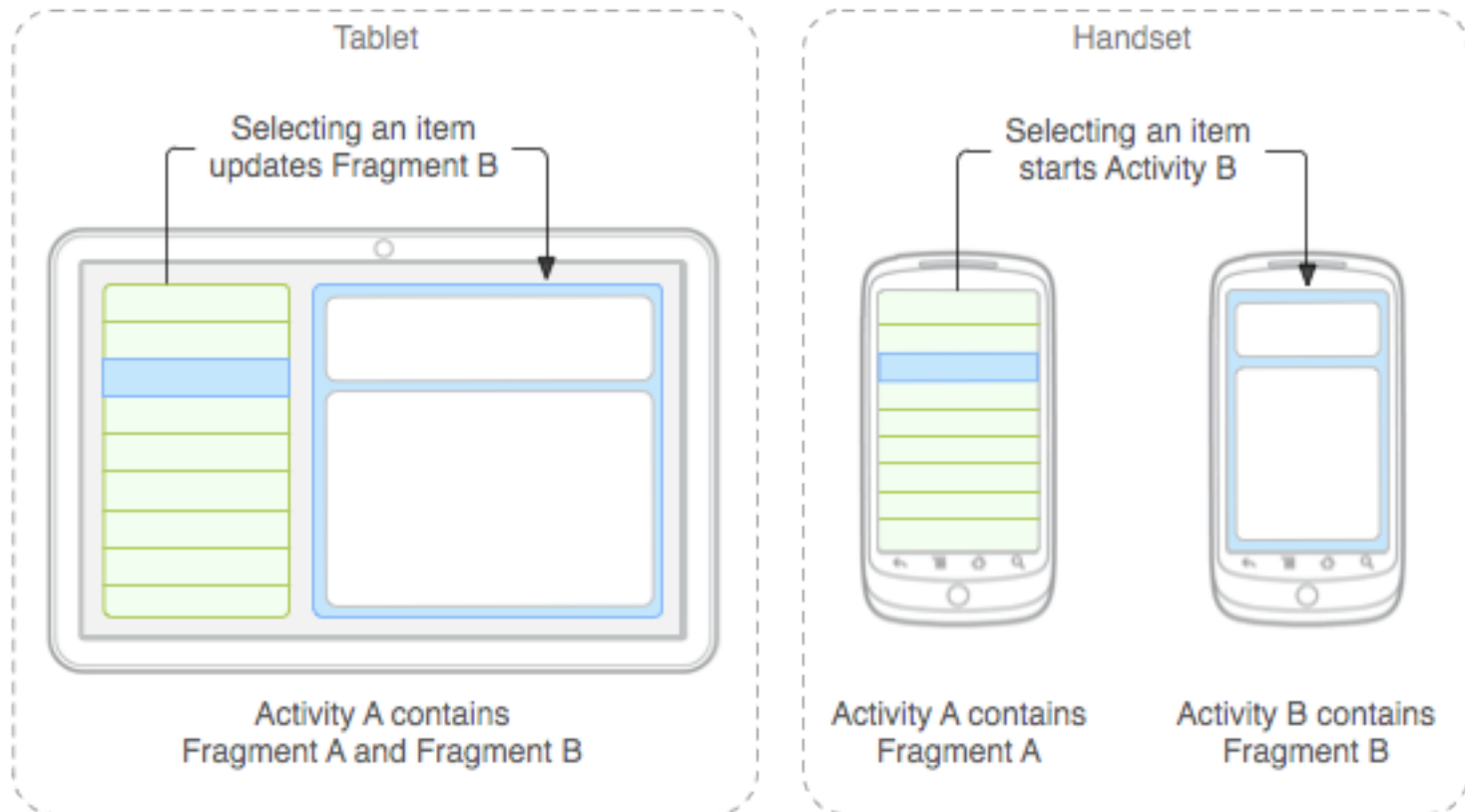
Fragments

... Fighting Fragmentation

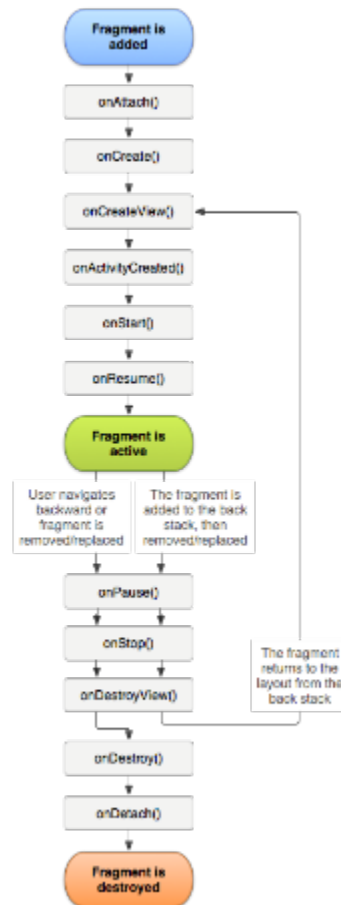




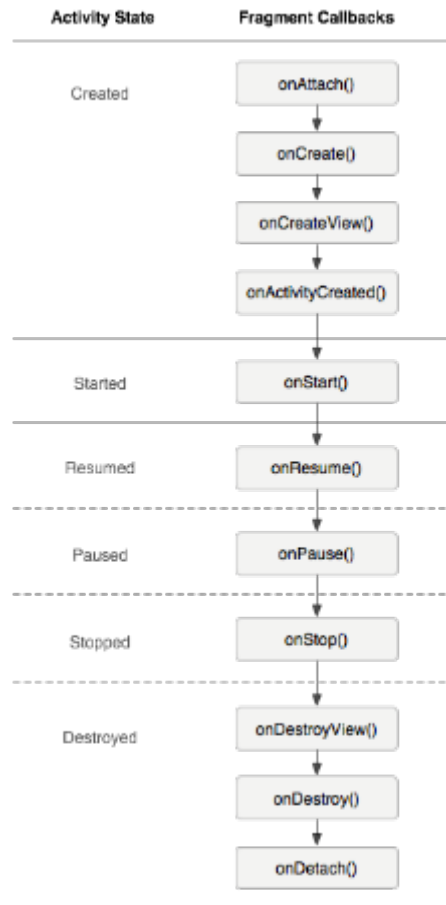
Decomposing UI's

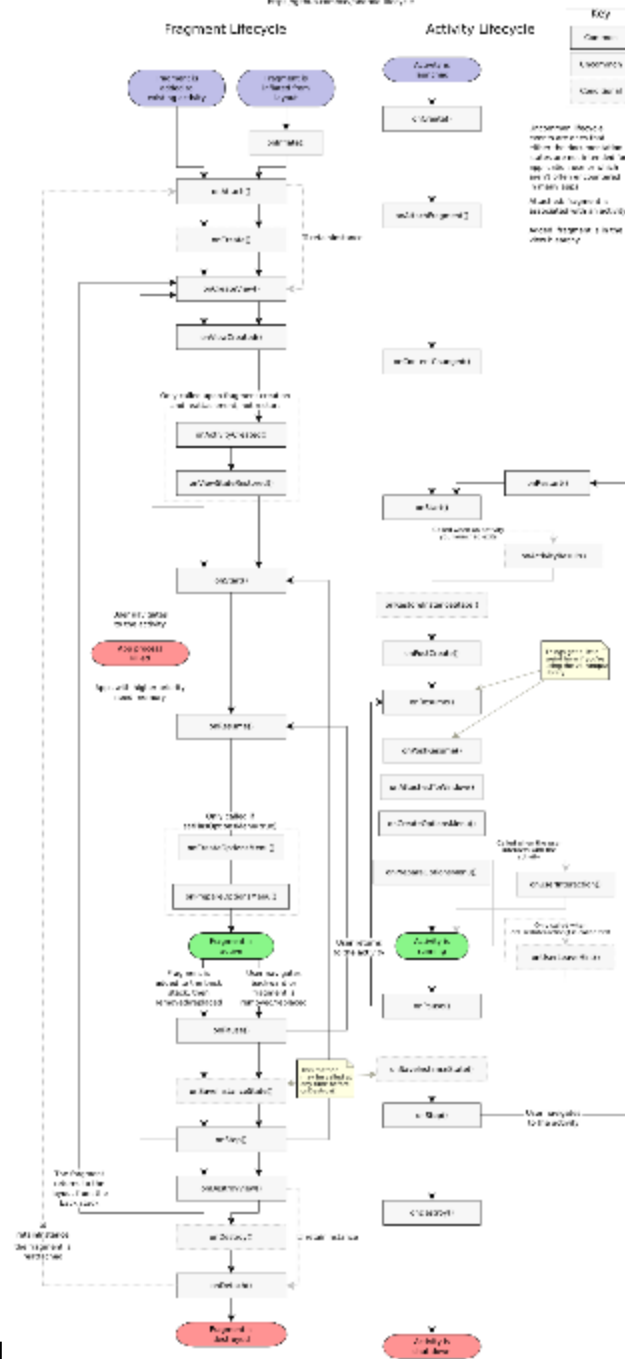


Fragment Lifecycle



Fragments in an activity





http://staticfree.info/~steve/comple_android_fragment_lifecycle.svg

Fragment CallBacks

```
public class MainFragment extends Fragment {  
    public void onAttach (Activity activity)  
  
    public void onCreate (Bundle savedInstanceState)  
  
    public View onCreateView (LayoutInflater inflater, ViewGroup container, Bundle sis)  
  
    public void onActivityCreated (Bundle savedInstanceState)  
  
    public void onStart ()  
  
    public void onResume ()  
  
    public void onPause ()  
  
    public void onStop ()  
  
    public void onDestroyView ()  
  
    public void onDetach ()  
  
}
```

onAttach

```
public class BookListFragment extends Fragment {  
    interface OnBookSelectedListener {  
        public void onBookSelected(int bookId);  
    }  
  
    private OnBookSelectedListener mBookSelectedListener;  
  
    public void onAttach(Activity activity) {  
        super.onAttach(activity);  
        mBookSelectedListener = (OnBookSelectedListener)activity;  
    }  
}
```

Fragment CallBacks

```
public void onCreate(Bundle savedInstanceState) {  
    super.onCreate(savedInstanceState);  
}  
  
public View onCreateView(LayoutInflater inflater, ViewGroup container, Bundle savedInstanceState) {  
    return inflater.inflate(R.layout.fragment_main, container, false);  
}  
  
public void onActivityCreated(Bundle savedInstanceState) {  
    super.onActivityCreated(savedInstanceState);  
}
```

Activity or Fragment

- Activity is an entry point!
- Cfr. Links and Anchors in HTML.
- Difficult decision
- (Real life: Who Cares)

Static Fragment

```
<FrameLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent" >

    <fragment
        android:id="@+id/main_fragment"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        class="com.example.fdemo.MainFragment" />

</FrameLayout>
```

Dynamic Fragment

```
<FrameLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent" >

    <FrameLayout
        android:id="@+id/main_fragment"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        />

</FrameLayout>
```

Dynamic Fragment

```
public class MainActivity extends Activity {  
    protected void onCreate(Bundle savedInstanceState) {  
        super.onCreate(savedInstanceState);  
        setContentView(R.layout.activity_main);  
  
        FragmentManager fragmentManager = getSupportFragmentManager();  
        FragmentTransaction fragmentTransaction = fragmentManager.beginTransaction();  
  
        MainFragment fragment = new MainFragment();  
        fragmentTransaction.add(R.id.main_fragment, fragment);  
        fragmentTransaction.commit();  
    }  
}
```


Passing Arguments

```
public class MainFragment extends Fragment {
    private int mNum;

    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        mNum = getArguments() != null ? getArguments().getInt("num") : 1;
    }

    public View onCreateView(LayoutInflater inflater, ViewGroup container, Bundle savedInstanceState) {
        View v = inflater.inflate(R.layout.fragment_main, container, false);
        TextView tv = (TextView)v.findViewById(R.id.text);
        tv.setText("Fragment #" + mNum);
        return v;
    }

    static MainFragment newInstance(int num) {
        MainFragment f = new MainFragment();

        Bundle args = new Bundle();
        args.putInt("num", num);
        f.setArguments(args);

        return f;
    }
}
```

Restoring fragments?

```
public class MainActivity extends Activity {
    private int mStackLevel = 1;

    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        if (savedInstanceState == null) {
            Fragment newFragment = MainFragment.newInstance(mStackLevel);
            FragmentTransaction ft = getSupportFragmentManager().beginTransaction();
            ft.add(R.id.main_fragment, newFragment).commit();
        } else {
            mStackLevel = savedInstanceState.getInt("level");
        }
    }

    public void onSaveInstanceState(Bundle outState) {
        super.onSaveInstanceState(outState);
        outState.putInt("level", mStackLevel);
    }
}
```

Storing Fragment changes

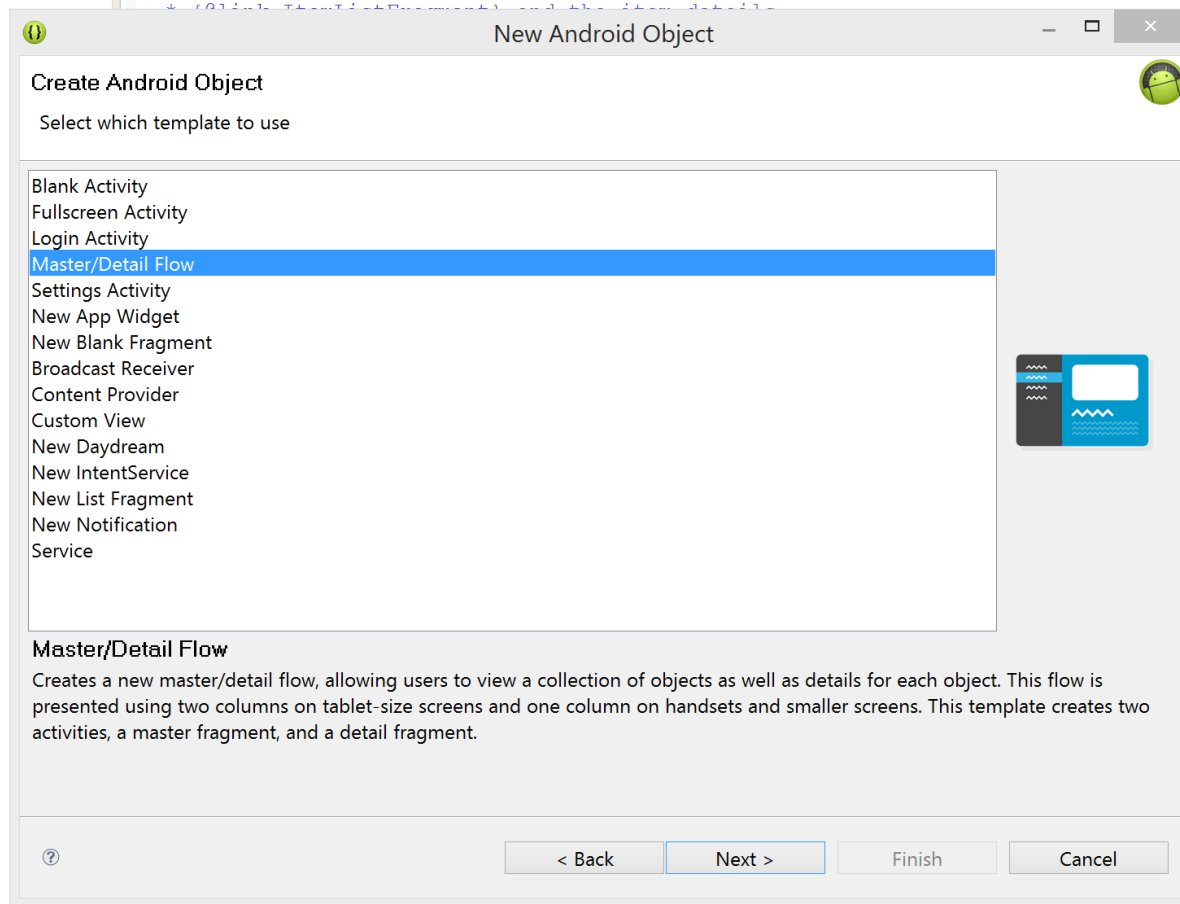
```
public void addFragment (View v) {
    mStackLevel++;

    Fragment newFragment = MainFragment. newInstance (mStackLevel);

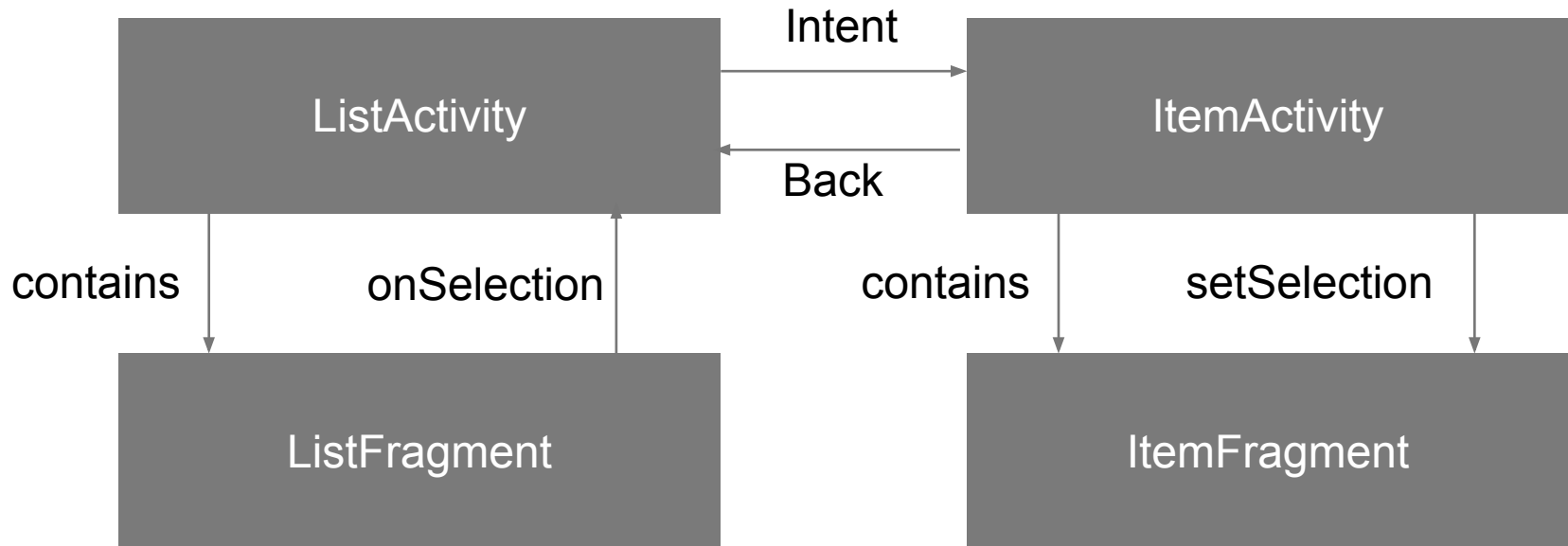
    FragmentTransaction ft = getFragmentManager ().beginTransaction ();
    ft.replace (R.id.main_fragment, newFragment);
    ft.addToBackStack (null);
    ft.commit ();
}

public void deleteFragment (View v) {
    getFragmentManager ().popBackStack ();
}
```

Multi Screen design

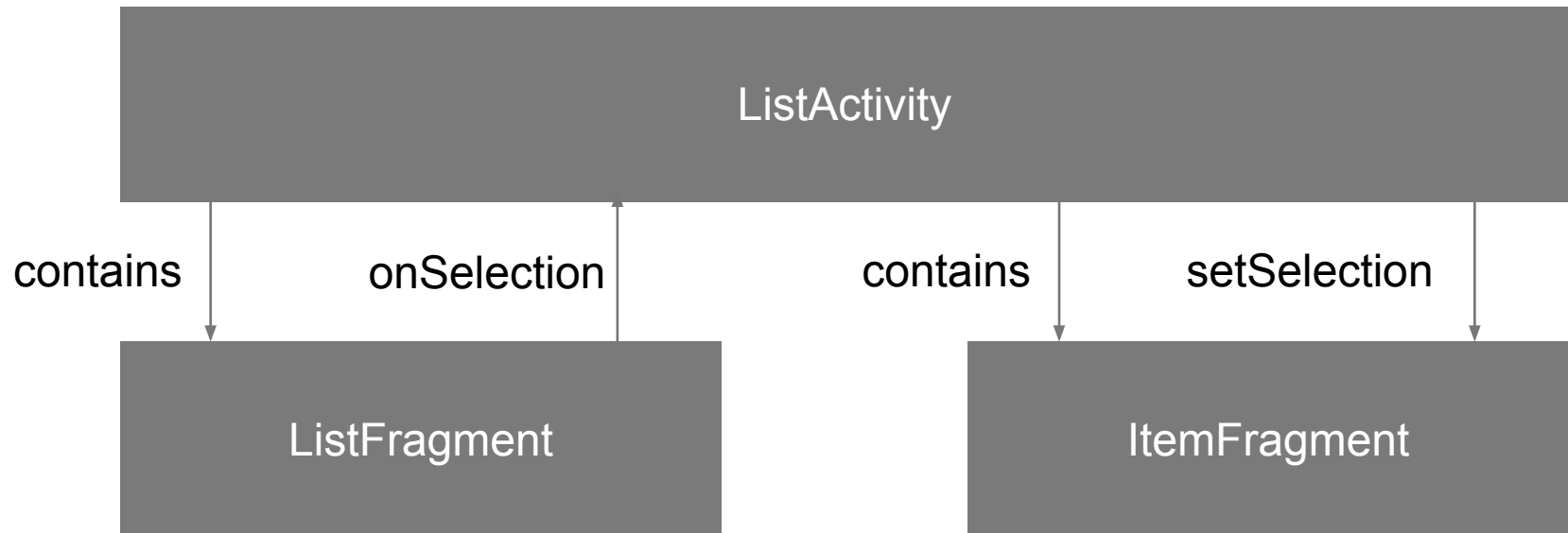


Small Devices



ListActivity Uses layout from default layout folder

Large Devices



ListActivity Uses layout from layout-large, layout-sw720 or