\*\*\*\*\*\*\*\*\*\*\*\*\*\*XML and JSON Data\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

*<?*xml version="1.0" encoding="utf-8"*?>*<records>  
 <place>  
 <City\_Name>Mysore</City\_Name>  
 <Latitude>12.295</Latitude>  
 <Longitude>76.639</Longitude>  
 <Temperature>22</Temperature>  
 <Humidity>90%</Humidity>  
 </place>  
 <place>  
 <City\_Name>Mandya</City\_Name>  
 <Latitude>12.298</Latitude>  
 <Longitude>76.839</Longitude>  
 <Temperature>23</Temperature>  
 <Humidity>95%</Humidity>  
 </place>  
</records>

JSON DATA

[  
 {  
 "City\_Name": "Mysore",  
 "Latitude": "12.295",  
 "Longitude": "76.639",  
 "Temperature": "22",  
 "Humidity": "90%"  
 },  
 {  
 "City\_Name": "Mysore",  
 "Latitude": "12.298",  
 "Longitude": "76.739",  
 "Temperature": "23.0",  
 "Humidity": "90%"  
 }  
]

\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*START HERE\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

*<?*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="match\_parent"  
 android:orientation="vertical"  
 tools:context=".MainActivity">  
  
 <TextView  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:text="XML and JSON PARSER!"  
 android:textAlignment="center"  
 android:textColor="@color/black"  
 android:textSize="31sp"  
 android:textStyle="bold" />  
  
 <Button  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:onClick="XMLParser"  
 android:text="Parse XML Data"  
 android:textSize="18sp"  
 android:textAlignment="center"/>  
  
 <Button  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:onClick="JSONParser"  
 android:text="Parse JSON Data"  
 android:textSize="18sp" />  
  
  
 <LinearLayout  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:orientation="horizontal"  
 android:layout\_gravity="center">  
  
 <TextView  
 android:id="@+id/resxml"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Dummy XML Data"  
 android:textAlignment="center"  
 android:textColor="@color/black"  
 android:textSize="15sp"  
 android:paddingLeft="10sp"  
 android:paddingRight="40sp"/>  
  
 <TextView  
 android:id="@+id/resjson"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Dummy JSON Data"  
 android:textAlignment="center"  
 android:textColor="@color/black"  
 android:textSize="15sp"  
 android:paddingLeft="40sp"/>  
 </LinearLayout>  
  
</LinearLayout>

**LAB 6: JAVA FILE**

package com.example.lab6;  
  
import androidx.appcompat.app.AppCompatActivity;  
  
import android.os.Bundle;  
import android.view.View;  
import android.widget.TextView;  
  
import org.json.JSONArray;  
import org.json.JSONException;  
import org.json.JSONObject;  
import org.w3c.dom.Document;  
import org.w3c.dom.Element;  
import org.w3c.dom.Node;  
import org.w3c.dom.NodeList;  
import org.xml.sax.SAXException;  
  
import java.io.IOException;  
import java.io.InputStream;  
  
import javax.xml.parsers.DocumentBuilder;  
import javax.xml.parsers.DocumentBuilderFactory;  
import javax.xml.parsers.ParserConfigurationException;  
  
public class MainActivity extends AppCompatActivity {  
 TextView resxml, resjson;*//Create textView objects* @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
 *//Create Reference to both text views* resxml = findViewById(R.id.*resxml*);  
 resjson = findViewById(R.id.*resjson*);  
 }  
  
 public void XMLParser(View view) {  
 *//Parse/Read the XML data using InputStream,  
 // ..remember to surround with TRY & CATCH* try {  
 InputStream is = getAssets().open("city.xml");  
 *//Next Create a document builder factory...from its class* DocumentBuilderFactory dbFactory = DocumentBuilderFactory.*newInstance*();  
 *//Followed by DocumentBuilder...remember to add ParserConfiguration Exception* DocumentBuilder dBuilder = dbFactory.newDocumentBuilder();  
 *//Step 3: Create another object of type Document, add SAXException* Document doc = dBuilder.parse(is);  
 *//Create another Document Element* Element element = doc.getDocumentElement(); *//Reads the element from XML and you must Normalize them* element.normalize();  
 *//VIP: Specity the Root Note from which my data is to be taken and populated  
 //...in our case(xml), it is <place> under <records>  
 //CREATE the NodeList* NodeList nList = doc.getElementsByTagName("place");*//This will find two such "places" and assign it to nList* resxml.setText("XML DATA");*//Sets this in the TextView instead of Manually assigning them as we did before  
 //We need to LOOP through all the places and display the records along with the tag name* for(int i = 0; i<nList.getLength();i++)  
 {*//Same as i<2, i++* Node node = nList.item(i);  
 if(node.getNodeType()==Node.*ELEMENT\_NODE*)  
 {  
 Element element1=(Element) node;  
 *//Display the data* resxml.setText(resxml.getText()+"\n City Name:"+*getValue*("City\_Name", element1)+"\n");*//This helps to append the data  
 //NOTE: cityname is the tagname and getValue() is user define function* resxml.setText(resxml.getText()+"\n Latitude:"+*getValue*("Latitude", element1)+"\n");  
 resxml.setText(resxml.getText()+"\n Longitude:"+*getValue*("Longitude", element1)+"\n");  
 resxml.setText(resxml.getText()+"\n Temperature:"+*getValue*("Temperature", element1)+"\n");  
 resxml.setText(resxml.getText()+"\n City Name:"+*getValue*("Humidity", element1)+"\n");  
 resxml.setText(resxml.getText()+"\n");  
 }  
 }  
  
  
 } catch (IOException | ParserConfigurationException | SAXException e) {  
 e.printStackTrace();  
 }  
 }  
  
 private static String getValue(String tag, Element element) {  
 NodeList nodeList = element.getElementsByTagName(tag).item(0).getChildNodes();*//initially if theres's no childNode, 0 will be returned* Node node = nodeList.item(0);  
 return node.getNodeValue(); *//returns the value associated with Mysore City* }  
  
 public void JSONParser(View view) {  
 String json;*//Need this later for UTF-8 Encoding* try {  
 InputStream is = getAssets().open("city1.json");  
 int size = is.available();*//checks the size of the Json file* byte[] buffer = new byte[size];*//create a buffer to hold the size of the array and finally read it* is.read(buffer);  
 is.close();*//closes the input stream* json=new String(buffer,"UTF-8");*//UTF-8 is an encoding system for Unicode. It can translate any Unicode character to a matching unique binary string, and can also translate the binary string back to a Unicode character. This is the meaning of “UTF”, or “Unicode Transformation Format* JSONArray jsonArray = new JSONArray(json);  
 resjson.setText("JSON DATA");  
 *//USe a FOR-LOOP to iterate through the indices and returns the JSON array objects* for(int i=0; i<jsonArray.length();i++){  
 JSONObject obj = jsonArray.getJSONObject(i);  
 resjson.setText(resjson.getText()+"\n City Name: "+obj.getString("City\_Name")+"\n");*//So, since JSON mimics a dictionary, using the City\_Name, we can get the value* resjson.setText(resjson.getText()+"\n Longitude: "+obj.getString("Longitude")+"\n");  
 resjson.setText(resjson.getText()+"\n Latitude: "+obj.getString("Latitude")+"\n");  
 resjson.setText(resjson.getText()+"\n Temperature: "+obj.getString("Temperature")+"\n");  
 resjson.setText(resjson.getText()+"\n Humidity: "+obj.getString("Humidity")+"\n");  
 resjson.setText(resjson.getText()+"\n");  
 }  
  
 } catch (IOException | JSONException e) {  
 e.printStackTrace();  
 }  
 }  
}