

4. Develop an application with the objective of attaining expertise in utilizing the Android user interface library.

a) Generate Options and Context Menus and Alert Dialogs within your activity.

b) Utilize an Array Adapter to connect a data source to a List View.

Create a new project program-4

a) Generate Options and Context Menus and Alert Dialogs within your activity.

Code:

activity_main.xml

```
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto"
    xmlns:custom="http://schemas.android.com/apk/res-auto"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:orientation="vertical">

    <TextView
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_marginTop="80dp"
        android:layout_marginLeft="100dp"
        android:text="Program 4"
        android:textColor="#E91E63"
        android:textSize="20sp" />

    <Button
        android:id="@+id/program4a"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Program 4 (a)" />

    <Button
        android:id="@+id/program4b"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:text="Program 4 (b)" />

</LinearLayout>
```

MainActivity.java

```

package com.example.program_4;

import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;

import androidx.activity.EdgeToEdge;
import androidx.appcompat.app.AppCompatActivity;
import android.content.DialogInterface;
import androidx.appcompat.app.AlertDialog;

public class MainActivity extends AppCompatActivity {

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

        Button program4aButton = findViewById(R.id.program4a);
        program4aButton.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                // Start the new activity
                Intent intent = new Intent(MainActivity.this,
Program4a.class);
                startActivity(intent);
            }
        });

        Button program4bButton = findViewById(R.id.program4b);
        program4bButton.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {
                // Start the new activity
                Intent intent = new Intent(MainActivity.this,
Program4b.class);
                startActivity(intent);
            }
        });
    }
}

```

Program4a.java

```

package com.example.program_4;

import android.content.Intent;
import android.os.Bundle;
import android.view.View;
import android.widget.Button;

import androidx.activity.EdgeToEdge;
import androidx.appcompat.app.AppCompatActivity;

public class Program4a extends AppCompatActivity {

```

```

@Override
protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    EdgeToEdge.enable(this);
    setContentView(R.layout.program4a);

    Button contextMenuButton = findViewById(R.id.contextMenu);
    contextMenuButton.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            // Start the new activity
            Intent intent = new Intent(Program4a.this,
ContextMenuActivity.class);
            startActivity(intent);
        }
    });
}
}

```

ContextMenuActivity.java

```

package com.example.program_4;

import androidx.appcompat.app.AppCompatActivity;

import android.content.ClipData;
import android.content.ClipboardManager;
import android.graphics.Color;
import android.os.Bundle;
import android.view.ContextMenu;
import android.view.Menu;
import android.view.MenuItem;
import android.view.View;
import android.widget.ArrayAdapter;
import android.widget.Button;
import android.widget.EditText;
import android.widget.ListView;
import android.widget.RelativeLayout;
import android.widget.TextView;
import android.widget.Toast;
import android.app.AlertDialog;
import android.content.DialogInterface;

public class ContextMenuActivity extends AppCompatActivity {
    EditText editText;
    EditText editText1;
    ClipboardManager myClipboard;
    Button closeButton;
    AlertDialog.Builder builder;

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

```

```

        // Link those objects with their respective id's that we have given
in .XML file
        editText = (EditText) findViewById(R.id.contextEditText1);
        editText1 = (EditText) findViewById(R.id.contextEditText2);

        closeButton = (Button) findViewById(R.id.button);
        builder = new AlertDialog.Builder(this);
        closeButton.setOnClickListener(new View.OnClickListener() {
            @Override
            public void onClick(View v) {

                //Uncomment the below code to Set the message and title
from the strings.xml file
                // builder.setMessage(R.string.dialog_message)
                .setTitle(R.string.dialog_title);

                //Setting message manually and performing action on button
click
                builder.setMessage("Do you want to close this application
?")

                    .setCancelable(false)
                    .setPositiveButton("Yes", new
DialogInterface.OnClickListener() {
                        public void onClick(DialogInterface dialog, int
id) {
                            finish();
                            Toast.makeText(getApplicationContext(),"you
choose yes action for alertbox",
                                Toast.LENGTH_SHORT).show();
                        }
                    })
                    .setNegativeButton("No", new
DialogInterface.OnClickListener() {
                        public void onClick(DialogInterface dialog, int
id) {
                            // Action for 'NO' Button
                            dialog.cancel();
                            Toast.makeText(getApplicationContext(),"you
choose no action for alertbox",
                                Toast.LENGTH_SHORT).show();
                        }
                    });

                //Creating dialog box
                AlertDialog alert = builder.create();
                //Setting the title manually
                alert.setTitle("AlertDialogExample");
                alert.show();
            }
        });

        // here you have to register a view for context menu you can
register any view
        // like listview, image view, textview, button etc
        // registerForContextMenu(editText);

    }

    @Override
    public void onCreateContextMenu(ContextMenu menu, View v,
ContextMenu.ContextMenuInfo menuInfo) {
        super.onCreateContextMenu(menu, v, menuInfo);

```

```

        // you can set menu header with title icon etc
        menu.setHeaderTitle("Choose a color");
        // add menu items
        menu.add(0, v.getId(), 0, "Copy");
        menu.add(0, v.getId(), 0, "Paste");
        menu.add(0, v.getId(), 0, "Cut");
    }

    // menu item select listener
    @Override
    public boolean onOptionsItemSelected(MenuItem item) {
        if (item.getTitle() == "Copy") {
            // cast the received View to TextView so that you can get its
            text
            myClipboard =
            (ClipboardManager) getSystemService(CLIPBOARD_SERVICE);
            ClipData myClip;
            myClip = ClipData.newPlainText("text",
            editText.getText().toString());
            myClipboard.setPrimaryClip(myClip);
        } else if (item.getTitle() == "Paste") {

            ClipData abc = myClipboard.getPrimaryClip();
            ClipData.Item item1 = abc.getItemAt(0);

            String text = item1.getText().toString();
            editText1.setText(text);
        } else if (item.getTitle() == "Cut") {
            myClipboard =
            (ClipboardManager) getSystemService(CLIPBOARD_SERVICE);
            ClipData myClip;
            myClip = ClipData.newPlainText("text",
            editText.getText().toString());
            editText.setText("");
            myClipboard.setPrimaryClip(myClip);
        }
        return true;
    }

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

    @Override
    public boolean onOptionsItemSelected(MenuItem item) {
        // display a message when a button was pressed
        String message = "";
        if (item.getItemId() == R.id.item1) {
            message = "You selected option 1!";
        }
        else if (item.getItemId() == R.id.item2) {
            message = "You selected option 2!";
        }
        else {
            message = "Why would you select that!?!";
        }
    }

```

```

        // show message via toast
        Toast toast = Toast.makeText(this, message, Toast.LENGTH_LONG);
        toast.show();

        return true;
    }
}

```

context_menu.xml

```

<?xml version="1.0" encoding="utf-8"?>
<!-- Relative Layout to display all the details -->
<RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:tools="http://schemas.android.com/tools"
    android:id="@+id/relLayout"
    android:layout_width="match_parent"
    android:layout_height="match_parent"
    android:background="#fff"
    android:padding="16dp"
    tools:context=".MainActivity">

    <TextView
        android:id="@+id/textView"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="10dp"
        android:text="Context Menu Demo"
        android:textColor="#000"
        android:textSize="20sp"
        android:textStyle="bold" />

    <EditText
        android:id="@+id/contextEditText1"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="60dp"
        android:text="Enter Text Long press me!"
        android:textColor="#000"
        android:textSize="20sp"
        android:textStyle="bold" />

    <EditText
        android:id="@+id/contextEditText2"
        android:layout_width="wrap_content"
        android:layout_height="wrap_content"
        android:layout_centerHorizontal="true"
        android:layout_marginTop="110dp"
        android:text="Paste Your Text"
        android:textColor="#000"
        android:textSize="20sp"
        android:textStyle="bold" />

```

```

        <Button
            android:layout_width="wrap_content"
            android:layout_height="wrap_content"
            android:id="@+id/button"
            android:text="Close app"
            android:layout_centerHorizontal="true"
            android:layout_marginTop="190dp"
        />

    </RelativeLayout>

```

Go to res > right click> New> Directory > name it as **menu >**

Under menu > right click > New > Menu Resource file name it as **option_menu.xml**

```

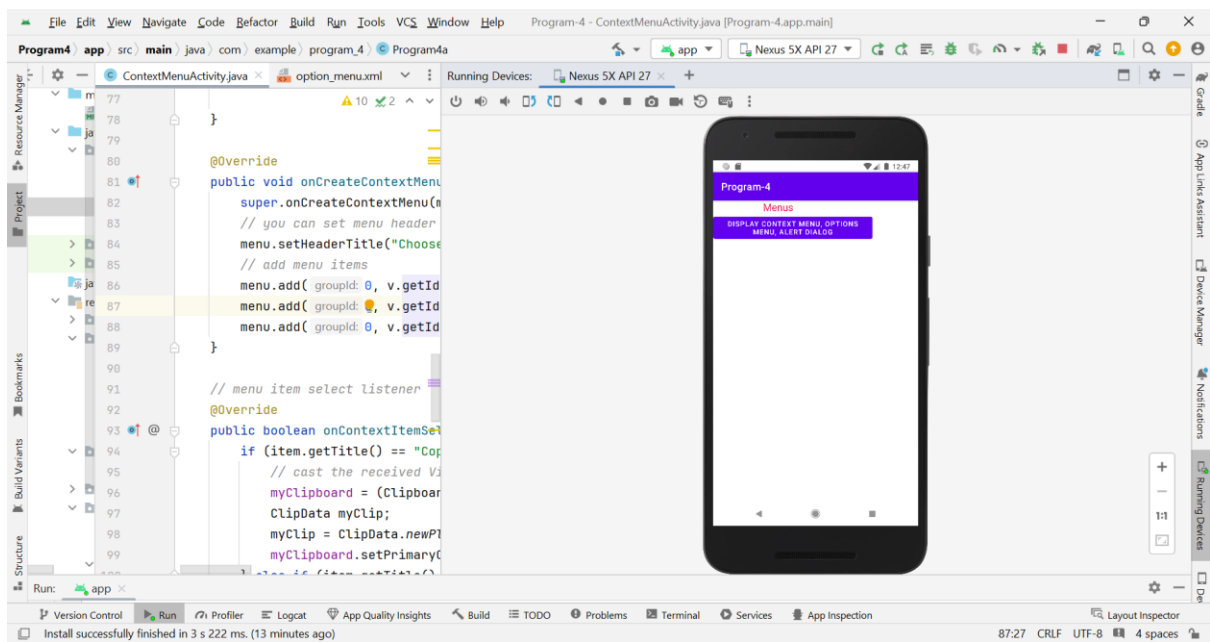
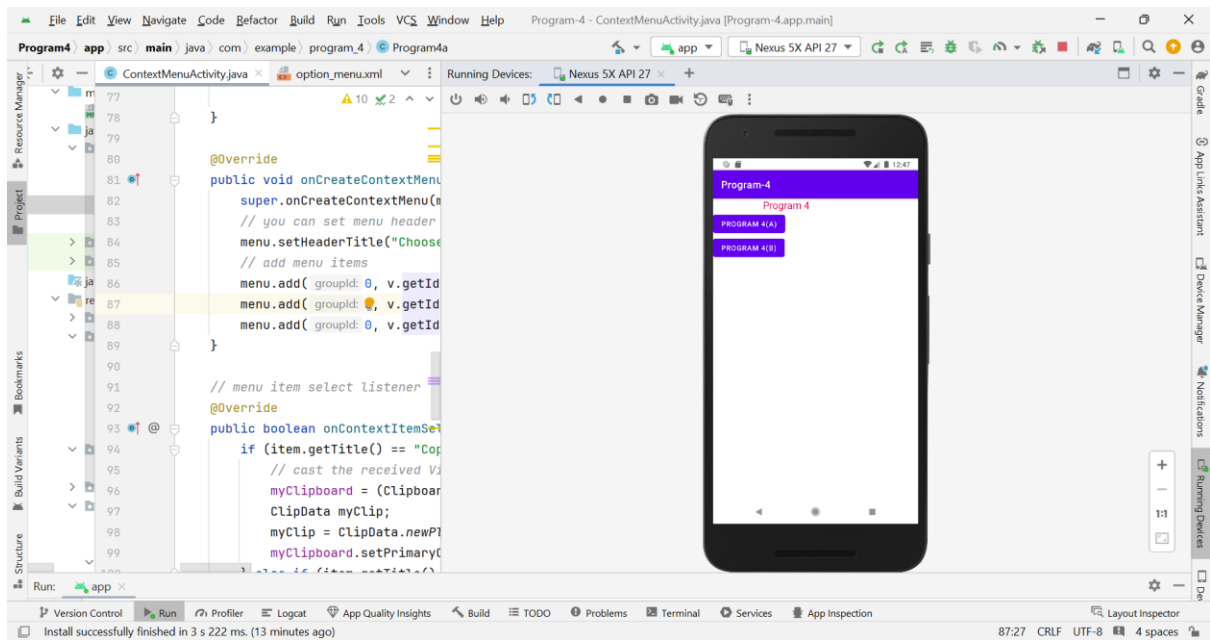
<?xml version="1.0" encoding="utf-8"?>
<menu xmlns:android="http://schemas.android.com/apk/res/android"
    xmlns:app="http://schemas.android.com/apk/res-auto">
    <item
        android:id="@+id/item1"
        android:title="Home"
        app:showAsAction="never"
    />

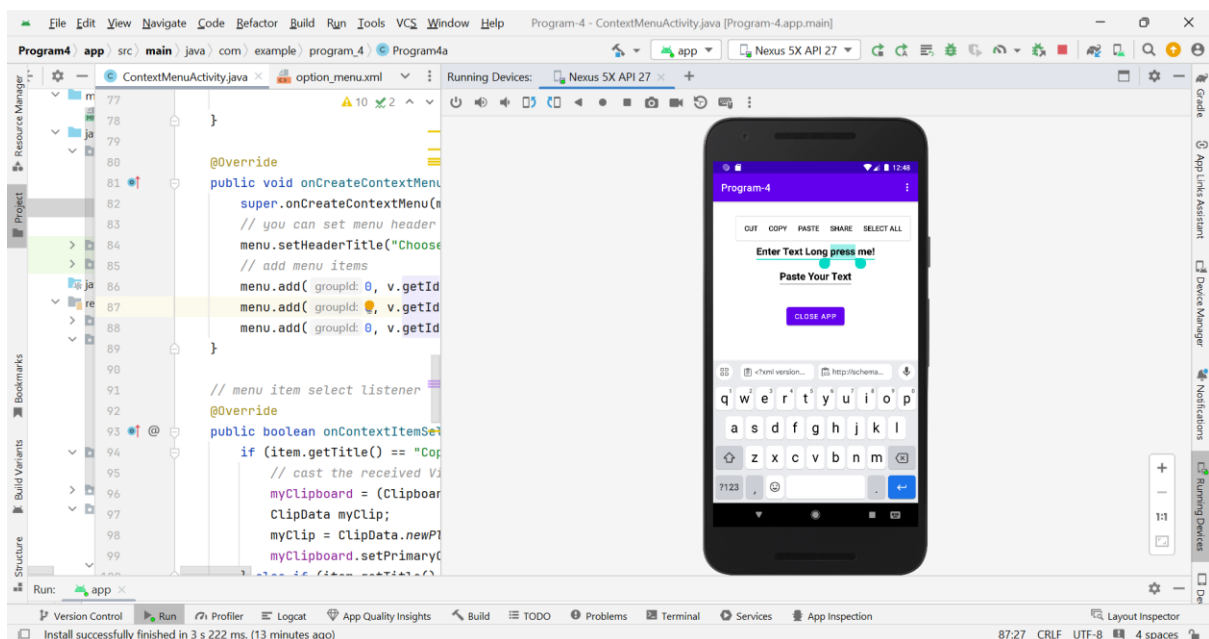
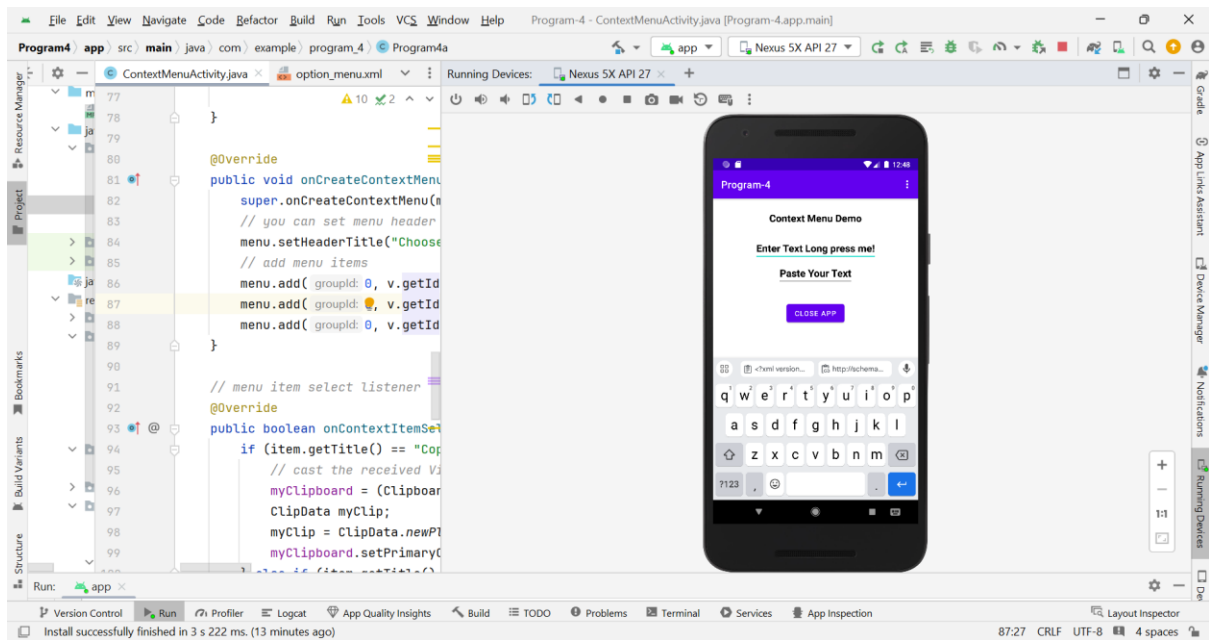
    <item
        android:id="@+id/item2"
        android:title="About"
        app:showAsAction="never"
    />

    <item
        android:id="@+id/item3"
        android:title="Contact"
        app:showAsAction="never"
    />
</menu>

```

Output:





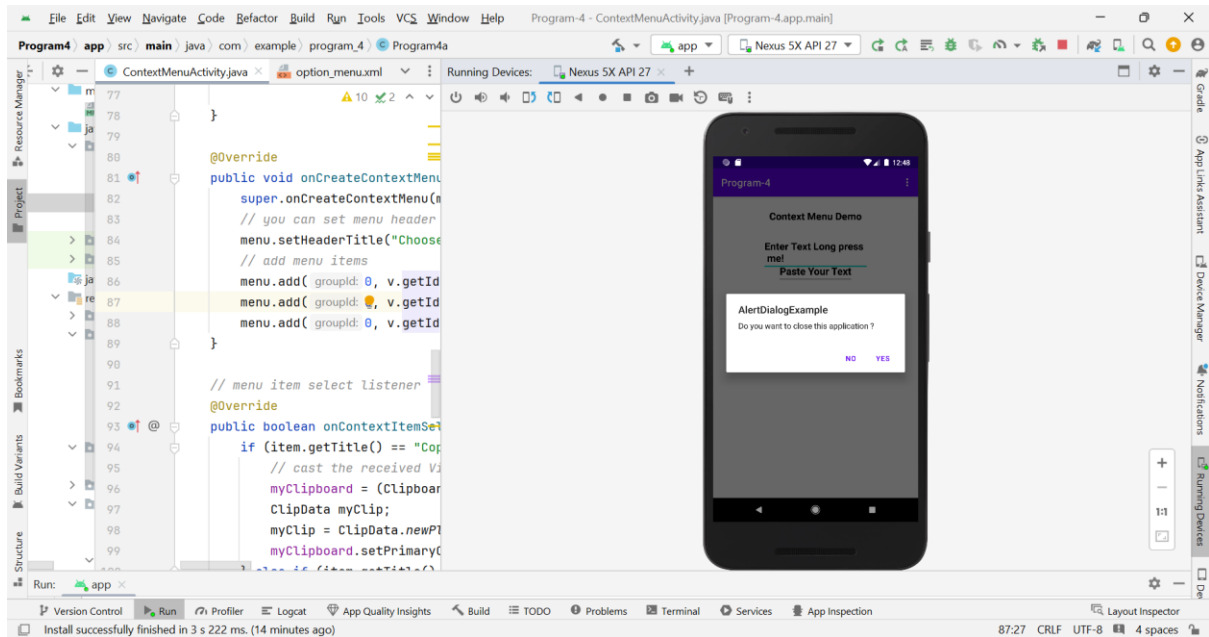
In case if option menu is not displayed add this code in colors.xml

```
<?xml version="1.0" encoding="utf-8"?>
<resources>
    <color name="purple_200">#FFBB86FC</color>
    <color name="purple_500">#FF6200EE</color>
    <color name="purple_700">#FF3700B3</color>
    <color name="teal_200">#FF03DAC5</color>
    <color name="teal_700">#FF018786</color>
    <color name="black">#FF000000</color>
</resources>
```

```

        <color name="white">#FFFFFF</color>
    </resources>

```



In case if option menu is not displayed add this code in themes.xml

```

<resources xmlns:tools="http://schemas.android.com/tools">
    <!-- Base application theme. -->
    <style name="Base.Theme.Program4"
        parent="Theme.MaterialComponents.DayNight.DarkActionBar">
        <!-- Customize your light theme here. -->
        <!-- <item name="colorPrimary">@color/my_light_primary</item> -->
        <item name="colorPrimary">@color/purple_500</item>
        <item name="colorPrimaryVariant">@color/purple_700</item>
        <item name="colorOnPrimary">@color/white</item>
        <!-- Secondary brand color. -->
        <item name="colorSecondary">@color/teal_200</item>
        <item name="colorSecondaryVariant">@color/teal_700</item>
        <item name="colorOnSecondary">@color/black</item>
        <!-- Status bar color. -->
        <item name="android:statusBarColor">?attr/colorPrimaryVariant</item>
    </style>

</resources>

```

b) Utilize an Array Adapter to connect a data source to a List View.

Program4b.java

```
package com.example.program_4;

import android.os.Bundle;
import android.widget.ArrayAdapter;
import android.widget.ListView;

import androidx.activity.EdgeToEdge;
import androidx.appcompat.app.AppCompatActivity;

public class Program4b extends AppCompatActivity {

    // Array of strings...
    ListView simpleList;
    String contactList[] =
{"One", "Two", "Three", "Four", "Five", "Six", "Seven", "Eight", "Nine", "Ten"};

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        EdgeToEdge.enable(this);
        setContentView(R.layout.program4b);

        simpleList = (ListView) findViewById(R.id.simpleListView);

        ArrayAdapter<String> arrayAdapter = new ArrayAdapter<String>(this,
R.layout.activity_list_view, R.id.textView, contactList);
        simpleList.setAdapter(arrayAdapter);
    }
}
```

Program4b.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"
    tools:context=".MainActivity">

    <TextView
        android:id="@+id/titlepage"
        android:layout_width="fill_parent"
        android:layout_height="wrap_content"
        android:layout_gravity="center"
        android:text="ListView Demo"
        android:layout_marginTop="110dp"
        android:textColor="#000" />
```

```
<ListView
    android:id="@+id/simpleListView"
    android:layout_width="match_parent"
    android:layout_height="wrap_content"
    android:divider="#000"
    android:dividerHeight="2dp"
    android:layout_marginTop="200dp"/>

</RelativeLayout>
```

activity_list_view.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">

    <TextView
        android:id="@+id/textView"
        android:layout_width="fill_parent"
        android:layout_height="wrap_content"
        android:layout_gravity="center"
        android:textColor="#000" />

</LinearLayout>
```