Bapatla Engineering College::Bapatla(Autonomous)
Department of Cyber Security and Data Science

Lab Manual
III / IV B. Tech.
Mobile Application Development Lab
(20DSLJO03)

List of Experiments

Experiment 1

1. Design an Android application to display hello world?

Program:

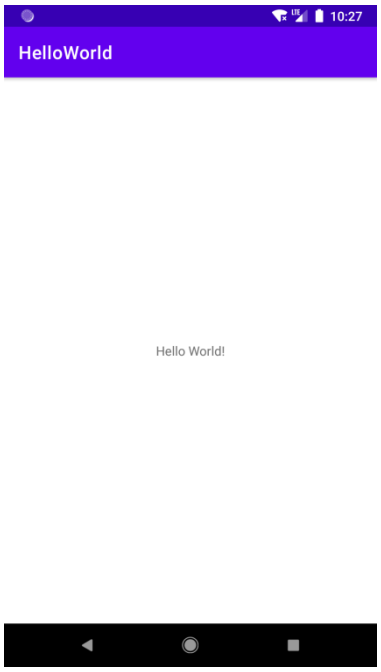
MainActivity.java

```
package com.example.helloworld;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
public class MainActivity extends AppCompatActivity {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
    }
}
```

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:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Hello World!"
        app:layout_constraintBottom_toBottomOf="parent"
        app:layout_constraintLeft_toLeftOf="parent"
        app:layout_constraintRight_toRightOf="parent"
        app:layout_constraintTop_toTopOf="parent" />

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

Output:



Experiment 2

2. Design an Android application to create interactive user interface?

Program:

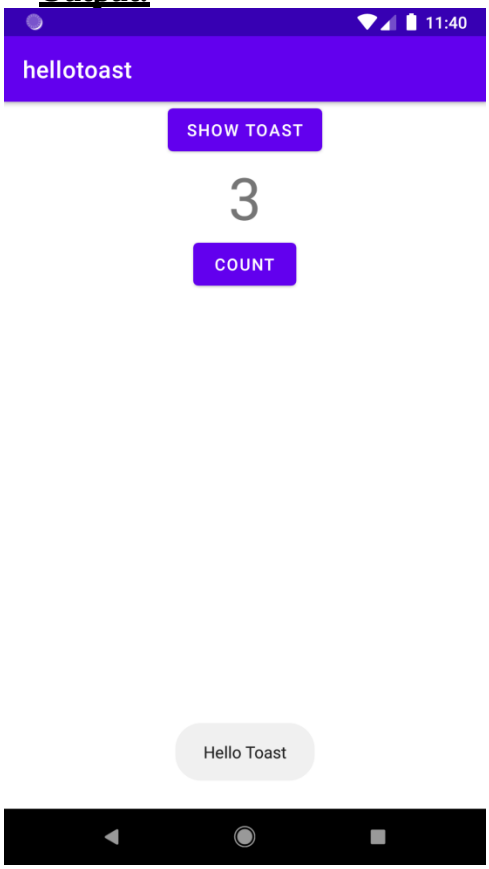
activity_main.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout
   xmlns:android="http://schemas.android.com/apk/res/android"
   xmlns:tools="http://schemas.android.com/tools"
   android:layout_width="match_parent"
   android:layout_height="match_parent"
   android:orientation="vertical"
   tools:context="com.example.hellotoast.MainActivity">
   <Button
      android:onClick="showToast"
      android:layout_gravity="center"
      android:gravity="center"
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:text="Show Toast"/>
   <TextView
      android:id="@+id/tv"
      android:layout_gravity="center"
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:text="0"
      android:textSize="50sp"
      />
   <Button
      android:onClick="countUp"
      android:layout_gravity="center"
      android:layout_width="wrap_content"
      android:layout_height="wrap_content"
      android:text="count"/>
</LinearLayout>
```

MainActivity.java

```
package com.example.hellotoast;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.widget.TextView;
import android.widget.Toast;
public class MainActivity extends AppCompatActivity {
    int count=0;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
    }
    public void showToast(View view) {
        Toast.makeText(this, "Hello Toast", Toast.LENGTH_SHORT).show();
    }

    public void countUp(View view) {
        count++;
        //Get the id of the TextView from activity_main.xml layout file
        TextView tV=(TextView)findViewById(R.id.tv);
        tV.setText(String.valueOf(count));//setText() method displays the text on the TextView
    }
}
```

Output:



Experiment 3

3. Design an Android application to create and start activity?.

Program:

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"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:paddingBottom="@dimen/activity_vertical_margin"
    android:paddingLeft="@dimen/activity_horizontal_margin"
    android:paddingRight="@dimen/activity_horizontal_margin"
    android:paddingTop="@dimen/activity_vertical_margin"
    tools:context="com.example.twoactivity.MainActivity">
    <TextView
        android:id="@+id/text_header_reply"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="@string/text_header_reply"
        android:visibility="invisible"
        android:layout_marginBottom="@dimen/activity_vertical_margin"
        android:textAppearance="?android:attr/textAppearanceMedium"
        android:textStyle="bold"/>

    <TextView
        android:id="@+id/text_message_reply"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/text_header_reply"
        android:visibility="invisible"
        android:layout_marginLeft="@dimen/activity_horizontal_margin"
        android:layout_marginStart="@dimen/activity_horizontal_margin"
        android:textAppearance="?android:attr/textAppearanceMedium" />

    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="@string/button_main"
        android:id="@+id/button_main"
        android:layout_alignParentBottom="true"
        android:layout_alignParentRight="true"
        android:layout_alignParentEnd="true"
        android:onClick="launchSecondActivity"/>
```

```
    <EditText
        android:id="@+id/editText_main"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_alignParentBottom="true"
        android:layout_toLeftOf="@+id/button_main"
        android:layout_toStartOf="@+id/button_main"
        android:hint="@string/editText_main" />
</RelativeLayout>
```

activity_second.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"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:paddingBottom="@dimen/activity_vertical_margin"
    android:paddingLeft="@dimen/activity_horizontal_margin"
    android:paddingRight="@dimen/activity_horizontal_margin"
    android:paddingTop="@dimen/activity_vertical_margin"
    tools:context="com.example.twoactivity.SecondActivity">

    <TextView
        android:id="@+id/text_header"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="@string/text_header"
        android:layout_marginBottom="@dimen/activity_vertical_margin"
        android:textAppearance="?android:attr/textAppearanceMedium"
        android:textStyle="bold"/>

    <TextView
        android:id="@+id/text_message"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_below="@+id/text_header"
        android:layout_marginLeft="@dimen/activity_horizontal_margin"
        android:layout_marginStart="@dimen/activity_horizontal_margin"
        android:textAppearance="?android:attr/textAppearanceMedium" />

    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="@string/button_second"
        android:id="@+id/button_second"
        android:layout_alignParentBottom="true"
```

```
        android:layout_alignParentRight="true"
        android:layout_alignParentEnd="true"
        android:onClick="returnReply"/>

    <EditText
        android:id="@+id/editText_second"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_alignParentBottom="true"
        android:layout_toLeftOf="@+id/button_second"
        android:layout_toStartOf="@+id/button_second"
        android:hint="@string/editText_second" />

</RelativeLayout>
```

MainActivity.java

```
package com.example.twoactivity;

import android.content.Intent;
import android.os.Bundle;
import android.util.Log;
import android.view.View;
import android.widget.EditText;
import android.widget.TextView;

import androidx.appcompat.app.AppCompatActivity;

/**
 * The TwoActivities app contains two activities and sends messages (intents) between them.
 */
public class MainActivity extends AppCompatActivity {
    // Class name for Log tag
    private static final String LOG_TAG = MainActivity.class.getSimpleName();
    // Unique tag required for the intent extra
    public static final String EXTRA_MESSAGE =
"com.example.android.twoactivities.extra.MESSAGE";
    // Unique tag for the intent reply
    public static final int TEXT_REQUEST = 1;

    // EditText view for the message
    private EditText mMessageEditText;
    // TextView for the reply header
    private TextView mReplyHeadTextView;
    // TextView for the reply body
    private TextView mReplyTextView;

    /**
     * Initializes the activity.
     *
```

```
     * @param savedInstanceState The current state data.
     */
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);

        // Initialize all the view variables.
        mMessageEditText = (EditText) findViewById(R.id.editText_main);
        mReplyHeadTextView = (TextView) findViewById(R.id.text_header_reply);
        mReplyTextView = (TextView) findViewById(R.id.text_message_reply);
    }

    /**
     * Handle the onClick for the "Send" button. Gets the value of the main EditText,
     * creates an intent, and launches the second activity with that intent.
     *
     * The return intent from the second activity is onActivityResult().
     * @param view The view (Button) that was clicked.
     */
    public void launchSecondActivity(View view) {
        Log.d(LOG_TAG, "Button clicked!");

        Intent intent = new Intent(this, SecondActivity.class);
        String message = mMessageEditText.getText().toString();

        intent.putExtra(EXTRA_MESSAGE, message);
        startActivityForResult(intent, TEXT_REQUEST);
    }

    /**
     * Handle the data in the return intent from SecondActivity.
     *
     * @param requestCode Code for the SecondActivity request.
     * @param resultCode Code that comes back from SecondActivity.
     * @param data Intent data sent back from SecondActivity.
     */
    @Override
    public void onActivityResult(int requestCode, int resultCode, Intent data) {
        super.onActivityResult(requestCode, resultCode, data);
        // Test for the right intent reply
        if (requestCode == TEXT_REQUEST) {
            // Test to make sure the intent reply result was good.
            if (resultCode == RESULT_OK) {
                String reply = data.getStringExtra(SecondActivity.EXTRA_REPLY);

                // Make the reply head visible.
                mReplyHeadTextView.setVisibility(View.VISIBLE);
```

```
            // Set the reply and make it visible.
            mReplyTextView.setText(reply);
            mReplyTextView.setVisibility(View.VISIBLE);
        }
    }
  }
}
```

SecondActivity.java

```
package com.example.twoactivity;
import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.content.Intent;
import android.widget.TextView;
import android.view.View;
import android.widget.EditText;
public class SecondActivity extends AppCompatActivity {
  public static final String EXTRA_REPLY =
        "com.example.android.twoactivities.extra.REPLY";
  private EditText mReply;
  @Override
  protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_second);
    mReply = (EditText) findViewById(R.id.editText_second);

    Intent intent = getIntent();
    String message =
      intent.getStringExtra(MainActivity.EXTRA_MESSAGE);
    TextView textView = (TextView) findViewById(R.id.text_message);
    textView.setText(message);
  }
  public void returnReply(View view) {
    String reply = mReply.getText().toString();

    Intent replyIntent = new Intent();
    replyIntent.putExtra(EXTRA_REPLY, reply);
    setResult(RESULT_OK, replyIntent);
    finish();
  }
}
```

strings.xml

```
<resources>
    <!-- Title of app -->
    <string name="app_name">Two Activities</string>
    <!-- Title of second activity -->
    <string name="activity2_name">Second Activity</string>
    <!-- Message header text (in second activity) [CHAR LIMIT=30]-->
    <string name="text_header">Message Received</string>
    <!-- Button label in main activity [CHAR LIMIT=10]-->
    <string name="button_main">Send</string>
    <!-- Hint for message edit text in main activity [CHAR LIMIT=30]-->
    <string name="editText_main">Enter Your Message Here</string>
    <!-- Button label in second activity [CHAR LIMIT=10]-->
    <string name="button_second">Reply</string>
    <!-- Hint for reply edit text in second activity [CHAR LIMIT=30]-->
    <string name="editText_second">Enter Your Reply Here</string>
    <!-- Reply header text in main activity [CHAR LIMIT=30]-->
    <string name="text_header_reply">Reply Received</string>

</resources>
```

Styles.xml

```
<resources>
    <!-- Base application theme. -->
    <style name="AppTheme" parent="Theme.AppCompat.Light.DarkActionBar">
        <item name="colorPrimary">@color/colorPrimary</item>
        <item name="colorPrimaryDark">@color/colorPrimaryDark</item>
        <item name="colorAccent">@color/colorAccent</item>
    </style>
</resources>
```

colors.xml

```
<resources>
    <color name="colorPrimary">#3F51B5</color>
    <color name="colorPrimaryDark">#303F9F</color>
    <color name="colorAccent">#FF4081</color>
</resources>
```

dimens.xml

```
<resources>
    <!-- Default screen margins, per the Android Design guidelines. -->
    <dimen name="activity_horizontal_margin">16dp</dimen>
    <dimen name="activity_vertical_margin">16dp</dimen>
</resources>
```

themes.xml

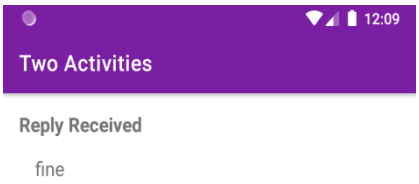
```
<resources xmlns:tools="http://schemas.android.com/tools">
    <!-- Base application theme. -->
    <style name="Theme.TwoActivity"
parent="Theme.MaterialComponents.DayNight.DarkActionBar">
        <!-- Primary brand color. -->
        <item name="colorPrimary">#7B1FA2</item>
        <item name="colorPrimaryVariant">#7B1FA2</item>
        <item name="colorOnPrimary">#FFFFFF</item>
        <!-- Secondary brand color. -->
        <item name="colorSecondary">#80CBC4</item>
        <item name="colorSecondaryVariant">#80CBC4</item>
        <item name="colorOnSecondary">#000000</item>
        <!-- Status bar color. -->
        <item name="android:statusBarColor" tools:targetApi="l">?attr/colorPrimaryVariant</item>

        <!-- Customize your theme here. -->
    </style>
</resources>
```

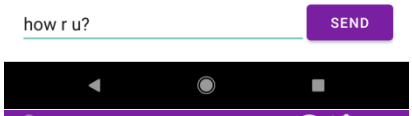
AndroidManifest.xml

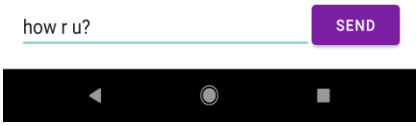
```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.twoactivity">

    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"
        android:label="@string/app_name"
        android:supportsRtl="true"
        android:theme="@style/Theme.TwoActivity">
        <activity android:name="com.example.twoactivity.MainActivity">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />
                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
        <activity android:name="com.example.twoactivity.SecondActivity"
            android:label="@string/activity2_name"
            android:parentActivityName="com.example.twoactivity.MainActivity">
            <meta-data
                android:name="android.support.PARENT_ACTIVITY"
                android:value="com.example.twoactivity.MainActivity" />
        </activity>
    </application>
</manifest>
```

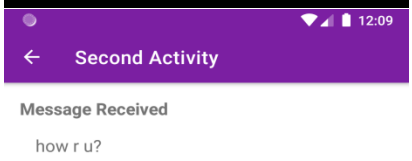
Output:

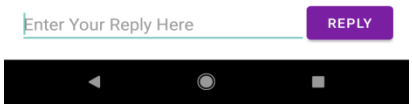

12:09
Two Activities


12:09
Two Activities
Reply Received
fine


how r u?
SEND


how r u?
SEND


12:09
Second Activity
Message Received
how r u?


Enter Your Reply Here
REPLY

Experiment 4

4. Design an Android application to demonstrate different types of layouts?

Program:

FrameLayout.java

```
package com.example.layouts;

import android.app.Activity;
import android.os.Bundle;
import android.view.Menu;
import android.view.MenuItem;


public class FrameLayout extends Activity {

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


    @Override
    public boolean onCreateOptionsMenu(Menu menu) {
        // Inflate the menu; this adds items to the action bar if it is present.
        getMenuInflater().inflate(R.menu.frame_layout, menu);
        return true;
    }

    @Override
    public boolean onOptionsItemSelected(MenuItem item) {
        // Handle action bar item clicks here. The action bar will
        // automatically handle clicks on the Home/Up button, so long
        // as you specify a parent activity in AndroidManifest.xml.
        int id = item.getItemId();
        if (id == R.id.action_settings) {
            return true;
        }
        return super.onOptionsItemSelected(item);
    }
}
```

GridViewActivity.java

```
package com.example.layouts;

import android.app.Activity;
import android.os.Bundle;
```

```
import android.view.Menu;
import android.view.MenuItem;
import android.view.View;
import android.widget.AdapterView;
import android.widget.GridView;
import android.widget.Toast;



public class GridViewActivity extends Activity {

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

        // import android.widget.GridView;
        GridView gridview = (GridView) findViewById(R.id.gridView);
        gridview.setAdapter(new ImageAdapter(this));

        gridview.setOnItemClickListener(new AdapterView.OnItemClickListener() {
            public void onItemClick(AdapterView<?> parent, View v, int position, long id) {
                // import android.widget.Toast;
                Toast.makeText(GridViewActivity.this, "" + position, Toast.LENGTH_SHORT).show();
            }
        });
    }

    @Override
    public boolean onCreateOptionsMenu(Menu menu) {
        // Inflate the menu; this adds items to the action bar if it is present.
        getMenuInflater().inflate(R.menu.grid_view, menu);
        return true;
    }

    @Override
    public boolean onOptionsItemSelected(MenuItem item) {
        // Handle action bar item clicks here. The action bar will
        // automatically handle clicks on the Home/Up button, so long
        // as you specify a parent activity in AndroidManifest.xml.
        int id = item.getItemId();
        if (id == R.id.action_settings) {
            return true;
        }
        return super.onOptionsItemSelected(item);
    }
}
```

ImageAdapter.java

```
package com.example.layouts;

import android.content.Context;
import android.view.View;
import android.view.ViewGroup;
import android.widget.BaseAdapter;
import android.widget.GridView;
import android.widget.ImageView;

public class ImageAdapter extends BaseAdapter {
    private Context context;

    public ImageAdapter(Context c) {
        context = c;
    }

    public int getCount() {
        return imageIds.length;
    }

    public Object getItem(int position) {
        return null;
    }

    public long getItemId(int position) {
        return 0;
    }

    // create a new ImageView per image item
    public View getView(int position, View convertView, ViewGroup parent) {
        ImageView imageView;
        if (convertView == null) {
            imageView = new ImageView(context);
            imageView.setLayoutParams(new GridView.LayoutParams(150, 150));
            imageView.setScaleType(ImageView.ScaleType.CENTER_CROP);
            imageView.setPadding(10, 10, 10, 10);
        } else {
            imageView = (ImageView) convertView;
        }

        imageView.setImageResource(imageIds[position]);
        return imageView;
    }

    private Integer[] imageIds = {
            R.drawable.photo_1, R.drawable.photo_2,
```

```
            R.drawable.photo_3, R.drawable.photo_4,
            R.drawable.photo_5, R.drawable.photo_6,
            R.drawable.photo_7, R.drawable.photo_8,
            R.drawable.photo_1, R.drawable.photo_2,
            R.drawable.photo_3, R.drawable.photo_4,
            R.drawable.photo_5, R.drawable.photo_6,
            R.drawable.photo_7, R.drawable.photo_8,
            R.drawable.photo_1, R.drawable.photo_2,
            R.drawable.photo_3, R.drawable.photo_4,
            R.drawable.photo_5, R.drawable.photo_6,
            R.drawable.photo_7, R.drawable.photo_8,
            R.drawable.photo_1, R.drawable.photo_2,
            R.drawable.photo_3, R.drawable.photo_4,
            R.drawable.photo_5, R.drawable.photo_6,
            R.drawable.photo_7
    };
}
```

LinearLayout.java

```
package com.example.layouts;

import android.app.Activity;
import android.content.Context;
import android.net.wifi.WifiManager;
import android.os.Bundle;
import android.view.Menu;
import android.view.MenuItem;
import android.view.View;
import android.widget.AdapterView;
import android.widget.ArrayAdapter;
import android.widget.AutoCompleteTextView;
import android.widget.CheckBox;
import android.widget.RadioButton;
import android.widget.Spinner;
import android.widget.Toast;
import android.widget.ToggleButton;

//import android.widget.AdapterView;
public class LinearLayout extends Activity implements AdapterView.OnItemSelectedListener {

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

        // import android.widget.AutoCompleteTextView;
        AutoCompleteTextView autoCompleteTextView = (AutoCompleteTextView)
                findViewById(R.id.autoCompleteTextView);
```

```
    ArrayAdapter adapter1 = ArrayAdapter.createFromResource(this,
            R.array.zodiac, android.R.layout.select_dialog_item);

    autoCompleteTextView.setThreshold(1);

    autoCompleteTextView.setAdapter(adapter1);

    // import android.widget.Spinner;
    Spinner spinner = (Spinner) findViewById(R.id.zodiac_spinner);
    // set a listener on spinner
    spinner.setOnItemSelectedListener(this);
    // import android.widget.ArrayAdapter;
    // populate the spinner from data source
    ArrayAdapter<CharSequence> adapter = ArrayAdapter.createFromResource(this,
            R.array.zodiac, android.R.layout.simple_spinner_item);
    adapter.setDropDownViewResource(android.R.layout.simple_spinner_dropdown_item);
    spinner.setAdapter(adapter);
}

public void onItemSelected(AdapterView<?> parent, View view, int position, long id) {

    String selectedItem = parent.getItemAtPosition(position).toString();

    Toast.makeText(parent.getContext(), selectedItem, Toast.LENGTH_SHORT).show();
}

public void onNothingSelected(AdapterView<?> parent) {
    // Another interface callback
}

public void onCheckboxClicked(View view) {
    // import android.content.Context;
    Context context = getApplicationContext();
    // import android.widget.Toast;
    int duration = Toast.LENGTH_SHORT;
    // import android.widget.CheckBox;
    CheckBox chkJogging = (CheckBox) findViewById(R.id.chkJogging);
    CheckBox chkSwimming = (CheckBox) findViewById(R.id.chkSwimming);
    CheckBox chkCoding = (CheckBox) findViewById(R.id.chkCoding);
    CheckBox chkWriting = (CheckBox) findViewById(R.id.chkWriting);

    StringBuilder sb = new StringBuilder();
    if (chkJogging.isChecked()) {
        sb.append(", " + chkJogging.getText());
    }
    if (chkSwimming.isChecked()) {
```

```
        sb.append(", " + chkSwimming.getText());
    }
    if (chkCoding.isChecked()) {
        sb.append(", " + chkCoding.getText());;
    }
    if (chkWriting.isChecked()) {
        sb.append(", " + chkWriting.getText());
    }
    if (sb.length() > 0) { // No toast if the string is empty
        // Remove the first comma
        String output = sb.deleteCharAt(sb.indexOf(",")).toString();

        // A small pop up box that contains a message for a limited amount of time
        Toast toast = Toast.makeText(context, output, duration);
        toast.show();
    }
}

public void onRadioButtonClicked(View view) {
    // import android.widget.RadioButton;
    RadioButton radio = (RadioButton) view;
    boolean checked = radio.isChecked();

    if (checked){
        // import android.content.Context;
        Context context = getApplicationContext();
        int duration = Toast.LENGTH_SHORT;
        String output = radio.getText().toString();
        // import android.widget.Toast;
        Toast toast = Toast.makeText(context, output, duration);
        toast.show();
    }
}

public void onToggleClicked(View view) {
    // import android.widget.ToggleButton;
    boolean on = ((ToggleButton) view).isChecked();
    //import android.net.wifi.WifiManager;
    WifiManager wifiManager = (WifiManager) this.getSystemService(Context.WIFI_SERVICE);

    if (on && !wifiManager.isWifiEnabled()) {
        wifiManager.setWifiEnabled(true);
    } else if (!on && wifiManager.isWifiEnabled()) {
        wifiManager.setWifiEnabled(false);
    }
}
```

```
    @Override
    public boolean onCreateOptionsMenu(Menu menu) {
        // Inflate the menu; this adds items to the action bar if it is present.
        getMenuInflater().inflate(R.menu.linear_layout, menu);
        return true;
    }

    @Override
    public boolean onOptionsItemSelected(MenuItem item) {
        // Handle action bar item clicks here. The action bar will
        // automatically handle clicks on the Home/Up button, so long
        // as you specify a parent activity in AndroidManifest.xml.
        int id = item.getItemId();
        if (id == R.id.action_settings) {
            return true;
        }
        return super.onOptionsItemSelected(item);
    }
}
```

ListViewLayout.java

```
package com.example.layouts;

import android.app.Activity;
import android.os.Bundle;
import android.view.Menu;
import android.view.MenuItem;
import android.widget.ArrayAdapter;
import android.widget.ListView;



public class ListViewLayout extends Activity {

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

        // import android.widget.ArrayAdapter;
        ArrayAdapter<CharSequence> adapter = ArrayAdapter.createFromResource(this,
                R.array.zodiac, android.R.layout.simple_list_item_1);

        // import android.widget.ListView;
        ListView listView = (ListView) findViewById(R.id.listView);
        listView.setAdapter(adapter);
    }
```

```
    @Override
    public boolean onCreateOptionsMenu(Menu menu) {
        // Inflate the menu; this adds items to the action bar if it is present.
        getMenuInflater().inflate(R.menu.list_view, menu);
        return true;
    }

    @Override
    public boolean onOptionsItemSelected(MenuItem item) {
        // Handle action bar item clicks here. The action bar will
        // automatically handle clicks on the Home/Up button, so long
        // as you specify a parent activity in AndroidManifest.xml.
        int id = item.getItemId();
        if (id == R.id.action_settings) {
            return true;
        }
        return super.onOptionsItemSelected(item);
    }
}
```

RelativeLayout.java

```
package com.example.layouts;

import android.app.Activity;
import android.app.ProgressDialog;
import android.os.Bundle;
import android.view.Menu;
import android.view.MenuItem;
import android.view.View;

public class RelativeLayout extends Activity {

    ProgressDialog progress;

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

    public void showProgress(View view){
        progress = new ProgressDialog(this);
        progress.setMessage("Coming soon...");
        progress.setProgressStyle(ProgressDialog.STYLE_HORIZONTAL);
        progress.show();

        final int maxDuration = 100;
```

```
        final Thread thread = new Thread(){

            @Override
            public void run(){
                int timeElapsed = 0;
                while(timeElapsed < maxDuration){
                    try {
                        sleep(500);
                        timeElapsed += 5;
                        progress.setProgress(timeElapsed);
                    } catch (InterruptedException e) {
                        e.printStackTrace();
                    }
                }
            }
        };
        thread.start();
    }

    @Override
    public boolean onCreateOptionsMenu(Menu menu) {
        // Inflate the menu; this adds items to the action bar if it is present.
        getMenuInflater().inflate(R.menu.relative_layout, menu);
        return true;
    }

    @Override
    public boolean onOptionsItemSelected(MenuItem item) {
        // Handle action bar item clicks here. The action bar will
        // automatically handle clicks on the Home/Up button, so long
        // as you specify a parent activity in AndroidManifest.xml.
        int id = item.getItemId();
        if (id == R.id.action_settings) {
            return true;
        }
        return super.onOptionsItemSelected(item);
    }
}
```

TableLayout.java

```
package com.example.layouts;

import android.app.Activity;
import android.os.Bundle;
import android.view.Menu;
import android.view.MenuItem;
```

```
public class TableLayout extends Activity {

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


    @Override
    public boolean onCreateOptionsMenu(Menu menu) {
        // Inflate the menu; this adds items to the action bar if it is present.
        getMenuInflater().inflate(R.menu.table_layout, menu);
        return true;
    }

    @Override
    public boolean onOptionsItemSelected(MenuItem item) {
        // Handle action bar item clicks here. The action bar will
        // automatically handle clicks on the Home/Up button, so long
        // as you specify a parent activity in AndroidManifest.xml.
        int id = item.getItemId();
        if (id == R.id.action_settings) {
            return true;
        }
        return super.onOptionsItemSelected(item);
    }
}
```

MainActivity.java

```
package com.example.layouts;

import android.app.Activity;
import android.content.Intent;
import android.os.Bundle;
import android.view.Menu;
import android.view.MenuItem;
import android.view.View;


public class MainActivity extends Activity {

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

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

/**
 * Called when the user touches the button
 */
public void getRelativeLayoutPage(View view) {
    Intent intent = new Intent(getApplicationContext(), RelativeLayout.class);
    startActivity(intent);
}

/**
 * Called when the user touches the button
 */
public void getTableLayoutPage(View view) {
    Intent intent = new Intent(getApplicationContext(), TableLayout.class);
    startActivity(intent);
}

public void getFrameLayoutPage(View view) {
    Intent intent = new Intent(getApplicationContext(), FrameLayout.class);
    startActivity(intent);
}

/**
 * Called when the user touches the button
 */
public void getLinearLayoutPage(View view) {
    Intent intent = new Intent(getApplicationContext(), LinearLayout.class);
    startActivity(intent);
}

/**
 * Called when the user touches the button
 */
public void getListViewPage(View view) {
    Intent intent = new Intent(getApplicationContext(), ListViewLayout.class);
    startActivity(intent);
}

public void getGridViewPage(View view) {
    Intent intent = new Intent(getApplicationContext(), GridViewActivity.class);
    startActivity(intent);
}
```

```
    @Override
    public boolean onCreateOptionsMenu(Menu menu) {
        // Inflate the menu; this adds items to the action bar if it is present.
        getMenuInflater().inflate(R.menu.main, menu);
        return true;
    }

    @Override
    public boolean onOptionsItemSelected(MenuItem item) {
        // Handle action bar item clicks here. The action bar will
        // automatically handle clicks on the Home/Up button, so long
        // as you specify a parent activity in AndroidManifest.xml.
        int id = item.getItemId();
        if (id == R.id.action_settings) {
            return true;
        }
        return super.onOptionsItemSelected(item);
    }
}
```

activity_frame_layout.xml

```
<FrameLayout
    android:layout_width="fill_parent"
    android:layout_height="fill_parent"
    xmlns:android="http://schemas.android.com/apk/res/android">

    <ImageView
        android:layout_width="228dp"
        android:layout_height="228dp"
        android:id="@+id/imageView"
        android:layout_gravity="center"
        android:src="@drawable/ic_launcher" />

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:textAppearance="?android:attr/textAppearanceLarge"
        android:text="I love Android!"
        android:id="@+id/textView"
        android:textSize="30sp"
        android:textStyle="bold"
        android:textColor="#112233"
        android:layout_gravity="center" />
</FrameLayout>
```

Activity_grid_view.xml

```
<GridView
    xmlns:android="http://schemas.android.com/apk/res/android"
    android:id="@+id/gridView"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:columnWidth="100dp"
    android:numColumns="auto_fit"
    android:verticalSpacing="10dp"
    android:horizontalSpacing="10dp"
    android:stretchMode="columnWidth"
    android:gravity="center" />
```

activity_linear_layout.xml

```
<LinearLayout
    android:orientation="vertical"
    android:layout_width="fill_parent"
    android:layout_height="fill_parent"
    xmlns:android="http://schemas.android.com/apk/res/android">

    <LinearLayout
        android:orientation="horizontal"
        android:layout_width="match_parent"
        android:layout_height="wrap_content">

        <CheckBox
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="@string/jogging"
            android:id="@+id/chkJogging"
            android:onClick="onCheckboxClicked"
            android:checked="false" />

        <CheckBox
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="@string/swimming"
            android:id="@+id/chkSwimming"
            android:onClick="onCheckboxClicked"
            android:checked="false" />

        <CheckBox
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:text="@string/coding"
            android:id="@+id/chkCoding"
            android:onClick="onCheckboxClicked"
```

```
        android:checked="false" />

    <CheckBox
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="@string/writing"
        android:id="@+id/chkWriting"
        android:onClick="onCheckboxClicked"
        android:checked="false" />
</LinearLayout>

<RadioGroup
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:orientation="horizontal">

    <RadioButton
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="@string/female"
        android:id="@+id/radFemale"
        android:onClick="onRadioButtonClicked"
        android:checked="false" />

    <RadioButton
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="@string/male"
        android:id="@+id/radMale"
        android:onClick="onRadioButtonClicked"
        android:checked="false" />
</RadioGroup>

<ToggleButton
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:id="@+id/toggleButton"
    android:textOn="@string/wifi_on"
    android:textOff="@string/wifi_off"
    android:onClick="onToggleClicked" />

<Spinner
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:id="@+id/zodiac_spinner" />

<AutoCompleteTextView
```

```
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:id="@+id/autoCompleteTextView" />

</LinearLayout>
```

activity_list_view.xml

```
<ListView
  android:layout_width="wrap_content"
  android:layout_height="wrap_content"
  xmlns:android="http://schemas.android.com/apk/res/android"
  android:id="@+id/listView"
  android:padding="20dp" />
```

Activity_main.xml

```
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
  android:orientation="vertical"
  android:layout_width="match_parent"
  android:layout_height="match_parent"
  android:layout_margin="@dimen/activity_vertical_margin"
  android:background="#ffb9d7ff">

  <Button
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="@string/linear_layout"
    android:drawableTop="@drawable/ic_launcher"
    android:onClick="getLinearLayoutPage"
    android:id="@+id/button" />

  <Button
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="@string/relative_layout"
    android:onClick="getRelativeLayoutPage"
    android:id="@+id/button2" />

  <Button
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:text="@string/table_layout"
    android:onClick="getTableLayoutPage"
    android:id="@+id/button3" />

  <Button
```

```
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="@string/framelayout"
        android:onClick="getFrameLayoutPage"
        android:id="@+id/button6" />

    <Button
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="@string/list_view"
        android:onClick="getListViewPage"
        android:id="@+id/button4" />

    <Button
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:text="@string/grid_view"
        android:onClick="getGridViewPage"
        android:id="@+id/button5" />

</LinearLayout>
```

Activity_relative_layout.xml

```
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:paddingLeft="@dimen/activity_horizontal_margin"
    android:paddingRight="@dimen/activity_horizontal_margin"
    android:paddingTop="@dimen/activity_vertical_margin"
    android:paddingBottom="@dimen/activity_vertical_margin"
    tools:context="com.example.layouts.RelativeLayout">

    <TextView
        android:text="@string/hello_world"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:id="@+id/textView2" />

    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:id="@+id/button2"
        android:layout_below="@+id/textView2"
        android:layout_toRightOf="@+id/textView2"
```

```
        android:layout_toEndOf="@+id/textView2"
        android:background="@drawable/button_custom"
        android:layout_marginLeft="23dp"
        android:layout_marginStart="23dp"
        android:layout_marginTop="48dp" />

    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Show Progress..."
        android:onClick="showProgress"
        android:id="@+id/button"
        android:layout_alignParentBottom="true"
        android:layout_alignParentRight="true"
        android:layout_alignParentEnd="true"
        android:layout_marginRight="68dp"
        android:layout_marginEnd="68dp"
        android:layout_marginBottom="130dp" />

</RelativeLayout>
```

activity_table_layout.xml

```
<TableLayout
    android:layout_width="fill_parent"
    android:layout_height="fill_parent"
    xmlns:android="http://schemas.android.com/apk/res/android">

    <TableRow
        android:layout_width="fill_parent"
        android:layout_height="fill_parent">

        <TextView
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:textAppearance="?android:attr/textAppearanceLarge"
            android:text="@string/sign_in"
            android:id="@+id/textView2"
            android:textIsSelectable="true"
            android:textColorHighlight="#00FF00"
            android:layout_column="0" />

    </TableRow>

    <TableRow
        android:layout_width="fill_parent"
        android:layout_height="fill_parent">
```

```
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:textAppearance="?android:attr/textAppearanceMedium"
        android:text="@string/email"
        android:id="@+id/textView8"
        android:layout_column="0" />

    <EditText
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:inputType="textEmailAddress"
        android:ems="10"
        android:id="@+id/editText"
        android:layout_column="1"
        android:hint="@string/email" />

</TableRow>

<TableRow
    android:layout_width="fill_parent"
    android:layout_height="fill_parent">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:textAppearance="?android:attr/textAppearanceMedium"
        android:text="@string/password"
        android:id="@+id/textView9"
        android:layout_column="0" />

    <EditText
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:inputType="textPassword"
        android:ems="10"
        android:id="@+id/editText2"
        android:layout_column="1"
        android:hint="@string/password" />

</TableRow>

<TableRow
    android:layout_width="fill_parent"
    android:layout_height="fill_parent">

    <Button
```

```
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="@string/let_me_in"
        android:id="@+id/button5"
        android:layout_column="1" />
    </TableRow>
</TableLayout>
```

frame_layout.xml

```
<menu 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"
    tools:context="com.example.layouts.FrameLayout" >
    <item android:id="@+id/action_settings"
        android:title="@string/action_settings"
        android:orderInCategory="100"
        app:showAsAction="never" />
</menu>
```

grid_view.xml

```
<menu 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"
    tools:context="com.example.layouts.GridViewActivity" >
    <item android:id="@+id/action_settings"
        android:title="@string/action_settings"
        android:orderInCategory="100"
        app:showAsAction="never" />
</menu>
```

Linear_layout.xml

```
<menu 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"
    tools:context="com.example.layouts.LinearLayout" >
    <item android:id="@+id/action_settings"
        android:title="@string/action_settings"
        android:orderInCategory="100"
        app:showAsAction="never" />
</menu>
```

List_view.xml

```
<menu 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"
    tools:context="com.example.layouts.ListViewLayout" >
    <item android:id="@+id/action_settings"
        android:title="@string/action_settings"
        android:orderInCategory="100"
```

```
    app:showAsAction="never" />
</menu>
```

main.xml

```
<menu 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"
    tools:context=".MainActivity">
    <item
        android:id="@+id/action_settings"
        android:title="@string/action_settings"
        android:orderInCategory="100"
        app:showAsAction="never" />
</menu>
```

relative_layout.xml:

```
<menu 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"
    tools:context="com.example.layouts.RelativeLayout">
    <item
        android:id="@+id/action_settings"
        android:title="@string/action_settings"
        android:orderInCategory="100"
        app:showAsAction="never" />
</menu>
```

table_layout.xml:

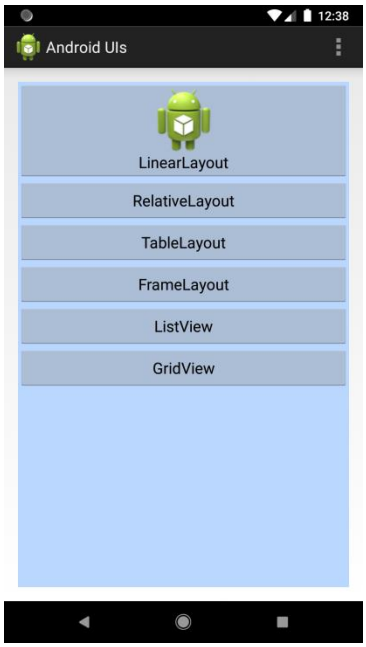
```
<menu xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:tools="http://schemas.android.com/tools"
    tools:context="com.example.layouts.TableLayout">
    <item
        android:id="@+id/action_settings"
        android:title="@string/action_settings"
        android:orderInCategory="100"
        app:showAsAction="never" />
</menu>
```

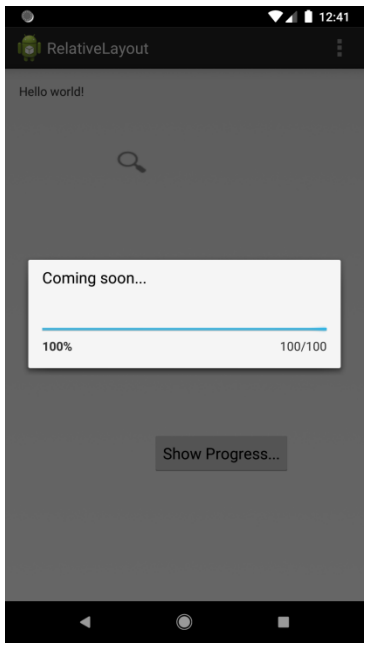
Strings.xml

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

    <string name="app_name">Android UIs</string>
    <string name="hello_world">Hello world!</string>
    <string name="action_settings">Settings</string>
    <string name="title_activity_relative_layout">RelativeLayout</string>
    <string name="title_activity_table_layout">TableLayout</string>
    <string name="sign_in">Sign In &amp;#8230;</string>
```

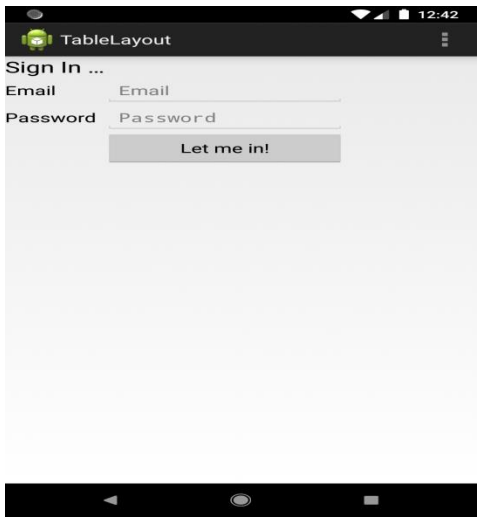
```
    <string name="email">Email</string>
    <string name="password">Password</string>
    <string name="let_me_in">Let me in!</string>
    <string name="linear_layout">LinearLayout</string>
    <string name="relative_layout">RelativeLayout</string>
    <string name="table_layout">TableLayout</string>
    <string name="list_view">ListView</string>
    <string name="grid_view">GridView</string>
    <string name="jogging">Jogging</string>
    <string name="swimming">Swimming</string>
    <string name="coding">Coding</string>
    <string name="writing">Writing</string>
    <string name="pickers">Pickers</string>
    <string name="title_activity_linear_layout">LinearLayout</string>
    <string name="female">Female</string>
    <string name="male">Male</string>
    <string name="wifi_on">WiFi On</string>
    <string name="wifi_off">WiFi Off</string>

    <string-array name="zodiac">
        <item>Aries</item>
        <item>Taurus</item>
        <item>Gemini</item>
        <item>Cancer</item>
        <item>Leo</item>
        <item>Virgo</item>
        <item>Libra</item>
        <item>Scorpio</item>
        <item>Sagittarius</item>
        <item>Capricorn</item>
        <item>Aquarius</item>
        <item>Pisces</item>
    </string-array>

    <string name="title_activity_list_view">ListView</string>
    <string name="title_activity_grid_view">GridViewActivity</string>

    <string name="title_activity_frame_layout">FrameLayout</string>
    <string name="framelayout">FrameLayout</string>

</resources>
```

Output:

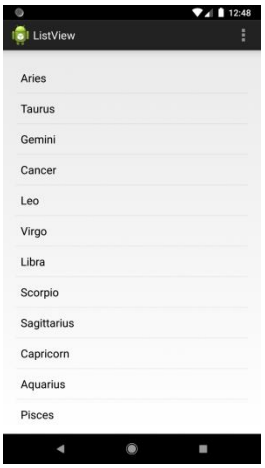

12:38
Android UIs
LinearLayout
RelativeLayout
TableLayout
FrameLayout
ListView
GridView

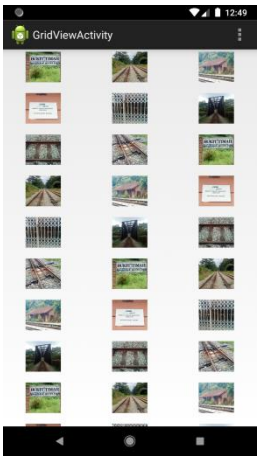

12:41
RelativeLayout
Hello world!
Coming soon...
100%
100/100
Show Progress...


12:39
LinearLayout
Jogging
Swimming
Coding
Writing
Female
Male
WiFi Off
Aries


12:42
TableLayout
Sign In ...
Email
Email
Password
Password
Let me in!


12:45
FrameLayout
I love Android!


12:48
ListView
Aries
Taurus
Gemini
Cancer
Leo
Virgo
Libra
Scorpio
Sagittarius
Capricorn
Aquarius
Pisces


12:49
GridViewActivity

Experiment 5

5. Design an Android application to demonstrate animation.

Program:

MainActivity.java:

```
package com.example.animation;

import androidx.appcompat.app.AppCompatActivity;
import android.os.Bundle;
import android.view.View;
import android.view.animation.Animation;
import android.view.animation.AnimationUtils;
import android.widget.Button;
import android.widget.ImageView;

public class MainActivity extends AppCompatActivity {

    ImageView imageView;
    Button blinkBTN, rotateBTN, fadeBTN, moveBTN, slideBTN, zoomBTN, stopBTN;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        imageView = findViewById(R.id.imageview);
        blinkBTN = findViewById(R.id.BTNblink);
        rotateBTN = findViewById(R.id.BTNrotate);
        fadeBTN = findViewById(R.id.BTNfade);
        moveBTN = findViewById(R.id.BTNmove);
        slideBTN = findViewById(R.id.BTNslide);
        zoomBTN = findViewById(R.id.BTNzoom);
        stopBTN = findViewById(R.id.BTNstop);

        blinkBTN.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                // To add blink animation
                Animation animation = AnimationUtils.loadAnimation(getApplicationContext(),
R.anim.blink_animation);
                imageView.startAnimation(animation);
            }
        });

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

```
            // To add rotate animation
            Animation animation = AnimationUtils.loadAnimation(getApplicationContext(),
R.anim.rotate_animation);
            imageView.startAnimation(animation);
        }
    });
    fadeBTN.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            // To add fade animation
            Animation animation = AnimationUtils.loadAnimation(getApplicationContext(),
R.anim.fade_animation);
            imageView.startAnimation(animation);
        }
    });
    moveBTN.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            // To add move animation
            Animation animation = AnimationUtils.loadAnimation(getApplicationContext(),
R.anim.move_animation);
            imageView.startAnimation(animation);
        }
    });
    slideBTN.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            // To add slide animation
            Animation animation = AnimationUtils.loadAnimation(getApplicationContext(),
R.anim.slide_animation);
            imageView.startAnimation(animation);
        }
    });
    zoomBTN.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            // To add zoom animation
            Animation animation = AnimationUtils.loadAnimation(getApplicationContext(),
R.anim.zoom_animation);
            imageView.startAnimation(animation);
        }
    });
    stopBTN.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            // To stop the animation going on imageview
            imageView.clearAnimation();
```

```
        }
      });
    }
}
```

blink_animation.xml

```
<?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:interpolator="@android:anim/accelerate_interpolator"
      android:duration="500"
      android:repeatMode="reverse"
      android:repeatCount="infinite"/>
</set>
```

Fade_animation.xml

```
<?xml version="1.0" encoding="utf-8"?>
<set xmlns:android="http://schemas.android.com/apk/res/android"
   android:interpolator="@android:anim/accelerate_interpolator">

   <!-- duration is the time for which animation will work-->
   <alpha
      android:duration="1000"
      android:fromAlpha="0"
      android:toAlpha="1" />

   <alpha
      android:duration="1000"
      android:fromAlpha="1"
      android:startOffset="2000"
      android:toAlpha="0" />

</set>
```

move_animation.xml:

```
<?xml version="1.0" encoding="utf-8"?>
<set
   xmlns:android="http://schemas.android.com/apk/res/android"
   android:interpolator="@android:anim/linear_interpolator"
   android:fillAfter="true">

   <translate
      android:fromXDelta="0%p"
      android:toXDelta="75%p"
```

```
        android:duration="700" />
</set>
```

rotate_animation.xml:

```
<?xml version="1.0" encoding="utf-8"?>
<set
   xmlns:android="http://schemas.android.com/apk/res/android">
   <rotate
      android:duration="6000"
      android:fromDegrees="0"
      android:pivotX="50%"
      android:pivotY="50%"
      android:toDegrees="360" />

   <rotate
      android:duration="6000"
      android:fromDegrees="360"
      android:pivotX="50%"
      android:pivotY="50%"
      android:startOffset="5000"
      android:toDegrees="0" />

</set>
```

slide_animation.xml:

```
<?xml version="1.0" encoding="utf-8"?>
<set xmlns:android="http://schemas.android.com/apk/res/android"
   android:fillAfter="true" >
   <scale
      android:duration="500"
      android:fromXScale="1.0"
      android:fromYScale="1.0"
      android:interpolator="@android:anim/linear_interpolator"
      android:toXScale="1.0"
      android:toYScale="0.0" />
</set>
```

Zoom_animation.xml

```
<?xml version="1.0" encoding="utf-8"?>
<set xmlns:android="http://schemas.android.com/apk/res/android"
   android:fillAfter="true" >
   <scale
      android:duration="500"
      android:fromXScale="1.0"
      android:fromYScale="1.0"
```

```
    android:interpolator="@android:anim/linear_interpolator"
    android:toXScale="1.0"
    android:toYScale="0.0" />
</set>
```

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"
  android:layout_width="match_parent"
  android:layout_height="match_parent"
  tools:context=".MainActivity">

  <ImageView
    android:id="@+id/imageview"
    android:layout_width="200dp"
    android:layout_height="200dp"
    android:layout_centerHorizontal="true"
    android:layout_marginTop="40dp"
    android:contentDescription="@string/app_name"
    android:src="@drawable/gfgimage" />

  <LinearLayout
    android:id="@+id/linear1"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_below="@id/imageview"
    android:layout_marginTop="30dp"
    android:orientation="horizontal"
    android:weightSum="3">

    <!--To start the blink animation of the image-->
    <Button
      android:id="@+id/BTNblink"
      style="@style/TextAppearance.AppCompat.Widget.Button"
      android:layout_width="0dp"
      android:layout_height="wrap_content"
      android:layout_margin="10dp"
      android:layout_weight="1"
      android:padding="3dp"
      android:text="@string/blink"
      android:textColor="@color/white" />

    <!--To start the rotate animation of the image-->
    <Button
      android:id="@+id/BTNrotate"
      style="@style/TextAppearance.AppCompat.Widget.Button"
```

```
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_margin="10dp"
        android:layout_weight="1"
        android:padding="3dp"
        android:text="@string/clockwise"
        android:textColor="@color/white" />

    <!--To start the fading animation of the image-->
    <Button
        android:id="@+id/BTNfade"
        style="@style/TextAppearance.AppCompat.Widget.Button"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_margin="10dp"
        android:layout_weight="1"
        android:padding="3dp"
        android:text="@string/fade"
        android:textColor="@color/white" />

</LinearLayout>
<LinearLayout
    android:id="@+id/linear2"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_below="@id/linear1"
    android:layout_marginTop="30dp"
    android:orientation="horizontal"
    android:weightSum="3">

    <!--To start the move animation of the image-->
    <Button
        android:id="@+id/BTNmove"
        style="@style/TextAppearance.AppCompat.Widget.Button"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_margin="10dp"
        android:layout_weight="1"
        android:padding="3dp"
        android:text="@string/move"
        android:textColor="@color/white" />

    <!--To start the slide animation of the image-->
    <Button
        android:id="@+id/BTNslide"
        style="@style/TextAppearance.AppCompat.Widget.Button"
        android:layout_width="0dp"
```

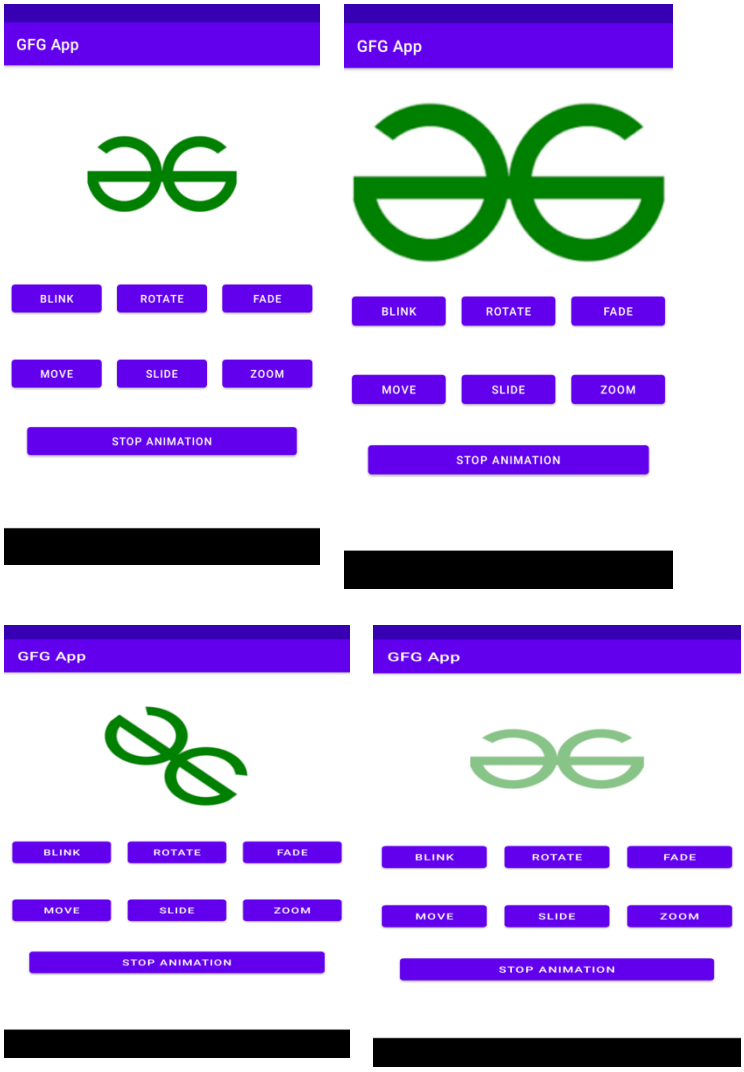
```
        android:layout_height="wrap_content"
        android:layout_margin="10dp"
        android:layout_weight="1"
        android:padding="3dp"
        android:text="@string/slide"
        android:textColor="@color/white" />

    <!--To start the zoom animation of the image-->
    <Button
        android:id="@+id/BTNzoom"
        style="@style/TextAppearance.AppCompat.Widget.Button"
        android:layout_width="0dp"
        android:layout_height="wrap_content"
        android:layout_margin="10dp"
        android:layout_weight="1"
        android:padding="3dp"
        android:text="@string/zoom"
        android:textColor="@color/white" />

</LinearLayout>

<!--To stop the animation of the image-->
<Button
    android:id="@+id/BTNstop"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:layout_below="@id/linear2"
    android:layout_marginLeft="30dp"
    android:layout_marginTop="30dp"
    android:layout_marginRight="30dp"
    android:text="@string/stop_animation" />

</RelativeLayout>
```

strings.xml

```
<resources>
    <string name="app_name">GFG App</string>
    <string name="blink">BLINK</string>
    <string name="clockwise">ROTATE</string>
    <string name="fade">FADE</string>
    <string name="move">MOVE</string>
    <string name="slide">SLIDE</string>
    <string name="zoom">ZOOM</string>
    <string name="stop_animation">STOP ANIMATION</string>
    <string name="course_rating">Course Rating</string>
    <string name="course_name">Course Name</string>
</resources>
```

gfgimage.jpg:

Output:



Experiment 6

6. Develop standard calculator application to perform basic calculator operations like addition, subtraction, multiplication and division?

Program:

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"
    android:id="@+id/relative1"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity">
    <EditText
        android:id="@+id/edt1"
        android:layout_width="match_parent"
        android:layout_height="wrap_content" />
    <Button
        android:id="@+id/button1"
        style="?android:attr/buttonStyleSmall"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignEnd="@+id/button4"
        android:layout_alignRight="@+id/button4"
        android:layout_below="@+id/edt1"
        android:layout_marginTop="94dp"
        android:text="1" />
    <Button
        android:id="@+id/button2"
        style="?android:attr/buttonStyleSmall"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignTop="@+id/button1"
        android:layout_toLeftOf="@+id/button3"
        android:layout_toStartOf="@+id/button3"
        android:text="2" />
    <Button
        android:id="@+id/button3"
        style="?android:attr/buttonStyleSmall"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignTop="@+id/button2"
        android:layout_centerHorizontal="true"
        android:text="3" />
    <Button
        android:id="@+id/button4"
        style="?android:attr/buttonStyleSmall"
```

```
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_below="@+id/button1"
    android:layout_toLeftOf="@+id/button2"
    android:text="4" />
<Button
    android:id="@+id/button5"
    style="?android:attr/buttonStyleSmall"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignBottom="@+id/button4"
    android:layout_alignLeft="@+id/button2"
    android:layout_alignStart="@+id/button2"
    android:text="5" />
<Button
    android:id="@+id/button6"
    style="?android:attr/buttonStyleSmall"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignLeft="@+id/button3"
    android:layout_alignStart="@+id/button3"
    android:layout_below="@+id/button3"
    android:text="6" />
<Button
    android:id="@+id/button7"
    style="?android:attr/buttonStyleSmall"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_below="@+id/button4"
    android:layout_toLeftOf="@+id/button2"
    android:text="7" />
<Button
    android:id="@+id/button8"
    style="?android:attr/buttonStyleSmall"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignLeft="@+id/button5"
    android:layout_alignStart="@+id/button5"
    android:layout_below="@+id/button5"
    android:text="8" />
<Button
    android:id="@+id/button9"
    style="?android:attr/buttonStyleSmall"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignLeft="@+id/button6"
    android:layout_alignStart="@+id/button6"
```

```
    android:layout_below="@+id/button6"
    android:text="9" />
<Button
    android:id="@+id/buttonadd"
    style="?android:attr/buttonStyleSmall"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignEnd="@+id/edt1"
    android:layout_alignRight="@+id/edt1"
    android:layout_alignTop="@+id/button3"
    android:layout_marginLeft="46dp"
    android:layout_marginStart="46dp"
    android:layout_toRightOf="@+id/button3"
    android:text="+" />
<Button
    android:id="@+id/buttonsub"
    style="?android:attr/buttonStyleSmall"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignEnd="@+id/buttonadd"
    android:layout_alignLeft="@+id/buttonadd"
    android:layout_alignRight="@+id/buttonadd"
    android:layout_alignStart="@+id/buttonadd"
    android:layout_below="@+id/buttonadd"
    android:text="-" />
<Button
    android:id="@+id/buttonmul"
    style="?android:attr/buttonStyleSmall"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_alignLeft="@+id/buttonsub"
    android:layout_alignParentEnd="true"
    android:layout_alignParentRight="true"
    android:layout_alignStart="@+id/buttonsub"
    android:layout_below="@+id/buttonsub"
    android:text="*" />
<Button
    android:id="@+id/button10"
    style="?android:attr/buttonStyleSmall"
    android:layout_width="wrap_content"
    android:layout_height="wrap_content"
    android:layout_below="@+id/button7"
    android:layout_toLeftOf="@+id/button2"
    android:text="." />
<Button
    android:id="@+id/button0"
    style="?android:attr/buttonStyleSmall"
```

```
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignLeft="@+id/button8"
        android:layout_alignStart="@+id/button8"
        android:layout_below="@+id/button8"
        android:text="0" />
    <Button
        android:id="@+id/buttonC"
        style="?android:attr/buttonStyleSmall"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignLeft="@+id/button9"
        android:layout_alignStart="@+id/button9"
        android:layout_below="@+id/button9"
        android:text="C" />
    <Button
        android:id="@+id/buttondiv"
        style="?android:attr/buttonStyleSmall"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignEnd="@+id/buttonmul"
        android:layout_alignLeft="@+id/buttonmul"
        android:layout_alignRight="@+id/buttonmul"
        android:layout_alignStart="@+id/buttonmul"
        android:layout_below="@+id/buttonmul"
        android:text="/" />
    <Button
        android:id="@+id/buttoneql"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_alignEnd="@+id/buttondiv"
        android:layout_alignLeft="@+id/button10"
        android:layout_alignRight="@+id/buttondiv"
        android:layout_alignStart="@+id/button10"
        android:layout_below="@+id/button0"
        android:layout_marginTop="37dp"
        android:text="=" />
</RelativeLayout>
```

MainActivity.java

```
package com.example.simplecalculator;

import android.os.Bundle;

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

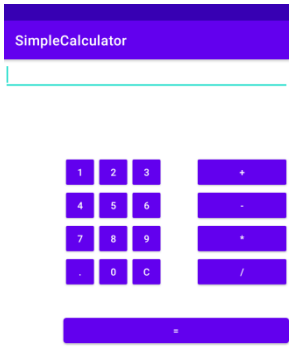
```
import androidx.appcompat.app.AppCompatActivity;
import android.widget.Button;

public class MainActivity extends AppCompatActivity {
    Button button0, button1, button2, button3, button4, button5, button6,
            button7, button8, button9, buttonAdd, buttonSub, buttonDivision,
            buttonMul, button10, buttonC, buttonEqual;
    EditText EditText;
    float mValueOne, mValueTwo;
    boolean Addition, mSubtract, Multiplication, Division;
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        button0 = (Button) findViewById(R.id.button0);
        button1 = (Button) findViewById(R.id.button1);
        button2 = (Button) findViewById(R.id.button2);
        button3 = (Button) findViewById(R.id.button3);
        button4 = (Button) findViewById(R.id.button4);
        button5 = (Button) findViewById(R.id.button5);
        button6 = (Button) findViewById(R.id.button6);
        button7 = (Button) findViewById(R.id.button7);
        button8 = (Button) findViewById(R.id.button8);
        button9 = (Button) findViewById(R.id.button9);
        button10 = (Button) findViewById(R.id.button10);
        buttonAdd = (Button) findViewById(R.id.buttonadd);
        buttonSub = (Button) findViewById(R.id.buttonsub);
        buttonMul = (Button) findViewById(R.id.buttonmul);
        buttonDivision = (Button) findViewById(R.id.buttondiv);
        buttonC = (Button) findViewById(R.id.buttonC);
        buttonEqual = (Button) findViewById(R.id.buttoneql);
        EditText = (EditText) findViewById(R.id.edt1);
        button1.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                EditText.setText(EditText.getText() + "1");
            }
        });
        button2.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                EditText.setText(EditText.getText() + "2");
            }
        });
        button3.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
```

```
            EditText.setText(EditText.getText() + "3");
        }
    });
    button4.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            EditText.setText(EditText.getText() + "4");
        }
    });
    button5.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            EditText.setText(EditText.getText() + "5");
        }
    });
    button6.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            EditText.setText(EditText.getText() + "6");
        }
    });
    button7.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            EditText.setText(EditText.getText() + "7");
        }
    });
    button8.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            EditText.setText(EditText.getText() + "8");
        }
    });
    button9.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            EditText.setText(EditText.getText() + "9");
        }
    });
    button0.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            EditText.setText(EditText.getText() + "0");
        }
    });
    buttonAdd.setOnClickListener(new View.OnClickListener() {
        @Override
```

```
    public void onClick(View v) {
        if (EditText == null) {
            EditText.setText("");
        } else {
            mValueOne = Float.parseFloat(EditText.getText() + "");
            Addition = true;
            EditText.setText(null);
        }
    }
});
buttonSub.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        mValueOne = Float.parseFloat(EditText.getText() + "");
        mSubtract = true;
        EditText.setText(null);
    }
});
buttonMul.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        mValueOne = Float.parseFloat(EditText.getText() + "");
        Multiplication = true;
        EditText.setText(null);
    }
});
buttonDivision.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        mValueOne = Float.parseFloat(EditText.getText() + "");
        Division = true;
        EditText.setText(null);
    }
});
buttonEqual.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        mValueTwo = Float.parseFloat(EditText.getText() + "");
        if (Addition == true) {
            EditText.setText(mValueOne + mValueTwo + "");
            Addition = false;
        }
        if (mSubtract == true) {
            EditText.setText(mValueOne - mValueTwo + "");
            mSubtract = false;
        }
        if (Multiplication == true) {
```

```
                EditText.setText(mValueOne * mValueTwo + "");
                Multiplication = false;
            }
            if (Division == true) {
                EditText.setText(mValueOne / mValueTwo + "");
                Division = false;
            }
        }
    });
    buttonC.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            EditText.setText("");
        }
    });
    button10.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            EditText.setText(EditText.getText() + ".");
        }
    });
  }
}
```

Outputs:



Experiment 7

7. Design an Android application to demonstrate fragments?.

Program:

DetailsFragment.java:

```
package com.example.fragments;

import android.app.Fragment;
import android.os.Bundle;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
import android.widget.TextView;

public class DetailsFragment extends Fragment {
   TextView name,location;
   @Override
   public View onCreateView(LayoutInflater inflater, ViewGroup container, Bundle
savedInstanceState) {
      View view = inflater.inflate(R.layout.details_info, container, false);
      name = (TextView)view.findViewById(R.id.Name);
      location = (TextView)view.findViewById(R.id.Location);
      return view;
   }
   public void change(String uname, String ulocation){
      name.setText(uname);
      location.setText(ulocation);
   }
}
```

ListMenuFragment.java:

```
package com.example.fragments;

import android.app.ListFragment;
import android.os.Bundle;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;
import android.widget.ArrayAdapter;
import android.widget.ListView;

/**
 * Created by tutlane on 06-08-2017.
 */
public class ListMenuFragment extends ListFragment {
```

```
    String[] users = new String[] { "Suresh","Rohini","Trishika","Praveen","Sateesh","Madhav" };
    String[] location = new
String[]{"Hyderabad","Guntur","Hyderabad","Bangalore","Vizag","Nagpur"};
    @Override
    public View onCreateView(LayoutInflater inflater, ViewGroup container, Bundle
savedInstanceState) {
        View view =inflater.inflate(R.layout.listitems_info, container, false);
        ArrayAdapter<String> adapter = new ArrayAdapter<String>(getActivity(),
                android.R.layout.simple_list_item_1, users);
        setListAdapter(adapter);
        return view;
    }
    @Override
    public void onListItemClick(ListView l, View v, int position, long id) {
        DetailsFragment txt =
(DetailsFragment)getFragmentManager().findFragmentById(R.id.fragment2);
        txt.change("Name: "+ users[position],"Location : "+ location[position]);
        getListView().setSelector(android.R.color.holo_blue_dark);
    }
}
```

MainActivity.java:

```
package com.example.fragments;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

public class MainActivity extends AppCompatActivity {

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

activity_main.xml:

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

```
    <fragment
        android:layout_height="match_parent"
        android:layout_width="350px"
        class="com.example.fragments.ListMenuFragment"
        android:id="@+id/fragment"/>
    <fragment
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        class="com.example.fragments.DetailsFragment"
        android:id="@+id/fragment2"/>
</LinearLayout>
```

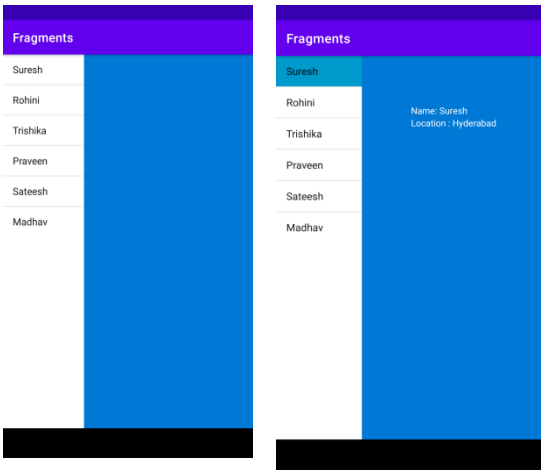
details_info.xml

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:orientation="vertical" android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="#0079D6">
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:textColor="#ffffff"
        android:layout_marginTop="200px"
        android:layout_marginLeft="200px"
        android:id="@+id/Name"/>
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginLeft="200px"
        android:textColor="#ffffff"
        android:id="@+id/Location"/>
</LinearLayout>
```

listitems_info.xml:

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

Output:


Fragments
Suresh
Rohini
Trishika
Praveen
Sateesh
Madhav
Fragments
Suresh
Rohini
Trishika
Praveen
Sateesh
Madhav
Name: Suresh
Location : Hyderabad

Experiment 8

8. Design an Android application to demonstrate fragment lifecycle?

Program:

MainActivity.java

```
package com.example.includetagexample;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;



public class MainActivity extends AppCompatActivity {

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

TestFragment.java

```
package com.example.includetagexample;

import android.annotation.TargetApi;
import android.app.Activity;
import android.app.Fragment;
import android.os.Build;
import android.os.Bundle;
import android.util.Log;
import android.view.LayoutInflater;
import android.view.View;
import android.view.ViewGroup;

@TargetApi(Build.VERSION_CODES.KITKAT)
public class TestFragment extends Fragment {

    private void printLog(String s) {
// display a message in Log File
        Log.d("LifeCycle:", s);
    }

    @Override
    public void onActivityCreated(Bundle savedInstanceState) {
        super.onActivityCreated(savedInstanceState);
        printLog("onActivityCreated Called");
    }
```

```
    @Override
    public View onCreateView(LayoutInflater inflater, ViewGroup container, Bundle
savedInstanceState) {

        View v = inflater.inflate(R.layout.fragment_test, container, false);
        printLog("onCreateView Called");

        return v;
    }

    @Override
    public void onViewCreated(View view, Bundle savedInstanceState) {
        super.onViewCreated(view, savedInstanceState);
        printLog("onViewCreated Called");

    }

    @Override
    public void onAttach(Activity activity) {
        super.onAttach(activity);
        printLog("onAttach Called");
    }

    @Override
    public void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        printLog("onCreate Called");
    }

    @Override
    public void onDestroy() {
        super.onDestroy();
        printLog("onDestroy Called");
    }

    @Override
    public void onDestroyView() {
        super.onDestroyView();
        printLog("onDestroyView Called");
    }

    @Override
    public void onDetach() {
        super.onDetach();
        printLog("onDetach Called");
    }
```

```
    @Override
    public void onPause() {
        super.onPause();
        printLog("onPause Called");
    }

    @Override
    public void onResume() {
        super.onResume();
        printLog("onResume Called");
    }

    @Override
    public void onStart() {
        super.onStart();
        printLog("onStart Called");
    }

    @Override
    public void onStop() {
        super.onStop();
        printLog("onStop Called");
    }

}
```

activity_main.xml

```
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:paddingBottom="@dimen/activity_vertical_margin"
    android:paddingLeft="@dimen/activity_horizontal_margin"
    android:paddingRight="@dimen/activity_horizontal_margin"
    android:paddingTop="@dimen/activity_vertical_margin"
    tools:context=".MainActivity">
    <!-- Take a fragment in our activity -->
    <fragment
        android:id="@+id/test_fragment"
        class="com.example.includetagexample.TestFragment"
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        tools:layout="@layout/fragment_test" />

</RelativeLayout>
```

Fragment_test.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">

    <!-- Create a TextView -->

    <TextView
        android:layout_width="match_parent"
        android:layout_height="match_parent"
        android:gravity="center"
        android:text="Please Check Logcat.!!!"
        android:textColor="#000"
        android:textSize="25sp" />
</LinearLayout>
```

dimens.xml

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

<resources>
    <!-- Default screen margins, per the Android Design guidelines. -->
    <dimen name="activity_horizontal_margin">16dp</dimen>

    <dimen name="activity_vertical_margin">16dp</dimen>

</resources>
```

Output:

Please Check Logcat.!!!

2023-04-24 13:29:24.668 26782-26782/com.example.includetagexample D/LifeCycle::
onAttach Called
2023-04-24 13:29:24.669 26782-26782/com.example.includetagexample D/LifeCycle::
onCreate Called
2023-04-24 13:29:24.684 26782-26782/com.example.includetagexample D/LifeCycle::
onCreateView Called
2023-04-24 13:29:24.684 26782-26782/com.example.includetagexample D/LifeCycle::
onViewCreated Called
2023-04-24 13:29:24.701 26782-26782/com.example.includetagexample D/LifeCycle::
onActivityCreated Called
2023-04-24 13:29:24.705 26782-26782/com.example.includetagexample D/LifeCycle::
onStart Called
2023-04-24 13:29:24.713 26782-26782/com.example.includetagexample D/LifeCycle::
onResume Called

Experiment 9

9. Design an Android application to demonstrate implicit Intent?

Program:

MainActivity.java:

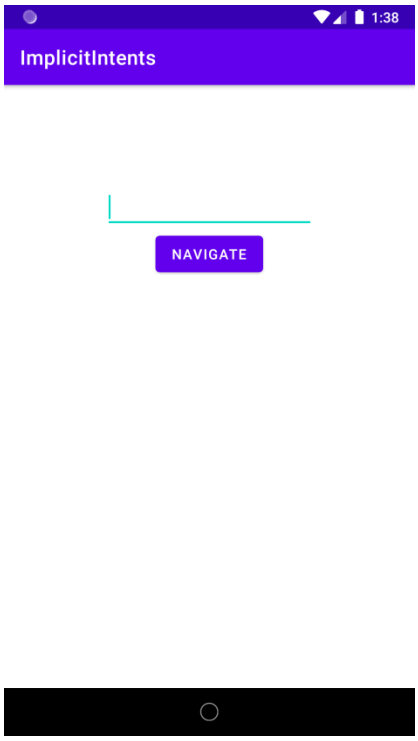
```
package com.example.implicitintents;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

import android.content.Intent;
import android.net.Uri;

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

public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        final EditText editText = (EditText)findViewById(R.id.urlText);
        Button btn = (Button) findViewById(R.id.btnNavigate);
        btn.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                String url = editText.getText().toString();
                Intent intent = new Intent(Intent.ACTION_VIEW, Uri.parse(url));
                startActivity(intent);
            }
        });
    }
}
```

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"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context="com.example.implicitintents.MainActivity">
    <EditText
        android:layout_width="wrap_content"
```

```
        android:layout_height="wrap_content"
        android:id="@+id/urlText"
        android:layout_alignParentTop="true"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="100dp"
        android:ems="10" />
    <Button
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:id="@+id/btnNavigate"
        android:layout_below="@+id/urlText"
        android:text="Navigate"
        android:layout_centerHorizontal="true" />
</RelativeLayout>
```

Output:



Experiment 10

10. Design an Android application to demonstrate explicit intent?.

Program:

MainActivity.java:

```
package com.example.explicitintents;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;
import android.content.Intent;

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

public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        final EditText firstNum = (EditText)findViewById(R.id.firstNum);
        final EditText secNum = (EditText)findViewById(R.id.secondNum);
        Button btnAdd = (Button)findViewById(R.id.addBtn);
        btnAdd.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                int num1 = Integer.parseInt(firstNum.getText().toString());
                int num2 = Integer.parseInt(secNum.getText().toString());
                Intent intent = new Intent(MainActivity.this,ResultActivity.class);
                intent.putExtra("SUM",num1+" + "+num2+" = "+(num1+num2));
                startActivity(intent);
            }
        });
    }
}
```

ResultActivity.java

```
package com.example.explicitintents;

import android.content.Intent;
import android.os.Bundle;
import androidx.appcompat.app.AppCompatActivity;
import android.widget.TextView;

/**
 * Created by surdasari on 27-07-2017.
```

```
 */

public class ResultActivity  extends AppCompatActivity {
    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.result);
        TextView result = (TextView)findViewById(R.id.resultView);
        Intent intent = getIntent();
        String addition = (String)intent.getSerializableExtra("SUM");
        result.setText(addition);
    }
}
```

activity_main.xml:

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:orientation="vertical" android:layout_width="match_parent"
    android:layout_height="match_parent">
    <TextView
        android:id="@+id/fstTxt"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginLeft="100dp"
        android:layout_marginTop="150dp"
        android:text="First Number"
        />
    <EditText
        android:id="@+id/firstNum"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginLeft="100dp"
        android:ems="10">
    </EditText>
    <TextView
        android:id="@+id/secTxt"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Second Number"
        android:layout_marginLeft="100dp"
        />
    <EditText
        android:id="@+id/secondNum"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginLeft="100dp"
        android:ems="10" />
    <Button
```

```
        android:id="@+id/addBtn"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginLeft="100dp"
        android:text="Add" />
</LinearLayout>
```

result.xml:

```
<?xml version="1.0" encoding="utf-8"?>
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    android:orientation="vertical" android:layout_width="match_parent"
    android:layout_height="match_parent">
    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:id="@+id/resultView"
        android:layout_marginLeft="100dp"
        android:layout_marginTop="150dp"/>
</LinearLayout>
```

style.xml:

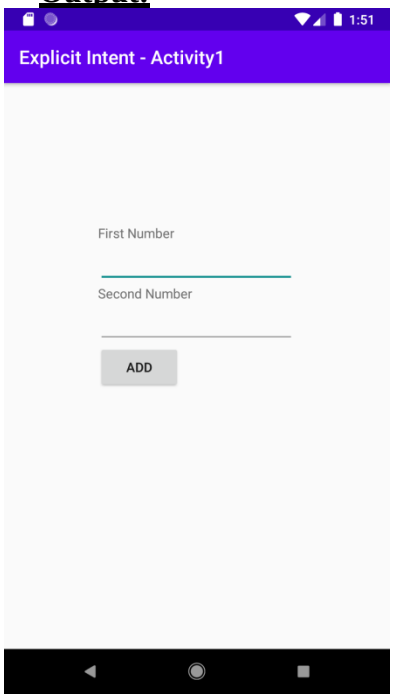
```
<?xml version="1.0" encoding="utf-8"?>
<resources>

    <!-- Base application theme. -->
    <style name="AppTheme" parent="Theme.AppCompat.Light.DarkActionBar">
        <!-- Customize your theme here. -->
        <item name="colorPrimary">@color/design_default_color_primary</item>
        <item name="colorPrimaryDark">@color/design_default_color_primary_dark</item>
        <item name="colorAccent">@color/teal_700</item>
    </style>
</resources>
```

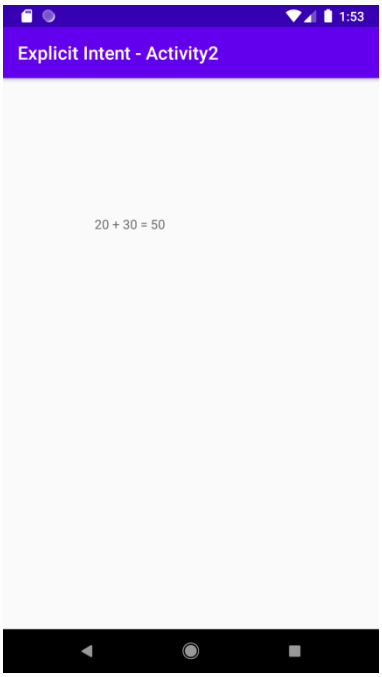
AndroidManifest.xml:

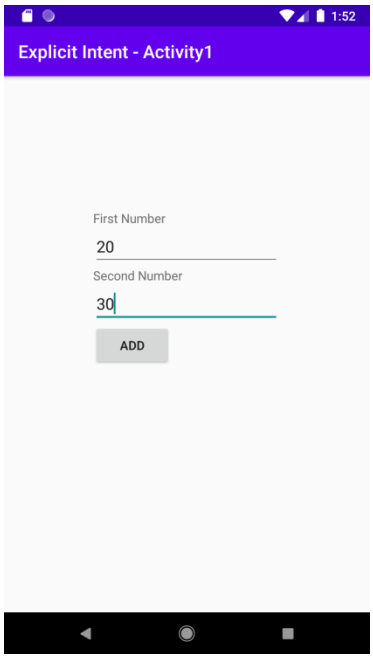
```
<?xml version="1.0" encoding="utf-8"?>
<manifest xmlns:android="http://schemas.android.com/apk/res/android"
    package="com.example.explicitintents">
    <application
        android:allowBackup="true"
        android:icon="@mipmap/ic_launcher"
        android:label="Explicit Intent - Activity1"
        android:roundIcon="@mipmap/ic_launcher_round"
        android:supportsRtl="true"
        android:theme="@style/AppTheme">
        <activity android:name="com.example.explicitintents.MainActivity">
            <intent-filter>
                <action android:name="android.intent.action.MAIN" />
                <category android:name="android.intent.category.LAUNCHER" />
            </intent-filter>
        </activity>
```

```
        <activity android:name="com.example.explicitintents.ResultActivity" android:label="Explicit
Intent - Activity2">
        </activity>
    </application>
</manifest>
```

Output:


1:51
Explicit Intent - Activity1
First Number
Second Number
ADD


1:53
Explicit Intent - Activity2
20 + 30 = 50


1:52
Explicit Intent - Activity1
First Number
20
Second Number
30
ADD

Experiment 11

11. Design an Android application to demonstrate shared preferences?

Program:

MainActivity.java:

```
package com.example.sharedpreferences;

import androidx.appcompat.app.AppCompatActivity;

import android.os.Bundle;

import android.content.SharedPreferences;

import android.widget.EditText;

public class MainActivity extends AppCompatActivity {
    private EditText name, age;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        name = findViewById(R.id.edit1);
        age = findViewById(R.id.edit2);
    }

    // Fetch the stored data in onResume() Because this is what will be called when the app opens again
    @Override
    protected void onResume() {
        super.onResume();
        // Fetching the stored data from the SharedPreference
        SharedPreferences sh = getSharedPreferences("MySharedPref", MODE_PRIVATE);
        String s1 = sh.getString("name", "");
        int a = sh.getInt("age", 0);

        // Setting the fetched data in the EditTexts
        name.setText(s1);
        age.setText(String.valueOf(a));
    }

    // Store the data in the SharedPreference in the onPause() method
    // When the user closes the application onPause() will be called and data will be stored
    @Override
    protected void onPause() {
        super.onPause();
        // Creating a shared pref object with a file name "MySharedPref" in private mode
        SharedPreferences sharedPreferences = getSharedPreferences("MySharedPref",
```

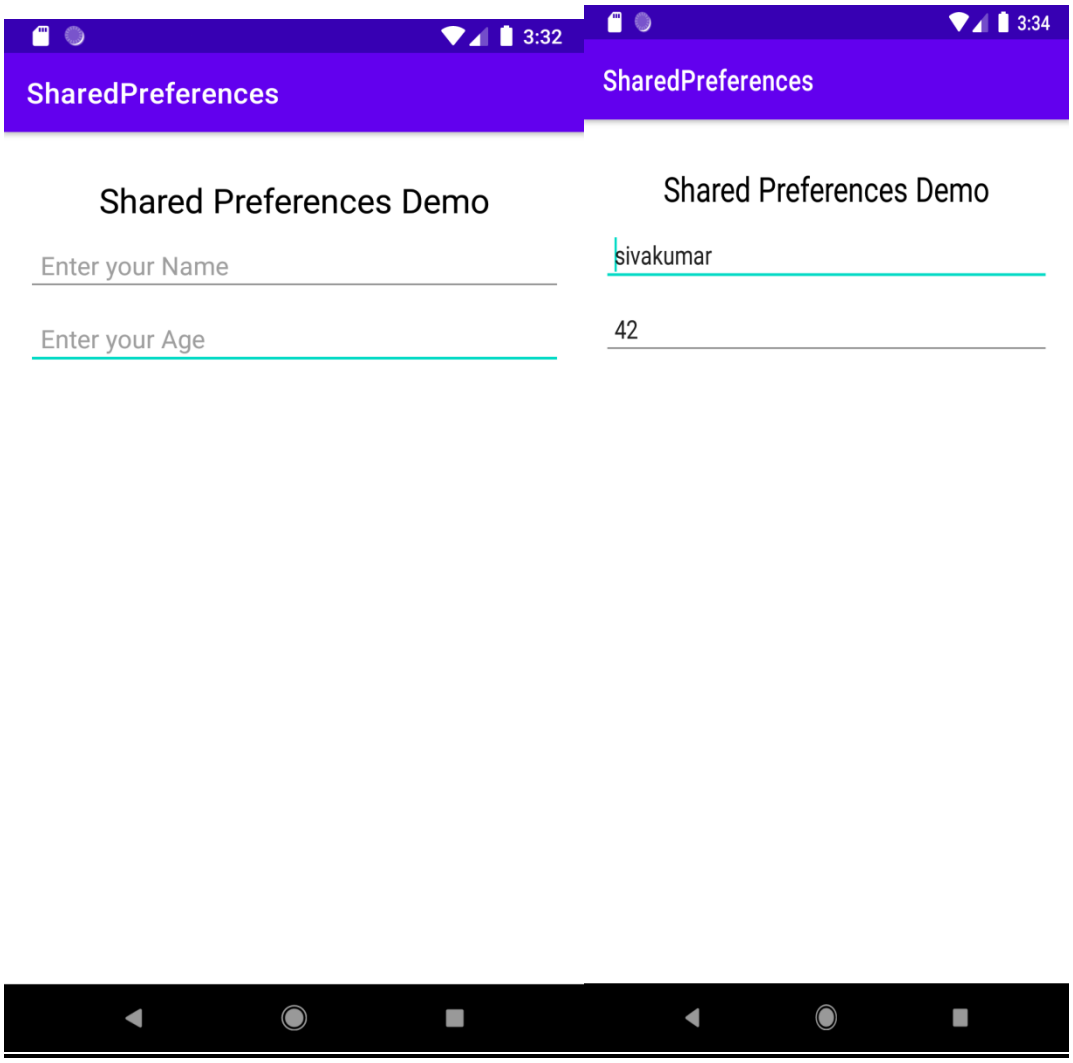
```
MODE_PRIVATE);
        SharedPreferences.Editor myEdit = sharedPreferences.edit();

        // write all the data entered by the user in SharedPreference and apply
        myEdit.putString("name", name.getText().toString());
        myEdit.putInt("age", Integer.parseInt(age.getText().toString()));
        myEdit.apply();
    }
}
```

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"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    tools:context=".MainActivity"
    tools:ignore="HardcodedText">

    <TextView
        android:id="@+id/textview"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="32dp"
        android:text="Shared Preferences Demo"
        android:textColor="@android:color/black"
        android:textSize="24sp" />

    <!--EditText to take the data from the user and save the data in SharedPreferences-->
    <EditText
        android:id="@+id/edit1"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@+id/textview"
        android:layout_marginStart="16dp"
        android:layout_marginTop="8dp"
        android:layout_marginEnd="16dp"
        android:hint="Enter your Name"
        android:padding="10dp" />

    <!--EditText to take the data from the user and save the data in SharedPreferences-->
    <EditText
        android:id="@+id/edit2"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        android:layout_below="@+id/edit1"
        android:layout_marginStart="16dp"
        android:layout_marginTop="8dp"
```

```
        android:layout_marginEnd="16dp"
        android:hint="Enter your Age"
        android:inputType="number"
        android:padding="10dp" />
</RelativeLayout>
```

Outputs:


3:32
SharedPreferences
Shared Preferences Demo
Enter your Name
Enter your Age
3:34
SharedPreferences
Shared Preferences Demo
sivakumar
42

Experiment 12

12. Design an Android application to demonstrate SQLite database?

Program:

Contact.java

```
package com.example.sqlitetutorial;

public class Contact {
    int _id;
    String _name;
    String _phone_number;
    public Contact(){   }
    public Contact(int id, String name, String _phone_number){
        this._id = id;
        this._name = name;
        this._phone_number = _phone_number;
    }

    public Contact(String name, String _phone_number){
        this._name = name;
        this._phone_number = _phone_number;
    }
    public int getID(){
        return this._id;
    }

    public void setID(int id){
        this._id = id;
    }

    public String getName(){
        return this._name;
    }

    public void setName(String name){
        this._name = name;
    }

    public String getPhoneNumber(){
        return this._phone_number;
    }

    public void setPhoneNumber(String phone_number){
        this._phone_number = phone_number;
    }
}
```

DatabaseHandler.java

```
package com.example.sqlitetutorial;
import android.content.ContentValues;
import android.content.Context;
import android.database.Cursor;
import android.database.sqlite.SQLiteDatabase;
import android.database.sqlite.SQLiteOpenHelper;
import java.util.ArrayList;
import java.util.List;


public class DatabaseHandler extends SQLiteOpenHelper {
    private static final int DATABASE_VERSION = 1;
    private static final String DATABASE_NAME = "contactsManager";
    private static final String TABLE_CONTACTS = "contacts";
    private static final String KEY_ID = "id";
    private static final String KEY_NAME = "name";
    private static final String KEY_PH_NO = "phone_number";

    public DatabaseHandler(Context context) {
        super(context, DATABASE_NAME, null, DATABASE_VERSION);
        //3rd argument to be passed is CursorFactory instance
    }

    // Creating Tables
    @Override
    public void onCreate(SQLiteDatabase db) {
        String CREATE_CONTACTS_TABLE = "CREATE TABLE " + TABLE_CONTACTS + "("
                + KEY_ID + " INTEGER PRIMARY KEY," + KEY_NAME + " TEXT,"
                + KEY_PH_NO + " TEXT" + ")";
        db.execSQL(CREATE_CONTACTS_TABLE);
    }

    // Upgrading database
    @Override
    public void onUpgrade(SQLiteDatabase db, int oldVersion, int newVersion) {
        // Drop older table if existed
        db.execSQL("DROP TABLE IF EXISTS " + TABLE_CONTACTS);

        // Create tables again
        onCreate(db);
    }

    // code to add the new contact
    void addContact(Contact contact) {
        SQLiteDatabase db = this.getWritableDatabase();
```

```
    ContentValues values = new ContentValues();
    values.put(KEY_NAME, contact.getName()); // Contact Name
    values.put(KEY_PH_NO, contact.getPhoneNumber()); // Contact Phone

    // Inserting Row
    db.insert(TABLE_CONTACTS, null, values);
    //2nd argument is String containing nullColumnHack
    db.close(); // Closing database connection
}

// code to get the single contact
Contact getContact(int id) {
    SQLiteDatabase db = this.getReadableDatabase();

    Cursor cursor = db.query(TABLE_CONTACTS, new String[] { KEY_ID,
            KEY_NAME, KEY_PH_NO }, KEY_ID + "=?",
        new String[] { String.valueOf(id) }, null, null, null, null);
    if (cursor != null)
        cursor.moveToFirst();

    Contact contact = new Contact(Integer.parseInt(cursor.getString(0)),
        cursor.getString(1), cursor.getString(2));
    // return contact
    return contact;
}

// code to get all contacts in a list view
public List<Contact> getAllContacts() {
    List<Contact> contactList = new ArrayList<Contact>();
    // Select All Query
    String selectQuery = "SELECT  * FROM " + TABLE_CONTACTS;

    SQLiteDatabase db = this.getWritableDatabase();
    Cursor cursor = db.rawQuery(selectQuery, null);

    // looping through all rows and adding to list
    if (cursor.moveToFirst()) {
        do {
            Contact contact = new Contact();
            contact.setID(Integer.parseInt(cursor.getString(0)));
            contact.setName(cursor.getString(1));
            contact.setPhoneNumber(cursor.getString(2));
            // Adding contact to list
            contactList.add(contact);
        } while (cursor.moveToNext());
    }
```

```
        // return contact list
        return contactList;
    }

    // code to update the single contact
    public int updateContact(Contact contact) {
        SQLiteDatabase db = this.getWritableDatabase();

        ContentValues values = new ContentValues();
        values.put(KEY_NAME, contact.getName());
        values.put(KEY_PH_NO, contact.getPhoneNumber());

        // updating row
        return db.update(TABLE_CONTACTS, values, KEY_ID + " = ?",
                new String[] { String.valueOf(contact.getID()) });
    }

    // Deleting single contact
    public void deleteContact(Contact contact) {
        SQLiteDatabase db = this.getWritableDatabase();
        db.delete(TABLE_CONTACTS, KEY_ID + " = ?",
                new String[] { String.valueOf(contact.getID()) });
        db.close();
    }

    // Getting contacts Count
    public int getContactsCount() {
        String countQuery = "SELECT  * FROM " + TABLE_CONTACTS;
        SQLiteDatabase db = this.getReadableDatabase();
        Cursor cursor = db.rawQuery(countQuery, null);
        cursor.close();

        // return count
        return cursor.getCount();
    }

}
```

MainActivity.java

```
package com.example.sqlitetutorial;

import androidx.appcompat.app.AppCompatActivity;


import android.os.Bundle;
import android.util.Log;
import java.util.List;
```

```
public class MainActivity extends AppCompatActivity {

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        DatabaseHandler db = new DatabaseHandler(this);

        // Inserting Contacts
        Log.d("Insert: ", "Inserting ..");
        db.addContact(new Contact("Ravi", "9100000000"));
        db.addContact(new Contact("Srinivas", "9199999999"));
        db.addContact(new Contact("Tommy", "9522222222"));
        db.addContact(new Contact("Karthik", "9533333333"));

        // Reading all contacts
        Log.d("Reading: ", "Reading all contacts..");
        List<Contact> contacts = db.getAllContacts();

        for (Contact cn : contacts) {
            String log = "Id: " + cn.getID() + " ,Name: " + cn.getName() + " ,Phone: " +
                    cn.getPhoneNumber();
            // Writing Contacts to log
            Log.d("Name: ", log);
        }
    }
}
```

Output:

2023-04-24 15:50:34.783 29922-29922/com.example.sqlitetutorial D/Name:: Id: 1 ,Name: Ravi ,Phone: 9100000000
2023-04-24 15:50:34.784 29922-29922/com.example.sqlitetutorial D/Name:: Id: 2 ,Name: Srinivas ,Phone: 9199999999
2023-04-24 15:50:34.784 29922-29922/com.example.sqlitetutorial D/Name:: Id: 3 ,Name: Tommy ,Phone: 9522222222
2023-04-24 15:50:34.784 29922-29922/com.example.sqlitetutorial D/Name:: Id: 4 ,Name: Karthik ,Phone: 9533333333

- Open File Explorer.

- Go to data directory inside data directory.
- Search for your application package name.
- Inside your application package go to databases where you will found your database (contactsManager).
- Save your database (contactsManager) anywhere you like.
- Download any SqLite browser plugins or tool (in my case DB Browser for SQLite).
- Launch DB Browser for SQLite and open your database (contactsManager).
- Go to Browse Data -> select your table (contacts) you will see the data stored