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**Lab2 – Feb/16/2024**

**Intelligent Device Applications ( ITMD-555 )**

**PROJECT** Temperature Converter (part deux) **50 points**

Objective: To practice seekBar, checkbox, listview with an arrayAdapter and a Viewstub.

***PROJECT DESCRIPTION***

**Introduction**. This lab continues with lab 1 logic but throws in a few more goodies namely a seekBar, checkbox, 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!

**Snapshot 1 – Home Screen**

**A screenshot of a blue screen

Description automatically generated**

**Snapshot 2: Showing 22 Degree Celsius in Fahrenheit**

**A screenshot of a phone

Description automatically generated**

**Snapshot 3. 5 day Weather Forecast with Appropriate images for Weather**

**A screenshot of a weather forecast

Description automatically generated**

**Snapshot 4. Back to Home Page with same values**

**A screenshot of a phone

Description automatically generated**

Source Code:

**MainActivity.java**

package com.example.tempconverter2;  
  
import androidx.appcompat.app.AppCompatActivity;  
  
import android.annotation.SuppressLint;  
import android.view.View;  
import android.view.ViewStub;  
import android.widget.ArrayAdapter;  
import android.widget.Button;  
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;  
  
import android.os.Bundle;  
  
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  
  
 View heading;  
  
 Button backButton;  
  
 TextView convertText;  
  
 View weekForecast;  
  
  
 @SuppressLint("MissingInflatedId")  
 @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*);  
  
 heading=findViewById(R.id.*projectName*);  
  
 convertText=findViewById(R.id.*convertText*);  
  
 weekForecast=findViewById(R.id.*simply*);  
  
 weekForecast.setVisibility(View.*GONE*);  
  
 //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*);  
 //heading.setVisibility(View.VISIBLE);  
 stub.setVisibility(View.*VISIBLE*);  
 lv.setVisibility(View.*VISIBLE*);  
 backButton.setVisibility(View.*VISIBLE*);  
 convertText.setVisibility(View.*GONE*);  
 heading.setVisibility(View.*VISIBLE*);  
 weekForecast.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) {  
 if (temp == 0) //for initial view result  
// Toast.makeText(getBaseContext(), "Fahrenheit result: " +  
// "32 degrees", Toast.LENGTH\_SHORT).show();  
 convertText.setText("Fahrenheit result: " +  
 "32 degrees");  
 else  
// Toast.makeText(getBaseContext(), "Fahrenheit result: "  
// + String.valueOf(discrete) +  
// " degrees", Toast.LENGTH\_SHORT).show();  
 convertText.setText("Fahrenheit result: "  
 + String.*valueOf*(discrete) +  
 " degrees");  
 }  
  
 @Override  
 public void onStartTrackingTouch(SeekBar seekBar) {  
 }  
  
 @Override  
 public void onProgressChanged(SeekBar seekBar,  
 int progress, boolean fromUser) {  
 // 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");  
 }  
 });  
  
 // Initialize backButton  
 backButton = findViewById(R.id.*backButton*);  
  
 // Set OnClickListener for backButton  
 backButton.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View v) {  
 // Show the hidden views  
 textView.setVisibility(View.*VISIBLE*);  
 seekBar.setVisibility(View.*VISIBLE*);  
 checkBox.setVisibility(View.*VISIBLE*);  
 stub.setVisibility(View.*INVISIBLE*);  
  
 // Uncheck the checkbox  
 checkBox.setChecked(false);  
  
 // Hide the backButton and listView  
 backButton.setVisibility(View.*GONE*);  
 lv.setVisibility(View.*GONE*);  
  
 convertText.setVisibility(View.*VISIBLE*);  
  
 weekForecast.setVisibility(View.*GONE*);  
  
  
 }  
 });  
  
  
 //Listview logic  
 //String[] wkTemps = new String[]{"1", "-10", "0", "30", "10"};  
  
 String[] wkTempsLow = new String[]{"-2", "1", "4", "4", "1"};  
 String[] wkTempsHigh = new String[]{"4", "6", "8", "11", "6"};  
 String[] wkDays=new String[]{"Sunday","Monday","Tuesday","Wednesday","Thursday"};  
  
 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);  
//  
 String[] wkTemps = new String[5];  
 for (int i = 0; i < 5; i++) {  
 wkTemps[i] = "High: " + wkTempsHigh[i] + "°C, Low: " + wkTempsLow[i] + "°C";  
 }  
 int weatherImages []={R.drawable.*below*,R.drawable.*clouds*, R.drawable.*sun\_clouds*,R.drawable.*sun*,R.drawable.*wind*};  
  
// ArrayAdapter<String> adapter = new ArrayAdapter<>(this, android.R.layout.simple\_list\_item\_1, android.R.id.text1, wkTemps);  
// lv.setAdapter(adapter);  
  
 CustomBaseAdapter customBaseAdapter=new CustomBaseAdapter(getApplicationContext(),wkDays,wkTemps,weatherImages);  
 lv.setAdapter(customBaseAdapter);  
 }//end onCreate method  
  
}

**CustomListView.java**

package com.example.tempconverter2;  
  
import androidx.appcompat.app.AppCompatActivity;  
  
import android.os.Bundle;  
  
public class CustomListView extends AppCompatActivity {  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_custom\_list\_view*);  
 }  
}

**CustomBaseAdapter.java**

package com.example.tempconverter2;  
  
import android.content.Context;  
import android.view.LayoutInflater;  
import android.view.View;  
import android.view.ViewGroup;  
import android.widget.BaseAdapter;  
import android.widget.ImageView;  
import android.widget.TextView;  
  
public class CustomBaseAdapter extends BaseAdapter {  
  
 Context context;  
 String[] temp;  
 int[] images;  
  
 String[] days;  
 LayoutInflater inflater;  
  
 public CustomBaseAdapter() {  
 }  
 public CustomBaseAdapter(Context ctx,String[] days,String[] temp, int[] images) {  
 this.context=ctx;  
 this.images=images;  
 this.temp=temp;  
 this.days=days;  
 inflater=LayoutInflater.*from*(ctx);  
 }  
  
 @Override  
 public int getCount() {  
 return temp.length;  
 }  
  
 @Override  
 public Object getItem(int position) {  
 return null;  
 }  
  
 @Override  
 public long getItemId(int position) {  
 return 0;  
 }  
  
 @Override  
 public View getView(int position, View convertView, ViewGroup parent) {  
 convertView=inflater.inflate(R.layout.*activity\_custom\_list\_view*,null);  
 TextView listTextView=convertView.findViewById(R.id.*listTextView*);  
 TextView listTextView2=convertView.findViewById(R.id.*listTextView2*);  
 ImageView tempImage=convertView.findViewById(R.id.*imageIcon*);  
 listTextView.setText(days[position]);  
 listTextView2.setText(temp[position]);  
 tempImage.setImageResource(images[position]);  
 return convertView;  
  
 }  
}

**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"  
 xmlns:app="http://schemas.android.com/apk/res-auto"  
 android:id="@+id/activity\_main"  
 android:background="@color/light\_blue"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 tools:context="com.example.tempconverter2.MainActivity">  
  
 <TextView  
 android:id="@+id/projectName"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_alignParentTop="true"  
 android:layout\_alignParentStart="true"  
 android:text="TempConverter2"/>  
  
  
  
 <View  
 android:id="@+id/view2"  
 android:layout\_width="match\_parent"  
 android:layout\_height="15dp"  
 android:layout\_below="@id/projectName"/>  
  
 <TextView  
 android:id="@+id/simply"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_below="@id/projectName"  
 android:layout\_alignParentStart="true"  
 android:layout\_marginTop="8dp"  
 android:text="5 Day Chicago Forecast"/>  
  
 <!-- Original alignments preserved below -->  
  
 <TextView  
 android:id="@+id/textview"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_below="@id/view2"  
 android:text="Main Content" />  
  
 <View  
 android:id="@+id/view"  
 android:layout\_width="match\_parent"  
 android:layout\_height="60dp"  
 android:layout\_below="@id/textview"/>  
  
 <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"  
 style="@style/SeekBarStyle"  
 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"  
 android:textColor="@android:color/white"  
 android:buttonTint="@android:color/white"/>  
 <View  
 android:id="@+id/view44"  
 android:layout\_width="match\_parent"  
 android:layout\_height="60dp"  
 android:layout\_below="@id/checkBox1"/>  
  
 <TextView  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_below="@+id/view44"  
 android:id="@+id/convertText">  
  
 </TextView>  
  
 <View  
 android:layout\_width="wrap\_content"  
 android:layout\_height="45dp"  
 android:id="@+id/aboveListView"  
 android:layout\_below="@+id/simply">  
  
 </View>  
 <ViewStub  
 android:id="@+id/viewStub1"  
 android:layout="@layout/stubview"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_below="@+id/aboveListView"/>  
  
  
  
</RelativeLayout>

**Stubview.xml**

<?xml version="1.0" encoding="utf-8"?>  
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 android:layout\_width="wrap\_content"  
  
 android:layout\_height="match\_parent"  
 android:orientation="vertical">  
  
 <ListView  
 android:id="@+id/listView"  
 android:layout\_width="394dp"  
 android:layout\_height="484dp" />  
  
 <Button  
 android:id="@+id/backButton"  
 android:layout\_width="117dp"  
 android:layout\_height="63dp"  
 android:layout\_below="@id/listView"  
 android:layout\_alignParentEnd="true"  
 android:layout\_marginTop="16dp"  
 android:layout\_marginEnd="16dp"  
 android:text="Back" />  
  
  
</LinearLayout>

**Activity\_custom\_list\_view.xml**

<?xml version="1.0" encoding="utf-8"?>  
<LinearLayout 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="wrap\_content"  
 android:orientation="horizontal"  
 android:background="@color/light\_blue"  
 tools:context=".CustomListView">  
  
 <ImageView  
 android:id="@+id/imageIcon"  
 android:layout\_width="0dp"  
 android:layout\_height="wrap\_content"  
 android:layout\_weight="0.3"  
 android:layout\_gravity="start|center\_vertical"  
 android:scaleType="fitCenter"/>  
  
 <LinearLayout  
 android:layout\_width="0dp"  
 android:layout\_height="wrap\_content"  
 android:layout\_weight="0.7"  
 android:orientation="vertical">  
  
 <TextView  
 android:id="@+id/listTextView"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:gravity="start|center\_vertical"  
 android:textColor="@android:color/white"  
 android:text="My Text Here"/>  
  
 <TextView  
 android:id="@+id/listTextView2"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:gravity="start|center\_vertical"  
 android:textColor="@android:color/white"  
 android:text="My Text Here"/>  
  
 </LinearLayout>  
  
</LinearLayout>