MainActivity**.java**

**public class** MainActivity **extends** AppCompatActivity **implements** View.OnClickListener{  
**private** CustomView **mCustomView**;  
 Button **swap**;  
 Button **alert**;  
 Button **Progress**;  
 Button **longpress**;  
 Button **lis**;  
@Override  
**protected void** onCreate(Bundle savedInstanceState) {  
 **super**.onCreate(savedInstanceState);  
 setContentView(R.layout.***activity\_main***);  
  
 **mCustomView**=(CustomView)findViewById(R.id.***CustomView***);  
 **swap** = (Button)findViewById(R.id.***swap***);  
 **swap**.setOnClickListener(MainActivity.**this**);  
  
 **alert** = (Button) findViewById(R.id.***alert***);  
 **alert**.setOnClickListener(MainActivity.**this**);  
  
 **Progress** = (Button) findViewById(R.id.***Progress***);  
 **Progress**.setOnClickListener(MainActivity.**this**);  
  
 **longpress** = (Button) findViewById(R.id.***longpress***);  
 registerForContextMenu(**longpress**);  
  
 **lis** = (Button) findViewById(R.id.***lis***);  
 **lis**.setOnClickListener(MainActivity.**this**);  
  
 }  
  
@Override  
**public void** onCreateContextMenu(ContextMenu menu, View v, ContextMenu.ContextMenuInfo menuInfo) {  
 **super**.onCreateContextMenu(menu, v, menuInfo);  
 menu.setHeaderTitle(**"Context Menu"**);  
 menu.add(0, v.getId(), 0, **"Upload"**);  
 menu.add(0, v.getId(), 3, **"Search"**);  
 menu.add(0, v.getId(), 2, **"Share"**);  
 menu.add(0, v.getId(), 1, **"Bookmark"**);  
 }  
@Override  
**public boolean** onContextItemSelected(MenuItem item) {  
 Toast.*makeText*(**this**, **"Selected Item: "** +item.getTitle(), Toast.***LENGTH\_SHORT***).show();  
 **return true**;  
 }  
@Override  
**public boolean** onCreateOptionsMenu(Menu menu)  
 {  
 MenuInflater menuInflater=getMenuInflater();  
 menuInflater.inflate(R.menu.***my\_menu***,menu);  
 **return super**.onCreateOptionsMenu(menu);  
 }  
  
@Override  
**public boolean** onOptionsItemSelected(MenuItem item)  
  
 {  
 **switch** (item.getItemId()){  
 **case** R.id.***item1***:  
 Toast.*makeText*(**this**,**"option 1 is selected"**,Toast.***LENGTH\_SHORT***).show();  
 **break**;  
  
 **case** R.id.***item2***:  
 Toast.*makeText*(**this**,**"option 2 is selected"**,Toast.***LENGTH\_SHORT***).show();  
 **break**;  
 **case** R.id.***item3***:  
 Toast.*makeText*(**this**,**"option 3 is selected"**,Toast.***LENGTH\_SHORT***).show();  
 **break**;  
  
 }  
 **return super**.onOptionsItemSelected(item);  
 }  
  
@Override  
**public void** onClick(View v) {  
 **switch** (v.getId()) {  
 **case** R.id.***swap***:  
 **mCustomView**.SwapColor();  
 **break**;  
  
 **case** R.id.***alert***:  
 AlertDialog.Builder a\_builder = **new** AlertDialog.Builder(MainActivity.**this**);  
 a\_builder.setMessage(**"Do you want to close this app!!!"**).setCancelable(**false**)  
 .setPositiveButton(**"yes"**, **new** DialogInterface.OnClickListener() {  
 @Override  
 **public void** onClick(DialogInterface dialog, **int** which) {  
 finish();  
 }  
 })  
 .setNegativeButton(**"No"**, **new** DialogInterface.OnClickListener() {  
 @Override  
 **public void** onClick(DialogInterface dialog, **int** which) {  
 dialog.cancel();  
 }  
 });  
 AlertDialog alert = a\_builder.create();  
 alert.setTitle(**"ALERT!!"**);  
 alert.show();  
 **break**;  
 **case** R.id.***Progress***:  
 **final** ProgressDialog progressDialog = **new** ProgressDialog(MainActivity.**this**);  
 progressDialog.setTitle(**"Download"**);  
 progressDialog.setMessage(**"Downloading...."**);  
 progressDialog.setProgressStyle(progressDialog.***STYLE\_HORIZONTAL***);  
 progressDialog.setProgress(0);  
 progressDialog.setMax(100);  
  
 Thread t = **new** Thread(**new** Runnable() {  
 @Override  
 **public void** run() {  
 **int** progress = 0;  
 **while** (progress <= 100) {  
 **try** {  
 progressDialog.setProgress(progress);  
 progress++;  
 Thread.*sleep*(200);  
 }  
 **catch** (Exception ex)  
 { }  
 }  
 progressDialog.dismiss();  
 MainActivity.**this**.runOnUiThread(**new** Runnable()  
 {  
 @Override  
 **public void** run() {  
 Toast.*makeText*(MainActivity.**this**, **"Download completed"**, Toast.***LENGTH\_SHORT***).show();  
 }  
 });  
 }  
 });  
 t.start();  
 progressDialog.show();  
 **break**;  
 **case** R.id.***lis***:  
 Intent in = **new** Intent(MainActivity.**this**, ListAdapter.**class**);  
 startActivity(in);  
 **break**;  
 }  
 }  
}

ListAdapter**.java**

**public class** ListAdapter **extends** AppCompatActivity {  
  
 ListView **simpleList**;  
 String **animalList**[] = {**"Lion"**,**"Tiger"**,**"Monkey"**,**"Elephant"**,**"Dog"**,**"Cat"**,**"Camel"**};  
  
 @Override  
 **protected void** onCreate(Bundle savedInstanceState) {  
 **super**.onCreate(savedInstanceState);  
 setContentView(R.layout.***activity\_list\_adapter***);  
 **simpleList** = (ListView) findViewById(R.id.***simpleListView***);  
 ArrayAdapter<String> arrayAdapter = **new** ArrayAdapter<String>(**this**, R.layout.***activity\_listview***, R.id.***textView***, **animalList**);  
 **simpleList**.setAdapter(arrayAdapter);  
 }  
}

activity\_listview.xml

<**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**>

Activity\_list\_adapter.xml

<**LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 xmlns:tools="http://schemas.android.com/tools"  
 android:id="@+id/activity\_main"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 tools:context="example.com.app2.ListAdapter"**>

<**ListView  
 android:id="@+id/simpleListView"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"** />  
</**LinearLayout**>

**CustomView.java**

**public class** CustomView **extends** View {  
 **private static final int *SQUARE\_SIZE***=200;  
 **private** Rect **mRectSquare**;  
 **private** Paint **mPaintSquare**;  
  
 **public** CustomView(Context context) {  
 **super**(context);  
 init(**null**);  
 }  
  
 **public** CustomView(Context context, AttributeSet attrs) {  
 **super**(context, attrs);  
 init(attrs);  
 }  
  
 **public** CustomView(Context context, AttributeSet attrs, **int** defStyleAttr) {  
 **super**(context, attrs, defStyleAttr);  
 init(attrs);  
 }  
  
 **public** CustomView(Context context, AttributeSet attrs, **int** defStyleAttr, **int** defStyleRes) {  
 **super**(context, attrs, defStyleAttr, defStyleRes);  
 init(attrs);  
  
 }  
  
 **public void** SwapColor()  
 {  
 **mPaintSquare**.setColor(**mPaintSquare**.getColor()==Color.***GREEN***?Color.***RED***:Color.***GREEN***);  
 postInvalidate();  
 }  
  
 **private void** init(@Nullable AttributeSet set) {  
 **mRectSquare**=**new** Rect();  
 **mPaintSquare**=**new** Paint(Paint.***ANTI\_ALIAS\_FLAG***);  
 **mPaintSquare**.setColor(Color.***GREEN***);  
 }  
  
 @Override  
 **protected void** onDraw(Canvas canvas)  
 {  
  
 Rect rect=**new** Rect();  
 **mRectSquare**.**left**=50;  
 **mRectSquare**.**top**=50;  
 **mRectSquare**.**right**=**mRectSquare**.**left**+***SQUARE\_SIZE***;  
 **mRectSquare**.**bottom**=**mRectSquare**.**top**+***SQUARE\_SIZE***;  
 canvas.drawRect(**mRectSquare**,**mPaintSquare**);  
  
 }  
  
}