

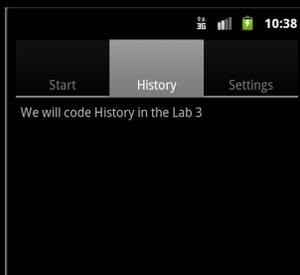


What you need to know for Lab 2

what we will cover

- setting up multiple activities
- intents
- lab 2

- multiple activities are used in lab 2 to manage different screens
- we need to set up different activities to handle different types of input on our UI



- Let's add a main activity and an activity for each tab in our UI to our Manifest file
- The main activity `android:name=".ActivityMainPortal` will set up intents that fire if a tab is clicked by the user -- and the intents start the activity e.g., `android:name=".ActivityTabSettings`

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <manifest xmlns:android="http://schemas.android.com/apk/res/android"
3     package="edu.dartmouth.cs.myruns"
4     android:versionCode="1"
5     android:versionName="1.0" >
6
7     <uses-sdk android:minSdkVersion="10" />
8
9
10    <application
11        android:icon="@drawable/ic_launcher"
12        android:label="@string/app_name" >
13        <activity android:name=".ActivityProfile" >
14        </activity>
15        <activity
16            android:name=".ActivityMainPortal"
17            android:label="@string/app_name"
18            android:theme="@android:style/Theme.NoTitleBar" >
19            <intent-filter>
20                <action android:name="android.intent.action.MAIN" />
21                <category android:name="android.intent.category.LAUNCHER" />
22            </intent-filter>
23        </activity>
24        <activity android:name=".ActivityTabStart" >
25        </activity>
26        <activity android:name=".ActivityTabHistory" >
27        </activity>
28        <activity android:name=".ActivityTabSettings" >
29        </activity>
30    </application>
31 </manifest>
```

- Let's create a mainportal.xml and use a TabHost and a TabWidget to create a tabbed UI
- TabHost must be the root node for the layout
- It contains TabWidget for displaying the tabs and a FrameLayout for displaying the tab content.

```

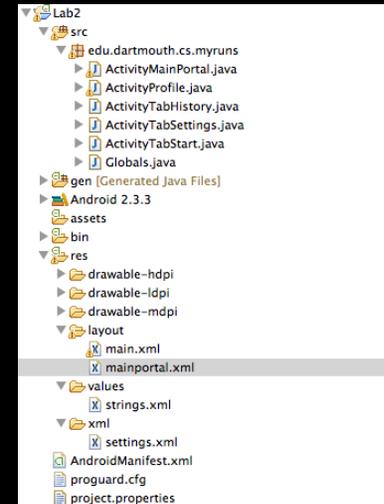
1 <?xml version="1.0" encoding="utf-8"?>
2 <TabHost xmlns:android="http://schemas.android.com/apk/res/android"
3     android:id="@android:id/tabhost"
4     android:layout_width="fill_parent"
5     android:layout_height="fill_parent">
6     <LinearLayout
7         android:orientation="vertical"
8         android:layout_width="fill_parent"
9         android:layout_height="fill_parent"
10        android:padding="5dp">
11         <TabWidget
12             android:id="@android:id/tabs"
13             android:layout_width="fill_parent"
14             android:layout_height="wrap_content" />
15         <FrameLayout
16             android:id="@android:id/tabcontent"
17             android:layout_width="fill_parent"
18             android:layout_height="fill_parent"
19             android:padding="5dp" />
20     </LinearLayout>
21 </TabHost>

```

Quick look at our project for Lab 2. We will create the framework for the complete app on the UI side.

We will focus on allowing the user to enter richer information about themselves -- a picture from the camera, link in a webpage that can be fired up, use more widgets

Let's discuss the project layout of activities and various files and look at the code



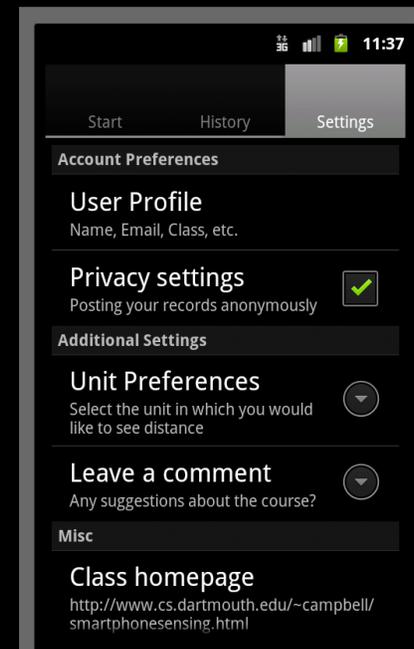
- Snippet of ActivityMainPortal
- It sets up each tab and creates an intent to fire the activity.
- Finally it renders the view.

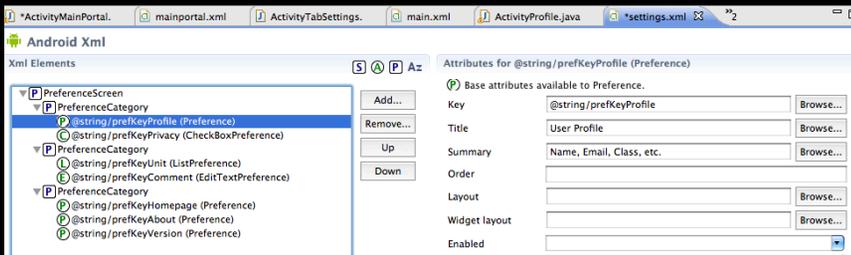
```

1 package edu.dartmouth.cs.myruns;
2
3 import android.app.TabActivity;
4
5 public class ActivityMainPortal extends TabActivity {
6
7     @Override
8     protected void onCreate(Bundle savedInstanceState) {
9         // TODO Auto-generated method stub
10        super.onCreate(savedInstanceState);
11        setContentView(R.layout.mainportal);
12
13        TabHost tabHost = getTabHost(); // The activity TabHost
14        TabHost.TabSpec spec; // Reusable TabSpec for each tab
15
16        Intent intent; // Reusable Intent for each tab
17
18        // Create an Intent to launch an Activity for the tab (to be reused)
19
20        intent = new Intent().setClass(this, ActivityTabStart.class);
21
22        // Initialize a TabSpec for the start tab and add it to the TabHost
23
24        spec = tabHost.newTabSpec("start").setIndicator("Start")
25            .setContent(intent);
26        tabHost.addTab(spec);
27
28        intent = new Intent().setClass(this, ActivityTabSettings.class);
29
30        // Initialize a TabSpec for settings tab and add it to the TabHost
31
32        spec = tabHost.newTabSpec("settings").setIndicator("Settings")
33            .setContent(intent);
34        tabHost.addTab(spec);
35
36        intent = new Intent().setClass(this, ActivityTabHistory.class);
37
38        // Initialize a TabSpec for the history tab and add it to the TabHost
39
40        spec = tabHost.newTabSpec("history").setIndicator("History")
41            .setContent(intent);
42        tabHost.addTab(spec);
43
44        // Lets highlight the history tab
45
46        tabHost.setCurrentTab(1);
47
48    }

```

- The UI for settings looks like this.
- It includes categories that are grouped in settings.xml
-





- when looking at the settings.xml you can build your screen using the structure or xml views. In structure you can build your categories by adding PreferenceCategory to the PreferenceScreen.
- On the right you fill in the key, title and summary. The key is used to refer to the particular category for example prefKeyProfile.
- You can use that key to for example fire an activity if the category is selected by the user

here is the settings.xml

```

1 <?xml version="1.0" encoding="utf-8"?>
2 <PreferenceScreen xmlns:android="http://schemas.android.com/apk/res/android" >
3
4 <PreferenceCategory android:title="Account Preferences" >
5
6 <Preference
7   android:key="@string/prefKeyProfile"
8   android:summary="Name, Email, Class, etc."
9   android:title="User Profile" />
10
11 <CheckBoxPreference
12   android:defaultValue="false"
13   android:key="@string/prefKeyPrivacy"
14   android:summary="Posting your records anonymously"
15   android:title="Privacy settings" />
16 </PreferenceCategory>
17 <PreferenceCategory android:title="Additional Settings" >
18 <ListPreference
19   android:entries="@array/distanceMeasuredNameArray"
20   android:entryValues="@array/distanceMeasuredValueArray"
21   android:key="@string/prefKeyUnit"
22   android:summary="Select the unit in which you would like to see distance"
23   android:title="Unit Preferences" />
24
25 <EditTextPreference
26   android:key="@string/prefKeyComment"
27   android:summary="Any suggestions about the course?"
28   android:title="Leave a comment" />
29 </PreferenceCategory>
30 <PreferenceCategory android:title="Misc" >
31 <Preference
32   android:key="@string/prefKeyHomepage"
33   android:summary="@string/projectURL"
34   android:title="Class homepage" />
35 <Preference
36   android:key="@string/prefKeyAbout"
37   android:title="About Runs" />
38 <Preference
39   android:key="@string/prefKeyVersion"
40   android:summary="@string/0.0.0"
41   android:title="Version" />
42 </PreferenceCategory>
43 </PreferenceScreen>

```

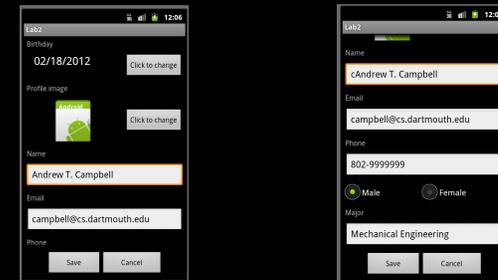
If the user clicks on "User Profile" the on click listener starts ActivityProfile activity -- note the screen can scroll

- ActivityTabSettings extends Preference Activity
- onCreate sets up a listener that starts the ActivityProfile

```

1 package edu.dartmouth.cs.myruns;
2
3 import android.app.AlertDialog;
4
5 public class ActivityTabSettings extends PreferenceActivity {
6
7     private Context mContext;
8
9     private final static int DIALOG_ABOUT_ID = 1;
10
11     @Override
12     public void onCreate(Bundle savedInstanceState) {
13         super.onCreate(savedInstanceState);
14
15         mContext = this;
16
17         Preference.OnPreferenceClickListener prefListener;
18         // instantiates preference object
19         addPreferencesFromResource(R.xml.settings);
20         // Get the usable preference
21         Preference pref;
22         // Setup listener for profile page to be rendered
23         pref = findPreference(getString(R.string.prefKeyProfile));
24         prefListener = new Preference.OnPreferenceClickListener() {
25             @Override
26             public boolean onPreferenceClick(Preference preference) {
27                 startActivity(new Intent(mContext, ActivityProfile.class));
28                 return true;
29             }
30         };
31         pref.setOnPreferenceClickListener(prefListener);
32     }
33 }

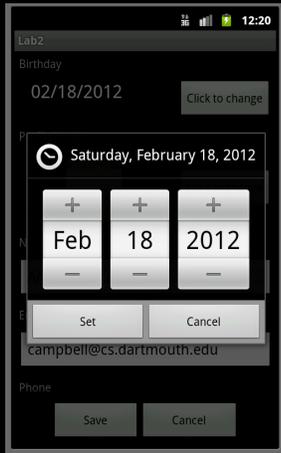
```



the main.xml (a better name would be profile.xml) uses ScrollView to scroll down or up through the screen

But the save and cancel buttons are always at the bottom of the screen. You can use the graphical and/or xml views to update the profile screen you created in Lab 1

Let's quickly look at the main.xml



Picker dialog

```

27<
28<LinearLayout
29  android:id="@+id/linearLayout3"
30  android:layout_width="wrap_content"
31  android:layout_height="wrap_content" >
32
33  <TextView
34    android:id="@+id/dateDisplay"
35    android:layout_width="wrap_content"
36    android:layout_height="wrap_content"
37    android:layout_marginLeft="28sp"
38    android:text="Large Text"
39    android:textAppearance="@android:attr/textAppearanceLarge" />
40
41  <Button
42    android:id="@+id/buttonPickDate"
43    android:layout_width="wrap_content"
44    android:layout_height="wrap_content"
45    android:layout_margin="5dp"
46    android:text="@string/buttonBirthday" />
47
48</LinearLayout>

```

main.xml snippet

```

98  btn.setOnClickListener(myListener);
99
100 // handling the event of inputting the date -- clicking the date button
101
102 btn = ((Button) findViewById(R.id.buttonPickDate));
103
104 myListener = new View.OnClickListener() {
105     @Override
106     public void onClick(View v) {
107         showDialog(DIALOG_BDATE_ID);
108     }
109 };
110
111 btn.setOnClickListener(myListener);

```

ActivityProfile.java snippet
create a dialog and listener

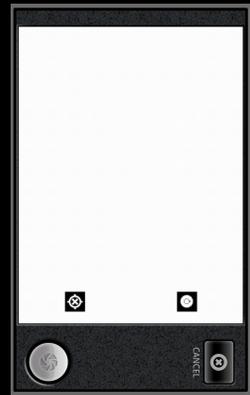
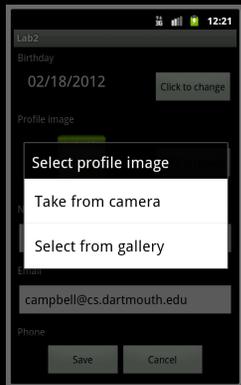
```

92 // when showDialog is executed it will execute this -- the ID defines what
93 // is done
94
95 @Override
96 protected Dialog onCreateDialog(int id) {
97
98     // Override onDateSet method, save date into member variables and update
99     // birthday textview
100     switch (id) {
101         case DIALOG_BDATE_ID:
102
103             // if set is clicked on the picker date widget the onDateSet
104             DatePickerDialog.OnDateSetListener myListener = new DatePickerDialog.OnDateSetListener() {
105
106                 @Override
107                 public void onDateSet(DatePicker view, int year,
108                     int monthOfYear, int dayOfMonth) {
109
110                     mYear = year;
111                     mMonth = monthOfYear;
112                     mDay = dayOfMonth;
113                     updateBirthdayDisplay();
114
115                 }
116             };
117
118             DatePickerDialog myDialog = new DatePickerDialog(this, myListener,
119                 mYear, mMonth, mDay);
120             return myDialog;
121         }
122     }
123     return super.onCreateDialog(id);
124 }

```

when showDialog is executed it will call onCreateDialog displaying the DatePickerDialog

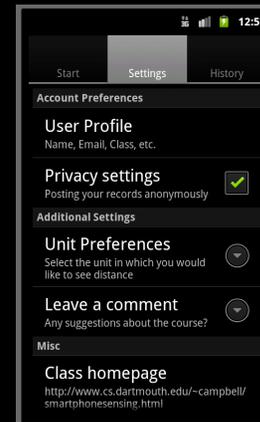
You need to take care of a number of edge cases with birthday: need to store it, what about the first time through.



take a picture and store it in your profile. This is a tricky part of the lab
here a dialog is presented to the user

the ActivityProfile uses an intent to get a system activity to invoke the camera application to take a photo

the code needs to get return data from the camera activity (which is the photo). It needs to crop the photo to the right size, and save and render it in the profile.



ActivityTabSettings uses an intent to open a browser to display the class homepage

```

54 // Setup listener for class home page to be rendered
55
56
57 pref = findPreference(getString(R.string.prefKeyHomepage));
58
59 prefListener = new Preference.OnPreferenceClickListener() {
60
61     @Override
62     public boolean onPreferenceClick(Preference preference) {
63
64         Intent i = new Intent(android.content.Intent.ACTION_VIEW,
65                               Uri.parse(getString(R.string.projectURL)));
66         startActivity(i);
67
68         return true;
69     }
70 };
71
72 pref.setOnPreferenceClickListener(prefListener);

```

ActivityTabSettings uses an intent to open a browser to display the class homepage

what have we discussed so far

- multiple activities
- intents and on click listeners
- preferenceActivity and category
- tabs, scrollviews
- dialogs
- firing system activities such as the camera and webpage

Let's discuss intents some more

intent

- Intent is the glue that connects activities
- it allows one activity to link to another
 - it allows you to pass between activities
 - it allows you to call other activities e.g., our activities or built in apps/activities (camera, browser, etc.)

```

34
35 // Setup listener for class home page to be rendered
36
37 pref = findPreference(getString(R.string.prefKeyHomepage));
38
39 prefListener = new Preference.OnPreferenceClickListener() {
40
41     @Override
42     public boolean onPreferenceClick(Preference preference) {
43
44         Intent i = new Intent(android.content.Intent.ACTION_VIEW,
45             Uri.parse(getString(R.string.projectURL)));
46         startActivity(i);
47
48         return true;
49     }
50 };
51
52 pref.setOnPreferenceClickListener(prefListener);

```

create an intent and then use startActivity to call the activity -- in this case the browser passing the URL as data **into** the browser activity

returning data from an activity

- startActivity() does not return data to the calling activity
- we have to use startActivityForResult() to do that.
- data may be passed into an activity (e.g., the web browser) or passed in and back; for example, in order for the camera activity to work it needs to pass data back to the calling activity (i.e., the photo)

```

33 // Select from gallery
34 Intent intent = new Intent();
35 intent.setType(IMAGE_UNSPECIFIED);
36 intent.setAction(Intent.ACTION_GET_CONTENT);
37 // Start a gallery choosing activity
38 // REQUEST_CODE_SELECT_FROM_GALLERY is an integer tag you
39 // defined to
40 // identify the activity in onActivityResult() when it
41 // returns
42 startActivityForResult(Intent.createChooser(intent,
43     "Complete action using"),
44     REQUEST_CODE_SELECT_FROM_GALLERY);
45 }

```

the gallery activity needs to pass back the chosen picture to the activityProfile activity -- here is the setup with startActivityForResult()

```

29 // Handle data after activity returns -- camera and gallery
30
31 @Override
32 protected void onActivityResult(int requestCode, int resultCode, Intent data) {
33     if (resultCode != RESULT_OK)
34         return;
35
36     switch (requestCode) {
37         case REQUEST_CODE_TAKE_FROM_CAMERA:
38             // Send image taken from camera for cropping
39             cropImage();
40             break;
41
42         case REQUEST_CODE_SELECT_FROM_GALLERY:
43             // Send selected image from gallery for cropping
44             mImageCaptureUri = data.getData();
45             cropImage();
46             break;
47
48         case REQUEST_CODE_CROP_PHOTO:
49             // Update image view after image crop
50             Bundle extras = data.getExtras();
51             // Set the profile image in UI
52             if (extras != null) {
53                 mImageView
54                     .setImageBitmap((Bitmap) extras.getParcelable("data"));
55             }
56             // Delete temporary image taken by camera after crop.
57             File f = new File(mImageCaptureUri.getPath());
58             if (f.exists())
59                 f.delete();
60             break;
61     }
62 }

```

You have to implement a onActivityResult method to get data back from the called activity; for example, the gallery passes back a data object (the image) which we crop to size.

- Read chapter two in the book on Intents

- Read Intents and Intent filters on the dev site

<http://developer.android.com/guide/topics/intents/intents-filters.html>

lets look at the code