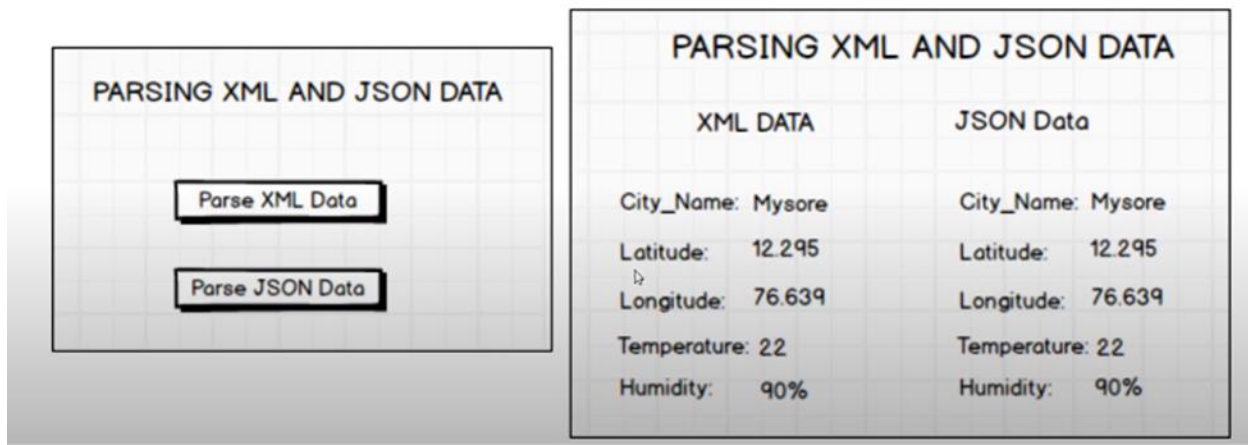


Program - 6: [Parse XML and JSON](#)

Program 6

Create two files of XML and JSON type with values for City_Name, Latitude, Longitude, Temperature, and Humidity. Develop an application to create an activity with two buttons to parse the XML and JSON files which when clicked should display the data in their respective layouts side by side.



Create Main JAVA and XML file:

1. Create new empty project
2. App/right click new/Folder/Asset Folder
3. Asset Folder/ right click new/File/weather.xml/copy paste code
4. Asset Folder/ right click new/File/weather.json/copy paste code

Create one more JAVA file and XML file:

1. App/right click → new/Activity/Empty activity (name: ViewDataActivity)/ Layout
Name: activity_view_data
2. Go to → res/layout/activity_view_data.xml

weather.json

```
{  
  "weather": {  
    "city_name": "Bangalore",  
    "latitude": "12.295",
```

```
"longitude": "76.987",
"temperature": "25",
"humidity": "50"
}
}
```

weather.xml

```
<?xml version="1.0"?>
<records>
  <weather>
    <city_name>Bangalore</city_name>
    <latitude>12.295</latitude>
    <longitude>76.987</longitude>
    <temperature>25</temperature>
    <humidity>50</humidity>
  </weather>
</records>
```

MainActivity.java

```
package com.computerlabspace.parsexmlandjson_program6;
import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;

public class MainActivity extends AppCompatActivity implements View.OnClickListener {

    Button parseXMLBtn, parseJSONBtn;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        parseXMLBtn = (Button) findViewById(R.id.main_parse_xml_btn_id);
        parseJSONBtn = (Button) findViewById(R.id.main_parse_json_id);
        parseXMLBtn.setOnClickListener(this); // this → current class will be invoked
        parseJSONBtn.setOnClickListener(this);
    }
}
```

```

@Override
public void onClick(View view) {
    if(view.equals(parseXMLBtn)) {
        // Intent will act like a broadcaster
        Intent intent = new Intent(this, ViewDataActivity.class);
        intent.putExtra("dataType", "xml");
        startActivity(intent);
    } else if(view.equals(parseJSONBtn)) {
        Intent intent = new Intent(this, ViewDataActivity.class);
        intent.putExtra("dataType", "json");
        startActivity(intent);
    }
}
}

```

activity_main.xml

```

<?xml version="1.0" encoding="utf-8"?>
<androidx.constraintlayout.widget.ConstraintLayout
    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"
    tools:context=".MainActivity">

    <TextView
        android:id="@+id/main_header_id"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="PARSING XML AND JSON DATA"
        android:textSize="20sp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.431"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.08" />

    <Button

```

```

        android:id="@+id/main_parse_xml_btn_id"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Parse XML Data"
        android:textAllCaps="false"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toBottomOf="@+id/main_header_id"
        app:layout_constraintVertical_bias="0.253" />

<Button
    android:id="@+id/main_parse_json_id"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="Parse JSON Data"
    android:textAllCaps="false"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/main_parse_xml_btn_id"
    app:layout_constraintVertical_bias="0.237" />
</androidx.constraintlayout.widget.ConstraintLayout>

```

ViewDataActivity

```

package com.computerlabspace.parsexmljson_program6;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent;

import android.os.Bundle;

import android.util.JsonReader;

import android.widget.TextView;

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 java.io.InputStreamReader;
import javax.xml.parsers.DocumentBuilder;
import javax.xml.parsers.DocumentBuilderFactory;
import javax.xml.parsers.ParserConfigurationException;
```

```
public class ViewDataActivity extends AppCompatActivity {
```

```
    TextView xmlContentView, jsonContentView;
```

```
    @Override
```

```
    protected void onCreate(Bundle savedInstanceState) {
```

```
        super.onCreate(savedInstanceState);
```

```
        setContentView(R.layout.activity_view_data);
```

```
        xmlContentView = (TextView) findViewById(R.id.view_xml_content_id);
```

```
        jsonContentView = (TextView) findViewById(R.id.view_json_content_id);
```

```
        Intent intent = getIntent();
```

```
        String dataType = intent.getStringExtra("dataType");
```

```
        if(dataType.equals("xml")) {
```

```
            xmlContentView.setText("Test xml parsed content");
```

```
            parseXML();
```

```
        } else if(dataType.equals("json")) {
```

```
            jsonContentView.setText("Test json parsed content");
```

```
            parseJSON();
```

```
}  
}
```

```
public void parseXML() {  
    InputStream inputStream = null;  
    try {  
        inputStream = getAssets().open("weather.xml");  
        JsonReader reader = new JsonReader(new InputStreamReader(inputStream));  
        DocumentBuilderFactory dbf = DocumentBuilderFactory.newInstance();  
        DocumentBuilder db = dbf.newDocumentBuilder();  
        Document doc = db.parse(inputStream);  
        doc.normalize();  
        NodeList nodeList = doc.getElementsByTagName("weather");  
        for(int i=0; i<nodeList.getLength();i++) {  
            Node node = nodeList.item(i);  
            if(node.getNodeType() == Node.ELEMENT_NODE) {  
                Element element = (Element) node;  
                xmlContentView.setText("City_Name:  
"+element.getElementsByTagName("city_name").item(0).getTextContent() + "\n");  
                xmlContentView.append("Latitude:  
"+element.getElementsByTagName("latitude").item(0).getTextContent() + "\n");  
                xmlContentView.append("Longitude:  
"+element.getElementsByTagName("longitude").item(0).getTextContent() + "\n");  
                xmlContentView.append("Temperature:  
"+element.getElementsByTagName("temperature").item(0).getTextContent() + "\n");  
                xmlContentView.append("Humidity:  
"+element.getElementsByTagName("humidity").item(0).getTextContent());  
            }  
        }  
    }  
}
```

```

    } catch (IOException e) {
        e.printStackTrace();
    } catch (ParserConfigurationException e) {
        e.printStackTrace();
    } catch (SAXException e) {
        e.printStackTrace();
    } finally {
        if(inputStream != null) {
            try {
                inputStream.close();
            } catch (IOException e) {
                e.printStackTrace();
            }
        }
    }
}

```

```

public void parseJSON() {
    try (InputStream inputStream = getAssets().open("weather.json")) {
        byte[] data = new byte[inputStream.available()];
        inputStream.read(data);
        String jsonString = new String(data);
        JSONObject jsonObject = new JSONObject(jsonString);
        JSONObject weather = jsonObject.getJSONObject("weather");
        jsonContentView.setText("City_Name: "+weather.getString("city_name") + "\n");
        jsonContentView.append("Latitude: "+weather.getString("latitude") + "\n");
        jsonContentView.append("Longitude: "+weather.getString("longitude") + "\n");
    }
}

```

```

        jsonContentView.append("Temperature: "+weather.getString("temperature") + "\n");
        jsonContentView.append("Humidity: "+weather.getString("humidity") + "\n");
    } catch (IOException e) {
        e.printStackTrace();
    } catch (JSONException e) {
        e.printStackTrace();
    }
}
}
}

```

activity_view_data

```

<?xml version="1.0" encoding="utf-8"?>

<androidx.constraintlayout.widget.ConstraintLayout
    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"
    tools:context=".ViewDataActivity">

    <TextView
        android:id="@+id/view_header_id"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="PARSING XML AND JSON DATA"
        android:textSize="20sp"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"

```



```
app:layout_constraintHorizontal_bias="0.497"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent"
app:layout_constraintVertical_bias="0.04" />
```

<TextView

```
android:id="@+id/view_xml_label_id"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:text="XML Data"
android:textSize="16sp"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toStartOf="@+id/view_json_label_id"
app:layout_constraintHorizontal_bias="0.21"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toBottomOf="@+id/view_header_id"
app:layout_constraintVertical_bias="0.076" />
```

<TextView

```
android:id="@+id/view_json_label_id"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_marginEnd="96dp"
android:text="JSON Data"
android:textSize="16sp"
app:layout_constraintBottom_toBottomOf="parent"
app:layout_constraintEnd_toEndOf="parent"
```

```
app:layout_constraintTop_toBottomOf="@+id/view_header_id"
app:layout_constraintVertical_bias="0.076" />
```

```
<TextView
```

```
    android:id="@+id/view_xml_content_id"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="xml content"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.0"
    app:layout_constraintStart_toStartOf="@+id/view_xml_label_id"
    app:layout_constraintTop_toBottomOf="@+id/view_xml_label_id"
    app:layout_constraintVertical_bias="0.109" />
```

```
<TextView
```

```
    android:id="@+id/view_json_content_id"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:text="json content"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.0"
    app:layout_constraintStart_toStartOf="@+id/view_json_label_id"
    app:layout_constraintTop_toBottomOf="@+id/view_json_label_id"
    app:layout_constraintVertical_bias="0.107" />
```

```
</androidx.constraintlayout.widget.ConstraintLayout>
```

Program 8

Create an activity like a phone dialer with CALL and SAVE buttons. On pressing the CALL button, it must call the phone number and on pressing the SAVE button it must save the number to the phone contacts.



activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>

<androidx.constraintlayout.widget.ConstraintLayout
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"
    tools:context=".MainActivity">

    <TextView
        android:id="@+id/main_header_id"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="24dp"
        android:text="CALL AND SAVE APPLICATION"
```

```
android:textSize="20sp"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.456"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toTopOf="parent" />
```

<EditText

```
android:id="@+id/phone_number_id"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_marginStart="28dp"
android:layout_marginTop="28dp"
android:ems="10"
android:inputType="phone"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toBottomOf="@+id/main_header_id" />
```

<Button

```
android:id="@+id/delete_btn_id"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_marginTop="24dp"
android:text="DEL "
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.531"
app:layout_constraintStart_toEndOf="@+id/phone_number_id"
app:layout_constraintTop_toBottomOf="@+id/main_header_id" />
```

<Button

```
    android:id="@+id/one_btn_id"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="28dp"
    android:layout_marginTop="64dp"
    android:text="1"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/phone_number_id" />
```

<Button

```
    android:id="@+id/two_btn_id"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="44dp"
    android:layout_marginTop="64dp"
    android:text="2"
    app:layout_constraintStart_toEndOf="@+id/one_btn_id"
    app:layout_constraintTop_toBottomOf="@+id/phone_number_id" />
```

<Button

```
    android:id="@+id/three_btn_id"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="44dp"
    android:layout_marginTop="64dp"
    android:text="3"
    app:layout_constraintStart_toEndOf="@+id/two_btn_id"
```

```
app:layout_constraintTop_toBottomOf="@+id/phone_number_id" />
```

```
<Button
```

```
    android:id="@+id/four_btn_id"
```

```
    android:layout_width="wrap_content"
```

```
    android:layout_height="wrap_content"
```

```
    android:layout_marginStart="28dp"
```

```
    android:layout_marginTop="48dp"
```

```
    android:text="4"
```

```
    app:layout_constraintStart_toStartOf="parent"
```

```
    app:layout_constraintTop_toBottomOf="@+id/one_btn_id" />
```

```
<Button
```

```
    android:id="@+id/five_btn_id"
```

```
    android:layout_width="wrap_content"
```

```
    android:layout_height="wrap_content"
```

```
    android:layout_marginStart="44dp"
```

```
    android:layout_marginTop="48dp"
```

```
    android:text="5"
```

```
    app:layout_constraintStart_toEndOf="@+id/four_btn_id"
```

```
    app:layout_constraintTop_toBottomOf="@+id/two_btn_id" />
```

```
<Button
```

```
    android:id="@+id/six_btn_id"
```

```
    android:layout_width="wrap_content"
```

```
    android:layout_height="wrap_content"
```

```
    android:layout_marginStart="32dp"
```

```
    android:layout_marginTop="48dp"
```

```
android:text="6"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.302"
app:layout_constraintStart_toEndOf="@+id/five_btn_id"
app:layout_constraintTop_toBottomOf="@+id/three_btn_id" />
```

<Button

```
android:id="@+id/seven_btn_id"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_marginStart="28dp"
android:layout_marginTop="40dp"
android:text="7"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toBottomOf="@+id/four_btn_id" />
```

<Button

```
android:id="@+id/eight_btn_id"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_marginStart="44dp"
android:layout_marginTop="40dp"
android:text="8"
app:layout_constraintStart_toEndOf="@+id/seven_btn_id"
app:layout_constraintTop_toBottomOf="@+id/five_btn_id" />
```

<Button

```
android:id="@+id/nine_btn_id"
```

```
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_marginStart="32dp"
android:layout_marginTop="40dp"
android:text="9"
app:layout_constraintEnd_toEndOf="parent"
app:layout_constraintHorizontal_bias="0.302"
app:layout_constraintStart_toEndOf="@+id/eight_btn_id"
app:layout_constraintTop_toBottomOf="@+id/six_btn_id" />
```

<Button

```
android:id="@+id/star_btn_id"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_marginStart="28dp"
android:layout_marginTop="32dp"
android:text="*"
app:layout_constraintStart_toStartOf="parent"
app:layout_constraintTop_toBottomOf="@+id/seven_btn_id" />
```

<Button

```
android:id="@+id/zero_btn_id"
android:layout_width="wrap_content"
android:layout_height="wrap_content"
android:layout_marginStart="44dp"
android:layout_marginTop="32dp"
android:text="0"
app:layout_constraintStart_toEndOf="@+id/star_btn_id"
```



```
app:layout_constraintTop_toBottomOf="@+id/eight_btn_id" />
```

```
<Button
```

```
    android:id="@+id/hash_btn_id"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginTop="32dp"
    android:text="#"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintHorizontal_bias="0.6"
    app:layout_constraintStart_toEndOf="@+id/zero_btn_id"
    app:layout_constraintTop_toBottomOf="@+id/nine_btn_id" />
```

```
<Button
```

```
    android:id="@+id/call_btn_id"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="80dp"
    android:text="CALL"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/star_btn_id"
    app:layout_constraintVertical_bias="0.382" />
```

```
<Button
```

```
    android:id="@+id/save_btn_id"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
```

```

        android:text="SAVE"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.516"
        app:layout_constraintStart_toEndOf="@+id/call_btn_id"
        app:layout_constraintTop_toBottomOf="@+id/zero_btn_id"
        app:layout_constraintVertical_bias="0.382" />
</androidx.constraintlayout.widget.ConstraintLayout>

```

```

package com.computerlabspace.callandsave_program_8;

import androidx.appcompat.app.AppCompatActivity;
import android.content.Intent;
import android.net.Uri;
import android.os.Bundle;
import android.provider.ContactsContract;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;

```

```

public class MainActivity extends AppCompatActivity implements View.OnClickListener {

    Button oneBtn, twoBtn, threeBtn, fourBtn, fiveBtn;
    Button sixBtn, sevenBtn, eightBtn, nineBtn, zeroBtn;
    Button starBtn, hashBtn;
    Button delBtn, callBtn, saveBtn;
    EditText phoneNumber;

```

@Override

```
protected void onCreate(Bundle savedInstanceState) {  
    super.onCreate(savedInstanceState);  
    setContentView(R.layout.activity_main);  
    oneBtn = (Button) findViewById(R.id.one_btn_id);  
    oneBtn.setOnClickListener(this);  
  
    twoBtn = (Button) findViewById(R.id.two_btn_id);  
    twoBtn.setOnClickListener(this);  
  
    threeBtn = (Button) findViewById(R.id.three_btn_id);  
    threeBtn.setOnClickListener(this);  
  
    fourBtn = (Button) findViewById(R.id.four_btn_id);  
    fourBtn.setOnClickListener(this);  
  
    fiveBtn = (Button) findViewById(R.id.five_btn_id);  
    fiveBtn.setOnClickListener(this);  
  
    sixBtn = (Button) findViewById(R.id.six_btn_id);  
    sixBtn.setOnClickListener(this);  
  
    sevenBtn = (Button) findViewById(R.id.seven_btn_id);  
    sevenBtn.setOnClickListener(this);  
  
    eightBtn = (Button) findViewById(R.id.eight_btn_id);  
    eightBtn.setOnClickListener(this);  
}
```

```
nineBtn = (Button) findViewById(R.id.nine_btn_id);
nineBtn.setOnClickListener(this);

zeroBtn = (Button) findViewById(R.id.zero_btn_id);
zeroBtn.setOnClickListener(this);

delBtn = (Button) findViewById(R.id.delete_btn_id);
delBtn.setOnClickListener(this);

callBtn = (Button) findViewById(R.id.call_btn_id);
callBtn.setOnClickListener(this);

saveBtn = (Button) findViewById(R.id.save_btn_id);
saveBtn.setOnClickListener(this);

starBtn = (Button) findViewById(R.id.star_btn_id);
starBtn.setOnClickListener(this);

hashBtn = (Button) findViewById(R.id.hash_btn_id);
hashBtn.setOnClickListener(this);

phoneNumber = findViewById(R.id.phone_number_id);
phoneNumber.setText("");
}
```

@Override

```
public void onClick(View view) {
    Button btn = (Button)view;
```

```

if(view.equals(delBtn)) {
    String phoneNum = phoneNumber.getText().toString();
    if (phoneNum.length() > 0) {
        phoneNumber.setText(phoneNum.substring(0, phoneNum.length()-1));
    } else {
        phoneNumber.setText("");
    }
    phoneNumber.setSelection(phoneNumber.getText().toString().length());
} else if(view.equals(callBtn)) {
    System.out.print("Call Button Pressed");
    String phoneNum = phoneNumber.getText().toString();
    Intent intent = new Intent(Intent.ACTION_DIAL);
    intent.setData(Uri.parse("tel:"+phoneNum));
    startActivity(intent);
} else if(view.equals(saveBtn)) {
    System.out.print("Save Button Pressed");
    String phoneNum = phoneNumber.getText().toString();
    Intent intent = new Intent(ContactsContract.Intents.Insert.ACTION);
    intent.setType(ContactsContract.RawContacts.CONTENT_TYPE);
    intent.putExtra(ContactsContract.Intents.Insert.NAME, "Unknown");
    intent.putExtra(ContactsContract.Intents.Insert.PHONE, phoneNum);
    startActivity(intent);
} else {
    phoneNumber.append(btn.getText());
}
}
}

```