**121`**

ITMD 455/555 *Intelligent Device Applications* Lab 2

#### Temperature Converter (part deux) App- 50 points

**Introduction**. This lab continues with lab 1 logic but throws in a few more goodies namely a seekBar, listview with an arrayAdapter and a Viewstub.

The code is well laid out replete with comments. Study over the code syntax, the logic (esp. the objects used), the import statements of the Java and XML files VERY carefully, line by line if necessary as that’s one way to learn big time!

**STEP 1 Creating a New Android Project**

Create a new project called **TempConverter2**. Save your project to a desired location. Name your **Company domain** as: **mypackage.example.com**. Accept all other defaults. Choose an appropriate API. Create an Empty Activity when prompted. Keep default activity and layout names and keep defaulted check boxes. Click Finish when complete.

**STEP 2 Completely override your activity\_main.xml file as follows:**

*<?***xml version="1.0" encoding="utf-8"***?>*<**RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 xmlns:tools="http://schemas.android.com/tools"  
 xmlns:app="http://schemas.android.com/apk/res-auto"  
 android:id="@+id/activity\_main"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintLeft\_toLeftOf="parent"  
 app:layout\_constraintRight\_toRightOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 tools:context="com.example.mypackage.tempconverter2.MainActivity"**>  
  
 <**TextView android:id="@+id/textview"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"** />  
  
 *<!-- add View as gap for 4 blank lines -->* <**View  
 android:layout\_width="match\_parent"  
 android:layout\_height="60dp"  
 android:id="@+id/view"**>  
 </**View**>  
  
 <**SeekBar android:id="@+id/seekbar"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:max="100"  
 android:minWidth="250dp"  
 android:layout\_below="@+id/view"  
 android:layout\_alignParentLeft="true"  
 android:layout\_alignParentStart="true"** />  
  
 <**CheckBox  
 android:id="@+id/checkBox1"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Show 5 Day forecast"  
 android:layout\_below="@+id/seekbar"  
 android:layout\_alignParentLeft="true"  
 android:layout\_alignParentStart="true"  
 android:layout\_marginTop="49dp"** />  
  
 <**ViewStub  
 android:id="@+id/viewStub1"  
 android:layout="@layout/stubview"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"** />  
  
</**RelativeLayout**>

Never mind the warning in red for the **ViewStub** tag, we’ll fix that next!

**STEP 3 Add an Android XML file in your layout folder call it stubview. Choose a LinearLayout as your Root element.**

To add in a layout file, right click on your res/layout folder and choose

New>XML>Layout XML File. Name the file **stubview**. You can put in LinearLayout as your ‘Root Tag’ if it is not given as a choice. Use the following code for the new file:

*<?***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"**>  
  
 <**ListView  
 android:id="@+id/listView"  
 android:layout\_height="wrap\_content"  
 android:layout\_width="match\_parent"**/>  
  
</**LinearLayout**>

**STEP 4 Finally add the following code to your MainActivity java file**

Include the entire code that follows after the following *opening* line

of your class declaration, up to but NOT including the closing brace ( **}** ) of your class:

**public class** MainActivity **extends** AppCompatActivity {  
  
 SeekBar **seekBar**; *//declare seekbar object* TextView **textView**;  
 *//declare member variables for SeekBar* **int discrete** = 0;  
 **int start** = 50;  
 **int start\_position** = 50; *//progress tracker* **int temp** = 0;  
 *//declare objects for ViewStub* ViewStub **stub**;  
 CheckBox **checkBox**;  
 ListView **lv**; *//declare Listview object*  
  
 @Override  
 **public void** onCreate(Bundle savedInstanceState) {  
 **super**.onCreate(savedInstanceState);  
 setContentView(R.layout.***activity\_main***);  
  
 *//declare viewstub object* **stub** = findViewById(R.id.***viewStub1***);  
 @SuppressWarnings(**"unused"**)  
 View inflated = **stub**.inflate();  
 **stub**.setVisibility(View.INVISIBLE);  
  
 *//ViewStub logic* **checkBox** = findViewById(R.id.***checkBox1***);  
 *//handle checkbox click event* **checkBox**.setOnCheckedChangeListener(**new**

CheckBox.OnCheckedChangeListener() {  
 **public void** onCheckedChanged(CompoundButton

arg0, **boolean** isChecked) {  
 **if** (isChecked) {  
 *//remove objs from parent view to allow for child view*

*objs* **checkBox**.setVisibility(View.GONE);  
 **seekBar**.setVisibility(View.GONE);  
 **textView**.setVisibility(View.GONE);  
 **stub**.setVisibility(View.VISIBLE);  
 }  
 }  
 });  
  
 *//seekbar logic* **textView** = findViewById(R.id.***textview***);  
 **textView**.setText(**" Celsius at 0 degrees"**);

*//set default view* **seekBar** = findViewById(R.id.***seekbar***);  
 **seekBar**.setProgress(**start\_position**);  
  
 *//create event handler for SeekBar* **seekBar**.setOnSeekBarChangeListener(**new**

OnSeekBarChangeListener() {  
 @Override  
 **public void** onStopTrackingTouch(SeekBar seekBar)

{  
 *//* ***TODO Auto-generated method stub* if** (**temp** == 0) *//for initial view result* Toast.makeText(getBaseContext(), **"Fahrenheit**

**result 32 degrees"**,Toast.LENGTH\_SHORT).show();  
 **else** Toast.makeText(getBaseContext(), **"Fahrenheit**

**result "** + String.*valueOf*(**discrete**) + **"**

**degrees"**,Toast.LENGTH\_SHORT).show();  
 }  
 @Override  
 **public void** onStartTrackingTouch(SeekBar

seekBar) {  
 *//* ***TODO Auto-generated method stub*** }  
 @Override  
 **public void** onProgressChanged(SeekBar seekBar,

**int** progress, **boolean** fromUser) {  
 *//* ***TODO Auto-generated method stub*** *// To convert progress passed as discrete*

*(Fahrenheit) value* **temp** = progress - **start**;  
 **discrete** = (**int**) Math.*round*((((**temp** \* 9.0) /

5.0) + 32)); *//convert C to F temp* **textView**.setText(**" Celsius at "** + **temp** + **"**

**degrees"**);  
 }  
 });  
 *//Listview logic* String[] wkTemps = **new** String[]{**"1"**, **"-10"**, **"0"**,

**"30"**, **"10"**};  
  
 **lv** = findViewById(R.id.***listView***);  
 @SuppressWarnings({**"unchecked"**, **"rawtypes"**})  
 */\*  
 \* To use a basic ArrayAdapter, you just need to*

*initialize the adapter and  
 \* attach the adapter to the ListView. First,*

*initialize the adapter...:  
 \*  
 \*/* ArrayAdapter adapter = **new** ArrayAdapter(**this**,  
 android.R.layout.***simple\_list\_item\_1***,

android.R.id.***text1***, wkTemps);  
 *// Assign adapter to ListView* **lv**.setAdapter(adapter);  
  
 }*//end onCreate method*

Add the following import statements as well into your file:

**import** android.view.View;  
**import** android.view.ViewStub;  
**import** android.widget.ArrayAdapter;  
**import** android.widget.CheckBox;  
**import** android.widget.CompoundButton;  
**import** android.widget.ListView;  
**import** android.widget.SeekBar;  
**import** android.widget.SeekBar.OnSeekBarChangeListener;  
**import** android.widget.TextView;  
**import** android.widget.Toast;

**STEP 5 Test drive your app**

Run your app at this point and it should fly. Test first your SeekBar and see if

you get the results your supposed to via the Toast message. Then click on the CheckBox

and you should see your Listview result.

**STEP 6 Modify your MainActivity code as follows:**

1. Search the web for “realistic” Chicago temps for the next 5 days and add them (update) to your string array, **wkTemps**. Likewise include the days of the week (Monday, Tuesday, etc.) so your temperatures actually reflect temps by day, into your array.

1. Add in a title at the top of your child view stating “5 Day Chicago Forecast”. Include a white font color and a light blue backcolor.
2. In your MainActivity file, replace the Toast pop up message which renders the Fahrenheit temperature, with a TextView which will serve to display the Fahrenheit equivalent to the chosen Celsius temperature by the user.

Grads

Include a “Back” Button – with an appropriate icon for the button that will simulate the user going back to the original view to work the seek bar as depicted when the Activity first started. Include visible views once again to show all the elements that were included at app start up for full UX functionality, namely, the textview, seekbar, checkbox and your newly added textview added in part 3 above which displays Fahrenheit temperature equivalencies. So basicallly your toggling between certain element ‘views’ on your back button’s click event. Set your checkbox back to unchecked as well. Leave elements such as your textviews though in their current state (which should be still fresh with values).

**STEP 7 Submitting your assignment:**

For **full** credit turn in the following Word doc file filled with this:

1. Your MainActivity file code.
2. Your code for both your XML layout files.
3. Snapshots of your Fahrenheit result in your texview with a chosen temperature of 22 degrees Celsius chosen from the seekbar.

Include a snapshot of your full 5 day forecast by days view that’s rendered.

Grads

Include a snapshot result of your “Back” button in action that would show the Activity screen once again with it’s full UX functionality (i.e., presented in its lastest state).