

Libraries to be included extra: (Alt+Enter)

```
import android.content.Context;
import android.content.Intent;
import android.os.Build;
import android.os.Bundle;
import android.view.View;
import android.widget.AdapterView;
import android.widget.AdapterView.OnItemClickListener;
import android.widget.ArrayAdapter;
import android.widget.Button;
import android.widget.CheckBox;
import android.widget.DatePicker;
import android.widget.EditText;
import android.widget.RadioButton;
import android.widget.RadioGroup;
import android.widget.Spinner;
import android.widget.TextView;
import android.widget.TimePicker;
import android.widget.Toast;
import java.io.Serializable;
```

Assignment 1: GUI and Intent

MainActivity.java

```
public class MainActivity extends AppCompatActivity {

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

        Button b1 = (Button) findViewById(R.id.Submit);
        b1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                EditText name = (EditText) findViewById(R.id.Name);
                EditText password = (EditText) findViewById(R.id.Password);
                DatePicker date = (DatePicker) findViewById(R.id.Calendar);

                String name_i = name.getText().toString();
                String password_i = password.getText().toString();
            }
        });
    }
}
```

```

        Integer day = (Integer) date.getDayOfMonth();
        Integer month = (Integer) date.getMonth()+1;
        Integer year = (Integer) date.getYear();
        String date_i = day.toString() + "/" + month.toString() +
"/" + year.toString();

        Context context = getApplicationContext();
        Intent intent = new Intent(context,MainActivity2.class);
        intent.putExtra("name_i",name_i);
        intent.putExtra("password_i",password_i);
        intent.putExtra("date_i",date_i);

        startActivity(intent);
    }
});
}
}

```

MainActivity2.java

```

public class MainActivity2 extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main2);

        String name_i = getIntent().getStringExtra("name_i");
        String password_i = getIntent().getStringExtra("password_i");
        String date_i = getIntent().getStringExtra("date_i");
        TextView t1 = (TextView) findViewById(R.id.Name_i);
        t1.setText(name_i);
        TextView t2 = (TextView) findViewById(R.id.Password_i);
        t2.setText(password_i);
        TextView t3 = (TextView) findViewById(R.id.Date_i);
        t3.setText(date_i);
    }
}

```

Videos:

 [How to Pass data from One to another Activity || Android studio tutorial](#)

Values/string.xml- SPINNER

```
<resources>
    <string name="app_name">Employee Manager</string>
    <string-array name="departments">
        <item>Management</item>
        <item>Technical</item>
        <item>Marketing</item>
        <item>Legal & Auditing</item>
        <item>Human Resources</item>
        <item>Customer Relations</item>
        <item>Service</item>
    </string-array>
</resources>
```

Assignment 2: Keyboard and Calculator Calculator

```
package com.example.swethpractice;

import androidx.appcompat.app.AppCompatActivity;

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

public class MainActivity extends AppCompatActivity {

    double input1=0, input2=0;
    Button button1,
    button2,button3,button4,buttonadd,buttonsub,buttonmul,buttondiv,buttondel,butt
    onequ;
    TextView edt1;
    boolean addition, subtraction, multiplication, division;

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

        button1= findViewById(R.id.one);
        button2= findViewById(R.id.two);
```

```
button3= findViewById(R.id.three);
button4= findViewById(R.id.four);
buttonadd=findViewById(R.id.add);
buttonsub=findViewById(R.id.subtract);
buttondiv=findViewById(R.id.divide);
buttonmul=findViewById(R.id.multiply);
buttondel=findViewById(R.id.delete);
buttonequ=findViewById(R.id.equal);
edt1=findViewById(R.id.textView);

button1.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        edt1.setText(edt1.getText()+"1");
    }
});

button2.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        edt1.setText(edt1.getText()+"2");
    }
});

button3.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        edt1.setText(edt1.getText()+"3");
    }
});

button4.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        edt1.setText(edt1.getText()+"4");
    }
});

buttonadd.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
```

```
        if(edt1.getText().length()!=0) {
            input1 = Float.parseFloat(edt1.getText() + "");
            addition = true;
            edt1.setText(null);
        }
    }
});

buttonsub.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        if(edt1.getText().length()!=0) {
            input1=Float.parseFloat(edt1.getText() + "");
            subtraction=true;
            edt1.setText(null);
        }
    }
});

buttonmul.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        if(edt1.getText().length()!=0) {
            input1=Float.parseFloat(edt1.getText()+"");
            multiplication=true;
            edt1.setText(null);
        }
    }
});

buttondiv.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        if(edt1.getText().length()!=0) {
            input1=Float.parseFloat(edt1.getText()+"");
            division=true;
            edt1.setText(null);
        }
    }
});
```

```

        buttonequ.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                if( addition || subtraction || division || multiplication)
                {
                    input2=Float.parseFloat(edt1.getText()+"");
                }
                if(addition)
                {
                    edt1.setText(input1+input2+"");
                    addition=false;
                }
                if(subtraction)
                {
                    edt1.setText(input1-input2 + "");
                    subtraction = false;
                }
                if(multiplication)
                {
                    edt1.setText(input1*input2 + "");
                    multiplication= false;
                }
                if(division)
                {
                    edt1.setText(input1/input2 + "");
                    division = false;
                }
            }
        });

        buttondel.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                input1=0.0;
                input2=0.0;
                edt1.setText(null);
            }
        });
    }
}

```

Assignment 3: Graphics Primitives and Animation

Drawing in ImageView

```
public class MainActivity extends AppCompatActivity {

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

        Button animate = (Button) findViewById(R.id.animate);
        ImageView imageView = findViewById(R.id.imageView);
        Bitmap b = Bitmap.createBitmap(720, 480, Bitmap.Config.ARGB_8888);
        imageView.setBackgroundDrawable(new BitmapDrawable(b));

        Canvas canvas = new Canvas(b);
        Paint p = new Paint();
        p.setStrokeWidth(5);
        p.setColor(Color.YELLOW);
        RectF r = new RectF(170, 220, 520, 270);
        canvas.drawRect(r, p);
        canvas.drawCircle(270, 480, p);

        button.setOnClickListener(new OnClickListener() {
            @Override
            public void onClick(View view) {
                image.startAnimation(AnimationUtils.loadAnimation(getApplicationContext(), R.anim.fade_in));
            }
        });
    }
}
```

drawCircle-

drawText-

drawArc-

drawRect-

drawLine-

Animation definition: res/anim/animation.xml (create)

Fade:

```
<?xml version="1.0" encoding="utf-8"?>
<set xmlns:android="http://schemas.android.com/apk/res/android">
    <alpha
        android:fromAlpha="0.0"
        android:toAlpha="1.0"
        android:duration="2000"
        android:repeatCount="infinite"
        android:repeatMode="reverse" />
</set>
```

Rotate:

```
<?xml version="1.0" encoding="utf-8"?>
<set xmlns:android="http://schemas.android.com/apk/res/android">
    <rotate
        android:fromDegrees="0"
        android:toDegrees="360"
        android:pivotX="50%"
        android:pivotY="50%"
        android:duration="1000" />
</set>
```

Zoom In:

```
<?xml version="1.0" encoding="utf-8"?>
<set xmlns:android="http://schemas.android.com/apk/res/android">
    <scale xmlns:android="http://schemas.android.com/apk/res/android"
        android:fromXScale="0.5"
        android:fromYScale="0.5"
        android:toXScale="1.0"
        android:toYScale="1.0"
        android:duration="3000"
        android:pivotX="50%"
        android:pivotY="50%" />
</set>
```

Assignment 4: Database CRUD Operations

Create Database:

Helper

```
public class DatabaseHelper extends SQLiteOpenHelper{

    private static final String DB_NAME = "employees";
    private static final int DB_VERSION = 1;
```



```

public DatabaseHelper(Context context)
{
    super(context, DB_NAME, null, DB_VERSION);
}

@Override
public void onCreate(SQLiteDatabase db)
{
    db.execSQL("CREATE TABLE IF NOT EXISTS EMPLOYEES (" +
        "ENO TEXT PRIMARY KEY," +
        "NAME TEXT);");
}

@Override
public void onUpgrade(SQLiteDatabase db, int i, int il)
{
    db.execSQL("DROP TABLE IF EXISTS EMPLOYEES");
    onCreate(db);
}
}

```

MainActivity.java

```

public class MainActivity extends AppCompatActivity {

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

        Button button = findViewById(R.id.button);
        SQLiteOpenHelper helper = new DatabaseHelper(MainActivity.this);

        button.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                try
                {
                    SQLiteDatabase db = helper.getReadableDatabase();
                    Toast toast =
Toast.makeText(MainActivity.this, "CREATED", Toast.LENGTH_SHORT);
                    toast.show();
                }
            }
        });
    }
}

```

```

        }
        catch (SQLException e)
        {
            Toast toast = Toast.makeText(MainActivity.this, "ERROR IN
CREATED", Toast.LENGTH_SHORT);
            toast.show();
        }
    }
    });
}
}

```

Insert Record:

Helper

```

public void addRecord(String eid, String name)
{
    SQLiteDatabase db = this.getReadableDatabase();
    ContentValues record = new ContentValues();

    record.put("ENO", eid);
    record.put("NAME", name);
    db.insertOrThrow("EMPLOYEES", null, record);
    db.close();
}

```

MainActivity.java

```

public class MainActivity extends AppCompatActivity {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        Button button = findViewById(R.id.button);
        DatabaseHelper helper = new DatabaseHelper(MainActivity.this);
        final EditText eno = findViewById(R.id.eid);
        final EditText name = findViewById(R.id.name);

        button.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {

```

```

        String eid = eno.getText().toString();
        String name_i = name.getText().toString();
        if (TextUtils.isEmpty(eid)) {
            Toast eToase = Toast.makeText(MainActivity.this, "EID
empty", Toast.LENGTH_SHORT);
            eToase.show();
        } else if (TextUtils.isEmpty(name_i)) {
            Toast nToase = Toast.makeText(MainActivity.this, "NAME
empty", Toast.LENGTH_SHORT);
            nToase.show();
        } else {
            try {
                helper.addRecord(eid, name_i);
                Toast toast = Toast.makeText(MainActivity.this, "ADDED",
Toast.LENGTH_SHORT);
                toast.show();
            } catch (SQLException e) {
                Toast toast = Toast.makeText(MainActivity.this, "ERROR
IN ADDED", Toast.LENGTH_SHORT);
                toast.show();
            }
        }
    }
}
});
}
}
}

```

Retrieve Database:

Helper

```

public String[] retrieveRecord(String eid)
{
    SQLiteDatabase db = this.getReadableDatabase();
    Cursor cursor = db.query("EMPLOYEES", new String[] { "ENO", "NAME" }, "ENO=?", new
String[] { eid }, null, null, null);

    String result[] = new String[4];
    if (cursor.moveToNext())
    {
        result[0] = cursor.getString(0);
        result[1] = cursor.getString(1);
        return result;
    }
    else {

```

```

        return null;
    }
}

```

MainActivity.java

```

button2.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        String eid = eno.getText().toString();
        if(TextUtils.isEmpty(eid))
        {
            Toast toast = Toast.makeText(MainActivity.this,"EID
Empty",Toast.LENGTH_SHORT);
            toast.show();
        }
        else {
            String[] result = helper.retrieveRecord(eid);
            if(result == null)
            {
                Toast etoast = Toast.makeText(MainActivity.this,"NO
RECORD",Toast.LENGTH_SHORT);
                etoast.show();
            }
            else {
                name.setText(result[1], TextView.BufferType.EDITABLE);
            }
        }
    }
});

```

Update Database:

Helper

```

public void updateRecord(String eid,String name)
{
    SQLiteDatabase db = this.getWritableDatabase();
    ContentValues record = new ContentValues();
    record.put("NAME",name);
    db.update("EMPLOYEES",record,"ENO = ?",new String[] {eid});
}

```

MainActivity.java

```

button3.setOnClickListener(new View.OnClickListener() {

```

```

@Override
public void onClick(View view) {
    String eid = eno.getText().toString();
    String name_i = name.getText().toString();

    if (TextUtils.isEmpty(eid)) {
        Toast eToase = Toast.makeText(MainActivity.this, "EID empty",
Toast.LENGTH_SHORT);
        eToase.show();
    } else if (TextUtils.isEmpty(name_i)) {
        Toast nToase = Toast.makeText(MainActivity.this, "NAME empty",
Toast.LENGTH_SHORT);
        nToase.show();
    } else {
        try {
            String[] result = helper.retrieveRecord(eid);
            if (result == null) {
                Toast toast = Toast.makeText(MainActivity.this, "RECORD NOT
EXIST", Toast.LENGTH_SHORT);
                toast.show();
            } else {
                helper.updateRecord(eid, name_i);
                Toast toast = Toast.makeText(MainActivity.this, "RECORD
UPDATED", Toast.LENGTH_SHORT);
                toast.show();
            }
        } catch (SQLException e) {
            Toast toast = Toast.makeText(MainActivity.this, "RECORD
ERROR", Toast.LENGTH_SHORT);
            toast.show();
        }
    }
}
});

```

Delete Database:

Helper

```

public int deleteRecord(String eid)
{
    SQLiteDatabase db = this.getWritableDatabase();
    return db.delete("EMPLOYEES", "ENO=?", new String[] {eid});
}

```

```
}
```

MainActivity.java

```
button4.setOnClickListener(new View.OnClickListener() {  
    @Override  
    public void onClick(View view) {  
        String eid = eno.getText().toString();  
        if (TextUtils.isEmpty(eid)) {  
            Toast eToase = Toast.makeText(MainActivity.this, "EID empty",  
Toast.LENGTH_SHORT);  
            eToase.show();  
        }else{  
            int res = helper.deleteRecord(eid);  
            if(res>0){  
                Toast eToase = Toast.makeText(MainActivity.this, "RECORD DELETED  
SUCCESSFULLY", Toast.LENGTH_SHORT);  
                eToase.show();  
            }  
            else{  
                Toast eToase = Toast.makeText(MainActivity.this, "DELETE ERROR",  
Toast.LENGTH_SHORT);  
                eToase.show();  
            }  
        }  
    }  
});
```

Android Manifest

```

<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.ex4">

    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportsRtl="true"
        android:theme="@style/Theme.Ex4">
        <activity android:name=".InsertActivity" />
        <activity android:name=".RetrieveActivity" />
        <activity android:name=".UpdateActivity" />
        <activity android:name=".DeleteActivity" />
        <activity android:name=".MainActivity">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />

                <category android:name="android.intent.category.LAUNCHER"
/>

            </intent-filter>
        </activity>
    </application>

</manifest>

```

Assignment 5: Multithreading

Image Swap

Activity_main.xml

```

<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical" >

    <ImageView
        android:id="@+id/imageView"
        android:layout_width="250dp"
        android:layout_height="250dp"
        android:layout_margin="50dp"
        android:layout_gravity="center" />

```

```

<Button
    android:id="@+id/button"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_margin="10dp"
    android:layout_gravity="center"
    android:text="Load Image 1" />

<Button
    android:id="@+id/button2"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_margin="10dp"
    android:layout_gravity="center"
    android:text="Load image 2" />

</LinearLayout>

```

Main_Activity.java

```

package com.example.myapplication;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.ImageView;

public class MainActivity extends AppCompatActivity
{
    ImageView img;
    Button bt1, bt2;
    @Override
    protected void onCreate(Bundle savedInstanceState)
    {
        {
            super.onCreate(savedInstanceState);
            setContentView(R.layout.activity_main);

            bt1 = (Button) findViewById(R.id.button);
            bt2= (Button) findViewById(R.id.button2);
            img = (ImageView) findViewById(R.id.imageView);

```



```
bt1.setOnClickListener(new View.OnClickListener()
{
    @Override
    public void onClick(View v)
    {
        new Thread(new Runnable()
        {
            @Override
            public void run()
            {
                img.post(new Runnable()
                {
                    @Override
                    public void run()
                    {
                        img.setImageResource(R.drawable.yoda1);
                    }
                });
            }
        }).start();
    }
});

bt2.setOnClickListener(new View.OnClickListener()
{
    @Override
    public void onClick(View v)
    {
        new Thread(new Runnable()
        {
            @Override
            public void run()
            {
                img.post(new Runnable()
                {
                    @Override
                    public void run()
                    {
                        img.setImageResource(R.drawable.yoda2);
                    }
                });
            }
        })
    }
});
```

```

        }).start();
    }
    });
}
}
}

```

(Put Images in drawablev24 folder)

Time Counter Thread

Main_Activity.java

```

public class MainActivity extends AppCompatActivity {
    TextView tvOutput;
    int t = 0;
    Thread workerThread;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);

        setContentView(R.layout.activity_main);
        tvOutput = (TextView) findViewById(R.id.textView1);
        Button btnStart = findViewById(R.id.button1);
        btnEnd = findViewById(R.id.button2);

        btnStart.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                tvOutput.append("\nTimer Started\n");
                workerThread = new Thread(new Runnable() {
                    @Override
                    public void run() {
                        while(!Thread.currentThread().isInterrupted())
                        {
                            try{
                                Thread.sleep(1000);
                            }catch (InterruptedException e){
                                e.printStackTrace();
                                return;
                            }
                        }
                        t++;
                    }
                });
            }
        });
    }
}

```

```

        runOnUiThread(()->{
            tvOutput.append("\nTime Elapsed: "+t+" sec.");
        });
    }
}

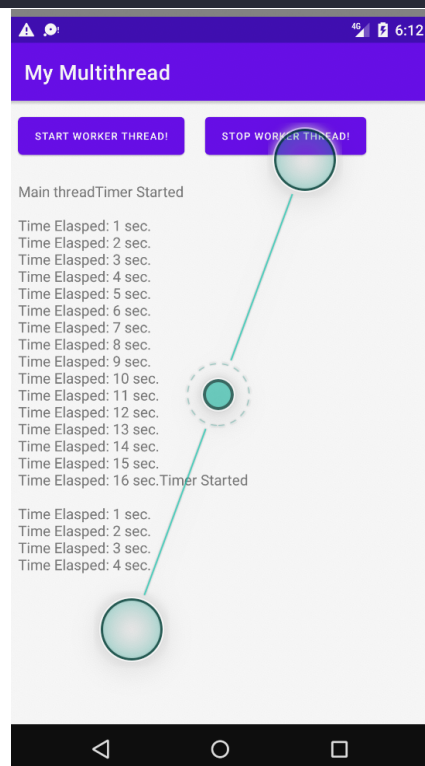
});

workerThread.start();
}

});

btnEnd.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View view) {
        workerThread.interrupt();
        t = 0;
    }
});
}
}
}

```



Progress Bar Thread

Main_Activity.java

Activity_main.xml

Color Change

Main_Activity.java

```
package com.example.mysd;

import androidx.appcompat.app.AppCompatActivity;

import android.animation.ArgbEvaluator;
import android.animation.ValueAnimator;
import android.graphics.Color;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.TextView;

import java.util.ArrayList;

public class MainActivity extends AppCompatActivity {
    int i=0;
    int prev=0;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        Button bt_forward = (Button) findViewById(R.id.mv_right);
        Button bt_backward = (Button) findViewById(R.id.mv_left);
        TextView tv_animate = (TextView) findViewById(R.id.banner);
        TextView xVal = (TextView) findViewById(R.id.x_val);
        int arr[] = new int[5];
        arr[0]= Color.RED;
        arr[1] = Color.BLUE;
        arr[2] = Color.GREEN;
        arr[3]=Color.YELLOW;
        arr[4] = Color.MAGENTA;
        bt_forward.setOnClickListener(new View.OnClickListener() {
            @Override
```

```

        public void onClick(View v) {
            new Thread(new Runnable() {
                public void run() {
                    // a potentially time consuming task

                    //tv_animate.setTranslationX(410f);
                }
            }).start();

            runOnUiThread(new Runnable() {
                public void run() {
                    // a potentially time consuming task
                    int x = Integer.valueOf(xVal.getText().toString())+410;
                    xVal.setText(String.valueOf(x));

                }
            });

            new Thread(new Runnable() {
                public void run() {
                    // a potentially time consuming task
                    tv_animate.setBackgroundColor(arr[i]);
                    i=(i+1)%5;
                }
            }).start();

        }
    });

    bt_backward.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            new Thread(new Runnable() {
                public void run() {
                    // a potentially time consuming task

                    //tv_animate.setTranslationX(-410f);
                }
            }).start();

            runOnUiThread(new Runnable() {
                public void run() {

```

```

        // a potentially time consuming task
        int x = Integer.valueOf(xVal.getText().toString())-410;
        xVal.setText(String.valueOf(x));

    }

});

    new Thread(new Runnable() {
        public void run() {
            // a potentially time consuming task

            tv_animate.setBackgroundColor(arr[i]);
            i=(i-1);
            if(i== -1) i=4;

        }
    }).start();
}

});
}
}
}

```

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/banner"
        android:layout_width="1230dp"
        android:layout_height="200dp"
        android:background="#FF0000"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintEnd_toEndOf="parent"
        app:layout_constraintHorizontal_bias="0.6"
        app:layout_constraintStart_toStartOf="parent"
        app:layout_constraintTop_toTopOf="parent"
        app:layout_constraintVertical_bias="0.499" />

```

```

<Button
    android:id="@+id/mv_left"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginStart="50dp"
    android:text="Scroll Left"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/banner" />

<Button
    android:id="@+id/mv_right"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginEnd="50dp"
    android:text="Scroll Right"
    app:layout_constraintBottom_toBottomOf="parent"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintTop_toBottomOf="@+id/banner" />

<TextView
    android:id="@+id/x_val"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_marginBottom="64dp"
    android:text="0"
    android:textSize="64sp"
    app:layout_constraintBottom_toTopOf="@+id/banner"
    app:layout_constraintEnd_toEndOf="parent"
    app:layout_constraintStart_toStartOf="parent"
    app:layout_constraintTop_toTopOf="parent" />

</androidx.constraintlayout.widget.ConstraintLayout>

```

Assignment 6: GPS

Get Location and display

Main_Activity.java

```
package com.example.mygps;
```

```

import androidx.appcompat.app.AppCompatActivity;
import androidx.core.app.ActivityCompat;

import android.Manifest;
import android.content.Context;
import android.content.pm.PackageManager;
import android.location.Address;
import android.location.Geocoder;
import android.location.Location;
import android.location.LocationListener;
import android.location.LocationManager;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;
import android.widget.EditText;
import android.widget.TextView;
import java.util.List;

public class MainActivity extends AppCompatActivity implements
LocationListener{
    TextView tv_lat,tv_log;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        tv_lat = findViewById(R.id.tv_lat);
        tv_log = findViewById(R.id.tv_log);
        EditText et_name = findViewById(R.id.et_name);
        Button bt_get = findViewById(R.id.bt_get);

        LocationManager locationManager = (LocationManager)
getSystemService(Context.LOCATION_SERVICE);

        if (ActivityCompat.checkSelfPermission(this,
Manifest.permission.ACCESS_FINE_LOCATION) !=
            PackageManager.PERMISSION_GRANTED &&
ActivityCompat.checkSelfPermission(this,
            Manifest.permission.ACCESS_COARSE_LOCATION) !=
PackageManager.PERMISSION_GRANTED) {
            return;
        }
        locationManager.requestLocationUpdates(LocationManager.GPS_PROVIDER,0,0,(Locati
onListener) this);

```



```

        bt_get.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View view) {
                try{
                    Geocoder geocoder = new Geocoder(MainActivity.this);
                    List<Address> list =
geocoder.getFromLocationName(et_name.getText().toString(),1);
                    if(list!=null && list.size()>0) {
                        Address adr = list.get(0);
                        tv_lat.setText(Double.toString(adr.getLatitude()));
                        tv_log.setText(Double.toString(adr.getLongitude()));
                    }
                }catch(Exception e){
                    e.printStackTrace();
                }
            }
        });
    }

    @Override
    public void onLocationChanged(Location location) {
    }

    @Override
    public void onStatusChanged(String provider, int status, Bundle extras) {
    }

    @Override
    public void onProviderEnabled(String provider) {
    }

    @Override
    public void onProviderDisabled(String provider) {
    }
}

```

Android_Manifest.xml

```

<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.mygps">
    <uses-permission android:name="android.permission.ACCESS_FINE_LOCATION"/>
    <uses-permission android:name="android.permission.ACCESS_COARSE_LOCATION"/>
    <uses-permission android:name="android.permission.INTERNET"/>
    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"

```

```

        android:label="@string/app_name"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportsRtl="true"
        android:theme="@style/Theme.MyGPS">
        <activity
            android:name=".MainActivity"
            android:exported="true">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />

                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
    </application>

</manifest>

```

GPS-Current Location

Main_Activity.java

```

package com.example.swethpractice;

import androidx.annotation.NonNull;
import androidx.appcompat.app.AppCompatActivity;
import androidx.core.content.ContextCompat;

import android.Manifest;
import android.content.Context;
import android.content.pm.PackageManager;
import android.location.Criteria;
import android.location.Location;
import android.location.LocationListener;
import android.location.LocationManager;
import android.os.Build;
import android.os.Bundle;
import android.widget.TextView;
import android.widget.Toast;

public class MainActivity extends AppCompatActivity implements LocationListener
{
    LocationManager lmanager;
    String provider;
    @Override

```

```

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

    init();
}

private void init() {
    lmanager= (LocationManager) getSystemService(Context.LOCATION_SERVICE);
    Criteria criteria=new Criteria();
    provider= lmanager.getBestProvider(criteria,false);

    if (ContextCompat.checkSelfPermission(this,
Manifest.permission.ACCESS_FINE_LOCATION) != PackageManager.PERMISSION_GRANTED
||
        ContextCompat.checkSelfPermission(this,
Manifest.permission.ACCESS_COARSE_LOCATION) !=
PackageManager.PERMISSION_GRANTED)
        return;

    if (provider!=null && !provider.equals("")){
        Location location= lmanager.getLastKnownLocation(provider);
        lmanager.requestLocationUpdates(provider, 100, 1, this);
        if(location!=null){
            onLocationChanged(location);
        }
        else{
            Toast.makeText(getBaseContext(), "Location not available!!",
Toast.LENGTH_LONG).show();
        }
    }
    else{
        Toast.makeText(getBaseContext(), "No Provider found!!",
Toast.LENGTH_LONG).show();
    }
}

@Override
public void onRequestPermissionsResult(int requestCode, @NonNull String[]
permissions, @NonNull int[] grantResults) {
    super.onRequestPermissionsResult(requestCode, permissions,
grantResults);
}

```

```

        if (requestCode == 0 && grantResults.length == 2) {
            init();
        }
        else Toast.makeText(getBaseContext(), "Required permissions not
granted!", Toast.LENGTH_SHORT).show();
    }

    @Override
    public void onLocationChanged(@NonNull Location location) {
        TextView T1= (TextView)findViewById(R.id.txtlat);
        TextView T2= (TextView)findViewById(R.id.txtlong);

        T1.setText(""+ location.getLatitude());
        T2.setText(""+ location.getLongitude());

    }

    @Override
    public void onStatusChanged(String provider, int status, Bundle extras) {
    }

    @Override
    public void onProviderEnabled(@NonNull String provider) {
    }

    @Override
    public void onProviderDisabled(@NonNull String provider) {
    }

}

```

Assignment 8: SMS Application

Main_Activity.java

```

package com.example.mysms;

import android.Manifest;
import android.content.pm.PackageManager;
import android.os.Bundle;
import android.telephony.SmsManager;
import android.view.View;

```

```
import android.widget.Button;
import android.widget.EditText;

import androidx.appcompat.app.AppCompatActivity;
import androidx.core.app.ActivityCompat;

public class MainActivity extends AppCompatActivity {
    private static final int MY_PERMISSIONS_REQUEST_SEND_SMS = 0;
    Button sendBtn;
    EditText txtphoneNo;
    EditText txtMessage;
    String phoneNo;
    String message;
    @Override
    protected void onCreate(Bundle savedInstanceState)
    {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        sendBtn = (Button) findViewById(R.id.sendbtn);
        txtphoneNo = (EditText) findViewById(R.id.etPhone);
        txtMessage = (EditText) findViewById(R.id.content);

        sendBtn.setOnClickListener(new View.OnClickListener() {
            public void onClick(View view) {

                SmsManager smsManager = SmsManager.getDefault();

                if (ActivityCompat.checkSelfPermission(MainActivity.this, Manifest.permission.SEND_SMS) == PackageManager.PERMISSION_GRANTED)

                smsManager.sendTextMessage(txtphoneNo.getText().toString(), null, txtMessage.getText().toString(), null, null);
            }
        });
    }
}
```

```

ActivityCompat.requestPermissions(MainActivity.this, new
String[]{Manifest.permission.SEND_SMS}, 0);

    }

    });
}
}

```

Android_Manifest.xml

```

<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.mysms">
    <uses-permission android:name="android.permission.SEND_SMS"/>

    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportsRtl="true"
        android:theme="@style/Theme.MySMS">
        <activity
            android:name=".MainActivity"
            android:exported="true">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />

                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
    </application>
</manifest>

```

Assignment 7: SD Card Read and Write

Main_Activity.java

```

package com.example.sample;

import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;

```

```

import android.view.View;
import android.widget.Button;
import android.widget.EditText;

import java.io.BufferedReader;
import java.io.File;
import java.io.FileOutputStream;
import java.io.FileReader;

public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {

        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        Button bt_write = findViewById(R.id.bt_read);
        Button bt_read = findViewById(R.id.bt_write);
        EditText et_name = findViewById(R.id.et_name);
        EditText et_text = findViewById(R.id.et_content);

        bt_write.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                try{
                    File file = new
File(getFilesDir(),et_name.getText().toString());
                    FileOutputStream fp=new FileOutputStream(file);

fp.write(et_text.getEditableText().toString().getBytes());
                    fp.close();
                    et_text.setText("");
                }catch(Exception e){
                    e.printStackTrace();
                }
            }
        });

        bt_read.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {

```

```

        try{
            String inp,text="";
            File file = new
File(getFilesDir(),et_name.getEditableText().toString().toString());
            BufferedReader buff = new BufferedReader(new
FileReader(file));
            while((inp=bf.readLine())!=null){
                text+=inp;
                et_name.setText(text);
            }catch (Exception e){
                e.printStackTrace();
            }
        }
    }
});
}

```

Android_Manifest.xml

```

<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.mygps">
    <uses-permission android:name="android.permission.WRITE_EXTERNAL_STORAGE"/>
    <uses-permission android:name="android.permission.READ_EXTERNAL_STORAGE"/>
    <uses-permission android:name="android.permission.MANAGE_EXTERNAL_STORAGE"/>
    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportsRtl="true"
        android:theme="@style/Theme.MyGPS">
        <activity
            android:name=".MainActivity"
            android:exported="true">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />

                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
    </application>

```



```
</manifest>
```

Alarm Clock

Main_Activity.java

Activity_main.xml

GPS+SMS

Main_Activity.java

Activity_main.xml

GPS+SD

Main_Activity.java

Activity_main.xml

Webpage Button

On Button click event write this:

```
Uri uri = Uri.parse("http://www.google.com"); // missing 'http://' will cause crashed
Intent intent = new Intent(Intent.ACTION_VIEW, uri);
startActivity(intent);
```

that open the your URL.