2. Simple Calculator

```
package com.example.simplecall;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.view.View;
import android.widget.EditText;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity {
    EditText e1,e2;
    TextView tv;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        e1  = (EditText) findViewById(R.id.editTextTextPersonName);
        e2 = (EditText) findViewById(R.id.editTextTextPersonName2);
        tv  = (TextView) findViewById(R.id.textView);
    }
    public void add(View V){
        int a1=Integer.parseInt(e1.getText().toString());
        int a2=Integer.parseInt(e2.getText().toString());
        int res=a1+a2;
        tv.setText(""+res);
    }
    public void sub(View V){
        int a1=Integer.parseInt(e1.getText().toString());
        int a2=Integer.parseInt(e2.getText().toString());
        int res=a1-a2;
        tv.setText(""+res);
    }
    public void mul(View V){
        int a1=Integer.parseInt(e1.getText().toString());
        int a2=Integer.parseInt(e2.getText().toString());
        int res=a1*a2;
        tv.setText(""+res);
    }
    public void div(View V){
        float a1=Integer.parseInt(e1.getText().toString());
        float a2=Integer.parseInt(e2.getText().toString());
        float res=a1/a2;
        tv.setText(""+res);
    }
}
```

2. Simple Calculator with All Buttons

```
package com.example.a2calculator2;

import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;

public class MainActivity extends AppCompatActivity {
    EditText e1;
    int ip1,ip2;
    Button add,sub,mul,div,result,clear;
    boolean a = false;
    boolean s=false;
    boolean m=false;
    boolean d=false;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        e1  = findViewById(R.id.EditText);
        add = findViewById(R.id.add);
        mul = findViewById(R.id.mul);
        div = findViewById(R.id.div);
        sub = findViewById(R.id.sub);
        result = findViewById(R.id.result);
        clear = findViewById(R.id.clearBtn);
        add.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                ip1 = Integer.parseInt(e1.getText().toString());
                e1.setText("");
                a =true;
            }
        });
        sub.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                ip1 = Integer.parseInt(e1.getText().toString());
                e1.setText("");
                 s=true;
            }
        });
        mul.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
```

```
                ip1 = Integer.parseInt(e1.getText().toString());
                e1.setText("");
                 m=true;
            }
        });
        div.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                ip1 = Integer.parseInt(e1.getText().toString());
                e1.setText("");
                d =true;
            }
        });
        result.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                if(a||s||d||m){
                    ip2 = Integer.parseInt(e1.getText().toString());
                    if(a)
                        e1.setText(""+(ip1+ip2));
                    else if(s)
                        e1.setText(""+(ip1-ip2));
                    else if(m)
                        e1.setText(""+(ip1*ip2));
                    else
                        e1.setText(""+(ip1/ip2));

                    a=false;s=false;d=false;m=false;
                }
            }
        });
        clear.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                e1.setText("");
            }
        });
    }
    public void inputNumber(View V){
        Button btn=(Button)V;
        String digit=btn.getText().toString();
        String temp1 = e1.getText().toString();
        String eq=temp1+digit;
        e1.setText(eq);
    }

}
```

3. Sign Up - Login

MainActivity.java

```
package com.example.login;

import androidx.appcompat.app.AppCompatActivity;

import android.content.Intent;
import android.os.Bundle;
import android.service.autofill.FieldClassification;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;

import java.util.regex.Matcher;
import java.util.regex.Pattern;

public class MainActivity extends AppCompatActivity {

    EditText username,password;
    Button signUpBtn;

    String regularExpr="^(?=.*[A-Z])(?=.*[a-z])(?=.*\\d)(?=.*[@$!])[A-Za-
z\\d@$!]{8,}$";

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        username = findViewById(R.id.username);
        password = findViewById(R.id.password);
        signUpBtn = findViewById(R.id.signup);

        signUpBtn.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                String uname = username.getText().toString();
                String pwd = password.getText().toString();

                if(validatePassword(pwd)){

                    Bundle bundle = new Bundle();

                    bundle.putString("username",uname);
                    bundle.putString("password",pwd);
```

```
                    Intent intent = new
Intent(MainActivity.this,SignIn.class);

                    intent.putExtras(bundle);

                    startActivity(intent);


                }
                else{
                    Toast.makeText(MainActivity.this, "Invaild Password",
Toast.LENGTH_SHORT).show();
                }

            }
        });



    }

    public boolean validatePassword(String pwd){
        Pattern pattern = Pattern.compile(regularExpr);
        Matcher matcher = pattern.matcher(pwd);

        return matcher.matches();


    }
}
```

SignIn.java

```
package com.example.login;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;

public class SignIn extends AppCompatActivity {

    EditText username,password;
    Button signInBtn;

    int count=0;
```

```
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_sign_in);

        username = findViewById(R.id.username);
        password = findViewById(R.id.password);
        signInBtn = findViewById(R.id.signin);

        Bundle bundle = getIntent().getExtras();

       String uname = bundle.getString("username");
       String pwd = bundle.getString("password");

       signInBtn.setOnClickListener(new View.OnClickListener() {
           @Override
           public void onClick(View v) {
               String user = username.getText().toString();
               String pass = password.getText().toString();

               if(user.equals(uname) && pass.equals(pwd)){
                   Toast.makeText(SignIn.this, "Success",
Toast.LENGTH_SHORT).show();
               }
               else {
                   count++;
                   if (count >= 3) {
                       signInBtn.setEnabled(false);
                   } else {
                       Toast.makeText(SignIn.this, "Failed",
Toast.LENGTH_SHORT).show();
                   }
               }

           }
       });


    }
}
```

4. Wallpaper

```
public class MainActivity extends AppCompatActivity
{
    Button btn;
    Timer timer;
    WallpaperManager wpm;
    int prev =1;
    Drawable drawable;

    protected  void onCreate(Bundle savedInsatanceState){
        super.onCreate(savedInsatanceState);
        setContentView(R.layout.activity_main);

        timer = new Timer();
        wpm = WallpaperManager.getInstance(this);
        btn = findViewById(R.id.button);
        btn.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                setWallpaper();
            }
        });
    }
    public void setWallpaper(){
        timer.schedule(new TimerTask() {
            @Override
            public void run() {
                if(prev==1){
                    prev=2;
                    drawable = getResources().getDrawable(R.drawable.one);
                }
                else if(prev ==2){
                    prev =3;
                    drawable = getResources().getDrawable(R.drawable.two);
                }
                else if(prev ==3){
                    prev =4;
                    drawable = getResources().getDrawable(R.drawable.three);
                }
                else if(prev ==4){
                    prev =5;
                    drawable = getResources().getDrawable(R.drawable.four);
                }
                else if(prev ==5){
                    prev =1;
                    drawable = getResources().getDrawable(R.drawable.five);
                }

                Bitmap wallpaper  = ((BitmapDrawable)drawable).getBitmap();
                try{
                    wpm.setBitmap(wallpaper);
                }catch (Exception e){

                }
            }
        },0,30000);
    }
```

5. Start Stop Counter

->

```
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.os.Handler;
import android.view.View;
import android.widget.Button;
import android.widget.TextView;

public class MainActivity extends AppCompatActivity {
    Button btnstart, btnstop, btnreset;
    TextView txtcounter;
    int i = 1;
    Handler customHandler = new Handler();

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        txtcounter = findViewById(R.id.textView);
        btnstart = findViewById(R.id.btn_start);
        btnstop = findViewById(R.id.btn_stop);
        btnreset = findViewById(R.id.button);
    }
    public void start(View v){
        customHandler.postDelayed(updateThread,0);
    }
    public void stop(View v){
        customHandler.removeCallbacks(updateThread);
    }
        private final Runnable updateThread = new Runnable() {
            @Override
            public void run() {
                txtcounter.setText(""+i);
                customHandler.postDelayed(this,1000);
                i++;
            }
        };
}
```

6. Parser – JSON & XML

```
package com.example.jsonparser;

import android.os.Build;
import android.os.Bundle;
import android.view.View;
import android.widget.TextView;
import android.widget.Toast;
import androidx.annotation.RequiresApi;
import androidx.appcompat.app.AppCompatActivity;
import org.json.JSONArray;
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 java.io.InputStream;
import java.nio.charset.StandardCharsets;
import javax.xml.parsers.DocumentBuilder;
import javax.xml.parsers.DocumentBuilderFactory;

public class MainActivity extends AppCompatActivity {
    TextView display;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        display = findViewById(R.id.display);
    }
    public void parserxml(View V) {
        try {
            InputStream is = getAssets().open("city.xml");
            DocumentBuilderFactory documentBuilderFactory =
DocumentBuilderFactory.newInstance();
            DocumentBuilder documentBuilder =
documentBuilderFactory.newDocumentBuilder();
            Document document = documentBuilder.parse(is);
            StringBuilder stringBuilder = new StringBuilder();
            stringBuilder.append("XML DATA");
            stringBuilder.append("\n----------");
            NodeList nodeList = document.getElementsByTagName("place");
            for (int i = 0; i < nodeList.getLength(); i++) {
                Node node = nodeList.item(i);
                if (node.getNodeType() == Node.ELEMENT_NODE) {
                    Element element = (Element) node;
                    stringBuilder.append("\n Name").append(getValue("name",
element));
                    stringBuilder.append("\n Latitude").append(getValue("lat",
element));
                    stringBuilder.append("\n
Longitude").append(getValue("long", element));
                    stringBuilder.append("\n
Temperature").append(getValue("temperature", element));
                    stringBuilder.append("\n
Humidity").append(getValue("humidity", element));
                    stringBuilder.append(("\n----------"));
                }
            }
            display.setText(stringBuilder.toString());
        } catch (Exception e) {
            e.printStackTrace();
```

```
            Toast.makeText(MainActivity.this, "Error in reading XML File",
Toast.LENGTH_LONG).show();
        }
    }

    @RequiresApi(api = Build.VERSION_CODES.KITKAT)
    public void parsejson(View V) {
        String json;
        StringBuilder stringBuilder = new StringBuilder();
        try {
            InputStream is = getAssets().open("city.json");
            int size = is.available();
            byte[] buffer = new byte[size];
            is.read(buffer);
            json = new String(buffer, StandardCharsets.UTF_8);
            JSONArray jsonArray = new JSONArray(json);
            stringBuilder.append("JSON DATA");
            stringBuilder.append("\n----------");
            for (int i = 0; i < jsonArray.length(); i++) {
                JSONObject jsonObject = jsonArray.getJSONObject(i);
                stringBuilder.append("\n
Name:").append(jsonObject.getString("name"));
                stringBuilder.append("\n
Latitude:").append(jsonObject.getString("lat"));
                stringBuilder.append("\n
Longitude").append(jsonObject.getString("long"));
                stringBuilder.append("\n
Temperature").append(jsonObject.getString("temperature"));
                stringBuilder.append("\n
Humidity").append(jsonObject.getString("humidity"));
                stringBuilder.append("\n----------");
                display.setText(stringBuilder.toString());
                is.close();
            }
        } catch (Exception e) {
            e.printStackTrace();
            Toast.makeText(MainActivity.this, "Error in reading Json File",
Toast.LENGTH_LONG).show();
        }
    }
    private String getValue(String tag, Element element) {
        return
element.getElementsByTagName(tag).item(0).getChildNodes().item(0).getNodeValue
();
    }
}
```

7. TextToSpeech

```
package com.example.texttospeech;

import android.os.Build;
import android.speech.tts.TextToSpeech;
import android.support.v7.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.Toast;
import java.util.Locale;

public class MainActivity extends AppCompatActivity {

    Button btnSpeak;
    EditText editText;
    TextToSpeech textToSpeech;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        // Init TextToSpeech
        textToSpeech = new TextToSpeech(this, new
TextToSpeech.OnInitListener() {
            @Override
            public void onInit(int status) {
                if (status == TextToSpeech.SUCCESS) {
                       btnSpeak.setEnabled(true);
                        speak();
                }
            }
        });
        // Init View
        btnSpeak = (Button)findViewById(R.id.btnSpeak);
        editText = (EditText)findViewById(R.id.editText);
        btnSpeak.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                speak();
            }
        });
    }
    private void speak() {
```

```
        String text = editText.getText().toString();
        if (Build.VERSION.SDK_INT >= Build.VERSION_CODES.LOLLIPOP) {
            textToSpeech.speak(text, TextToSpeech.QUEUE_FLUSH, null, null);
        } else {
            textToSpeech.speak(text, TextToSpeech.QUEUE_FLUSH, null);
        }
    }

}
```

8. Call activity

```
package com.example.a8callactivity;

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 {
    EditText phoneNumberEditText;
    Button clearBtn,callBtn,saveBtn;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        phoneNumberEditText=findViewById(R.id.phoneNumberEditText);
        callBtn=findViewById(R.id.callBtn);
        saveBtn=findViewById(R.id.saveBtn);
        clearBtn=findViewById(R.id.clearBtn);
        clearBtn.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                phoneNumberEditText.setText("");
            }
        });
        callBtn.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                String phoneNumber=phoneNumberEditText.getText().toString();
                Intent intent=new Intent(Intent.ACTION_DIAL);
                intent.setData(Uri.parse("tel:"+phoneNumber));
```

```
                startActivity(intent);
            }
        });
        saveBtn.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                String phoneNumber=phoneNumberEditText.getText().toString();
                Intent intent=new Intent(Intent.ACTION_INSERT);
                intent.setType(ContactsContract.Contacts.CONTENT_TYPE);

intent.putExtra(ContactsContract.Intents.Insert.PHONE,phoneNumber);
                startActivity(intent);
            }
        });
    }
    public void inputNumber(View V){
        Button btn=(Button)V;
        String digit=btn.getText().toString();
        String phoneNumber=phoneNumberEditText.getText().toString();
        phoneNumberEditText.setText(phoneNumber +digit);
    }
}
```