**PHONESPOT**

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## Introduction

Phonespot is an android application, which helps naïve smart phones users to choose smart phones according to their choice. It reduces the hassle and difficulty of filtering from e-Commerce websites. The users just have to mention the brand and price range of their choice to find the smart phones of their choice. The app also offers an additional feature to categorize the smart phones according to their internal storage and RAM.(Optional Parameter).

**Features**

* User Signup Activity – In this module, a new user can register to the application, as soon as the user credentials are entered, they are stored in the database. Afterwards the user is directed to the Login Module.
* User Login Module – An already existing user can login to the application, via this module, and if he/she is not registered, then a prompt will be shown that the user doesn’t exists.
* Phone Selection Activity – Here the user has the option choose the brand and price range of the smart phone (They are required parameters). If they have certain preferences for RAM an internal storage, they also have the additional feature to choose the RAM and internal storage (Optional parameters).
* Search Results Activity – Here the smart phones are filter out from the database on the basis of the search queries from the previous activity. The phone image, price and name are shown in a recycler view.
* Phone Buying Activity – When a smart phone is chosen, its brief details are shown in this activity. The user has the option to go the buying page of the chosen smart phone(Implicit intent).Moreover, he can download the image, or view the same smart phone in other websites like Flip kart/GSMArena.
* Profile Activity – This activity is linked to the options menu associated with the Phone Selection activity. Here, the user can update his email/Password details or delete his account.

**Additional Dependencies**

Picasso Library – is an open source library used to cache and download images.

**Components Used**

* Sqlite Database – used to store the user information for signup/login, and also to store the smart phone(s) information.
* Recycler View – used to display the smart phones with chosen parameters. Recycler view improves the memory consumption and the overall performance of the application.
* ShareActionProvider – used to send the data (Name and Buy Link) of the chosen smart phone, via various mediums.
* SharedPreferences –used to store the user credentials during the login, therefore the user need to remember his/her password every time.
* Options menu- used to display the option of profile updating/deletion, logout and share menu.
* Context Menu – associated with image view of the smart phone (Single), where users can download the image, search the same phone on Flip kart and GSMArena.
* Intents – Both Explicit and Implicit intents used to migrate to external applications like web browsers and to migrate to the next activity respectively.
* Internet Connectivity Check Class – used to check whether there is an active WIFI/Mobile network connection prior to Login/Sign Up.
* XML – used for all the designing and Purposes and setting the Image view, Checkboxes, radio buttons, Text Views etc.

**Code Implementation**

**Java**

**SignUp Class**

package com.example.project\_login;  
  
import androidx.appcompat.app.AlertDialog;  
import androidx.appcompat.app.AppCompatActivity;  
  
import android.content.DialogInterface;  
import android.content.Intent;  
import android.os.Bundle;  
import android.provider.Settings;  
import android.view.View;  
import android.widget.Button;  
import android.widget.EditText;  
import android.widget.TextView;  
import android.widget.Toast;  
  
import java.util.Date;  
  
public class SignUp extends AppCompatActivity {  
 EditText password,username,email;  
 Button sign;  
 TextView log,dateView;  
 InternetConnectivityCheck internetConnectivityCheck;  
 Date date;  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.activity\_sign\_up);  
 email=findViewById(R.id.email);  
 password=findViewById(R.id.password);  
 username=findViewById(R.id.username);  
 sign=findViewById(R.id.SignBtn);  
 log=findViewById(R.id.logIntent);  
 dateView=findViewById(R.id.text\_view\_date);  
 date=new Date();  
 dateView.setText(date.toString());  
 internetConnectivityCheck=new InternetConnectivityCheck(this);  
 log.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View v) {  
 startActivity(new Intent(SignUp.this,LoginActivity.class));  
 }  
 });  
 sign.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View v) {  
 if(internetConnectivityCheck.checkConn()){  
 //Getting the String Values from the Edit Texts  
 String usernameText,passText,emailText;  
 usernameText=username.getText().toString();  
 passText=password.getText().toString();  
 emailText=email.getText().toString();  
  
 if(!emailText.equals("")&&!passText.equals("")&&!usernameText.equals("")){  
 DataBaseAssist dataBaseAssist=new DataBaseAssist(SignUp.this);  
 if(dataBaseAssist.checkCurrentUser(usernameText).moveToNext()){  
 Toast.makeText(getApplicationContext(),"Username Already Exists !",Toast.LENGTH\_LONG).show();  
 }  
 else {  
 if(dataBaseAssist.addUser(usernameText,emailText,passText)){  
 Toast.makeText(SignUp.this,"Added",Toast.LENGTH\_LONG).show();  
 startActivity(new Intent(SignUp.this,LoginActivity.class));  
 }  
 else {  
 Toast.makeText(SignUp.this,"Failed !",Toast.LENGTH\_LONG).show();  
 }  
 }  
  
 }else {  
 Toast.makeText(getApplicationContext(),"Fields Cannot Be Left Blank !",Toast.LENGTH\_LONG).show();  
 }  
 }  
 else {  
 AlertDialog.Builder networkAlertBuilder= new AlertDialog.Builder(SignUp.this);  
 networkAlertBuilder.setTitle("No Network")  
 .setMessage("Check Network Connectivty !")  
 .setPositiveButton("Network Settings", new DialogInterface.OnClickListener() {  
 @Override  
 public void onClick(DialogInterface dialog, int which) {  
 startActivity(new Intent(Settings.ACTION\_WIFI\_SETTINGS));  
 }  
 })  
 .setNegativeButton("Cancel", new DialogInterface.OnClickListener() {  
 @Override  
 public void onClick(DialogInterface dialog, int which) {  
 startActivity(new Intent(getApplicationContext(),SignUp.class));  
 finish();  
 }  
 });  
 AlertDialog alertDialog=networkAlertBuilder.create();  
 alertDialog.show();  
  
 }  
 }  
  
 });  
  
 }  
}

**Login Class**

package com.example.project\_login;  
  
import androidx.appcompat.app.AlertDialog;  
import androidx.appcompat.app.AppCompatActivity;  
  
import android.content.DialogInterface;  
import android.content.Intent;  
import android.content.SharedPreferences;  
import android.os.Bundle;  
import android.provider.Settings;  
import android.view.View;  
import android.widget.Button;  
import android.widget.CheckBox;  
import android.widget.EditText;  
import android.widget.TextView;  
import android.widget.Toast;  
  
public class LoginActivity extends AppCompatActivity {  
 EditText pass,username;  
 Button log;  
 DataBaseAssist dataBaseAssist;  
 SharedPreferences sharedPreferences;  
 SharedPreferences.Editor sharedPreferencesEditor;  
 TextView textView;  
 Boolean savedLogin;  
 CheckBox rememberMe;  
 InternetConnectivityCheck internetConnectivityCheck;  
 private long timePressed;  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.activity\_login);  
 log=findViewById(R.id.Logbtn);  
 pass=findViewById(R.id.passLog);  
 username=findViewById(R.id.userLog);  
 textView=findViewById(R.id.signPrompt);  
 rememberMe=findViewById(R.id.rememberme);  
 internetConnectivityCheck=new InternetConnectivityCheck(this);  
 sharedPreferences=getSharedPreferences("loginRef",MODE\_PRIVATE);  
 sharedPreferencesEditor=sharedPreferences.edit();  
 textView.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View v) {  
 //If The USer Clicks on  
 startActivity(new Intent(LoginActivity.this,SignUp.class));  
 }  
 });  
 //Initializing the DatabaseAssist Object !  
 dataBaseAssist=new DataBaseAssist(LoginActivity.this);  
 log.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View v) {  
 if(internetConnectivityCheck.checkConn()){  
 login();  
 }  
 else{  
 AlertDialog.Builder networkAlertBuilder= new AlertDialog.Builder(LoginActivity.this);  
 networkAlertBuilder.setTitle("No Network")  
 .setMessage("Check Network Connectivty !")  
 .setPositiveButton("Network Settings", new DialogInterface.OnClickListener() {  
 @Override  
 public void onClick(DialogInterface dialog, int which) {  
 startActivity(new Intent(Settings.ACTION\_WIFI\_SETTINGS));  
 }  
 })  
 .setNegativeButton("Cancel", new DialogInterface.OnClickListener() {  
 @Override  
 public void onClick(DialogInterface dialog, int which) {  
 startActivity(new Intent(getApplicationContext(),LoginActivity.class));  
 finish();  
 }  
 });  
 AlertDialog alertDialog=networkAlertBuilder.create();  
 alertDialog.show();  
 }  
  
 }  
 });  
 savedLogin=sharedPreferences.getBoolean("saveLogin",true);  
 if(savedLogin==true){  
 username.setText(sharedPreferences.getString("username",null));  
 pass.setText(sharedPreferences.getString("password",null));  
 }  
 }  
  
 private void login() {  
 //Setting The String Values  
 String user=username.getText().toString();  
 String password=pass.getText().toString();  
 if(!password.equals("") && !user.equals("")){  
 if(dataBaseAssist.checkCurrentUser(user).moveToNext()){  
 if (dataBaseAssist.authUser(user,password).moveToNext()){  
 Toast.makeText(LoginActivity.this,"Okay !",Toast.LENGTH\_LONG).show();  
 Intent intent=new Intent(LoginActivity.this,SelectPhone.class);  
 intent.putExtra("username",user);  
 startActivity(intent);  
 //Checks if the Remember Me Check Box is checked if the Remember Me  
 if(rememberMe.isChecked()){  
 sharedPreferencesEditor.putBoolean("saveLogin",true);  
 //Setting The Username.  
 sharedPreferencesEditor.putString("username",user);  
 //Setting The Password  
 sharedPreferencesEditor.putString("password",password);  
 sharedPreferencesEditor.commit();  
  
 }  
  
 }  
 else {  
 Toast.makeText(LoginActivity.this,"Wrong Password !",Toast.LENGTH\_LONG).show();  
 }  
 }  
 else {  
 Toast.makeText(getApplicationContext(),"Username Doesn't Exists !",Toast.LENGTH\_LONG).show();  
 }  
 }else {  
 Toast.makeText(getApplicationContext(),"Fields Cannot Be Left Blank !",Toast.LENGTH\_LONG).show();  
 }  
 }  
 //This function is invokes when the user presses the back button, and intent is passed from the profile activity to current activity !  
 @Override  
 public void onBackPressed() {  
 //If the Intent Status is not null, then if the user presses the Back button twice the App prompts to Exit and On Second Touch,We Move To the Background !  
 if(getIntent().getStringExtra("status")!=null){  
 if(timePressed+2000>System.currentTimeMillis()){  
 moveTaskToBack(true);  
 }  
 else {  
 Toast.makeText(getBaseContext(),"Press Again To Exit !",Toast.LENGTH\_SHORT).show();  
 }  
 timePressed=System.currentTimeMillis();  
 }  
 }  
}

**Select Phone Class**

package com.example.project\_login;  
import androidx.annotation.NonNull;  
import androidx.appcompat.app.ActionBarDrawerToggle;  
import androidx.appcompat.app.AppCompatActivity;  
import androidx.appcompat.widget.Toolbar;  
import androidx.drawerlayout.widget.DrawerLayout;  
  
import android.content.Intent;  
import android.os.Bundle;  
import android.util.Log;  
import android.view.Menu;  
import android.view.MenuItem;  
import android.view.View;  
import android.widget.ArrayAdapter;  
import android.widget.Button;  
import android.widget.RadioButton;  
import android.widget.RadioGroup;  
import android.widget.SeekBar;  
import android.widget.Spinner;  
import android.widget.TextView;  
import android.widget.Toast;  
  
  
public class SelectPhone extends AppCompatActivity {  
 Spinner spinnerPhoneSelect;  
 SeekBar priceBar;  
 Button button;  
 ArrayAdapter<String>arrayAdapterForPhones;  
 String []phones;  
 TextView textView;  
 String username;  
 RadioGroup romRadioGroup,ramRadioGroup;  
 //RadioButton Parameters For Internal Storage  
 RadioButton threeTwo,sixFour,twentyEight,twoSix;  
 //RadioButton Parameters For RAM  
 RadioButton three,four,six,eight,twel;  
 double price;  
 String selectRam=null;  
 String selectedRom=null;  
 DataBaseAssist userDatabase;  
  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.activity\_select\_phone);  
 romRadioGroup =findViewById(R.id.radioGroup);  
 ramRadioGroup=findViewById(R.id.radioGroupRAm);  
 userDatabase=new DataBaseAssist(SelectPhone.this);  
 if(getIntent().getStringExtra("username")!=null){  
 //Getting the Username From The LoginActivity Class, using the PutExtra Feature  
 //This is used to fetch the data from te database related to th user  
 username=getIntent().getStringExtra("username");  
 }  
  
  
  
 //Radio Buttons are Being Hooked Up  
 threeTwo=findViewById(R.id.radioButton);  
 sixFour=findViewById(R.id.radioButton2);  
 twentyEight=findViewById(R.id.radioButton3);  
 twoSix=findViewById(R.id.radioButton4);  
 //Hooking Up The RAM Radio Buttons  
 three=findViewById(R.id.threeGb);  
 four=findViewById(R.id.fourGb);  
 six=findViewById(R.id.sixGB);  
 eight=findViewById(R.id.eightGb);  
 twel=findViewById(R.id.twelGB);  
 //End of RAM  
 //Setting the Spinner to Display The Phone Names  
 spinnerPhoneSelect=findViewById(R.id.phoneSpinner);  
 //button to test and search !  
 button=findViewById(R.id.searchbutton);  
 //TextView To Show The Change In The Price On The Spot  
 textView=findViewById(R.id.price);  
 //Progress bar To setting The price range in The Order of The 1000s  
 priceBar=findViewById(R.id.priceBar);  
 //Setting The Progres Value Initially To 8 So That Resulting Price Will Be 1000.00 x 8,000 Rs  
 priceBar.setProgress(8);  
 textView.setText((priceBar.getProgress()\*1000.00)+"");  
 priceBar.setOnSeekBarChangeListener(new SeekBar.OnSeekBarChangeListener() {  
 //Change in Progress Value Will Be Reflected on the Spot !  
 @Override  
 public void onProgressChanged(SeekBar seekBar, int progress, boolean fromUser) {  
 textView.setText(Double.toString(1000.00\*priceBar.getProgress()));  
 }  
 //Dead Methods  
 @Override  
 public void onStartTrackingTouch(SeekBar seekBar) {  
  
 }  
  
 @Override  
 public void onStopTrackingTouch(SeekBar seekBar) {  
  
 }  
 });  
 //Phones Offered By The app  
 phones=new String[]{"Samsung","Oppo","Vivo","One Plus","Redmi","Show All"};  
 //Initailisign The ArrayAdapter  
 arrayAdapterForPhones=new ArrayAdapter<String>(this,android.R.layout.simple\_list\_item\_1,phones);  
 spinnerPhoneSelect.setAdapter(arrayAdapterForPhones);  
 button.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View v) {  
  
  
 price=1000\*priceBar.getProgress();  
///////////////////Events For The Radio Button That Will Determine the Change in ROM////////////////////////  
 if(threeTwo.isChecked()){  
 selectedRom=threeTwo.getText().toString();  
 }  
 else if(sixFour.isChecked()){  
 selectedRom=sixFour.getText().toString();  
 }  
 else if(twentyEight.isChecked()){  
 selectedRom=twentyEight.getText().toString();  
 }  
 else if(twoSix.isChecked()){  
 selectedRom=twoSix.getText().toString();  
 }  
  
///////////////////Events For The Radio Button That Will Determine the Change in RAM////////////////////////  
 if(three.isChecked()){  
 selectRam=three.getText().toString();  
 }  
 else if(four.isChecked()){  
 selectRam=four.getText().toString();  
 }  
 else if(eight.isChecked()){  
 selectRam=eight.getText().toString();  
 }  
 else if(six.isChecked()){  
 selectRam=six.getText().toString();  
 }  
 else if(twel.isChecked()){  
 selectRam=twel.getText().toString();  
 }  
 //The Infromation required to display the data in recycler view is passed via intent  
 //The price and phone name are required parameters  
 //ROM and RAM are Optional Params  
 Intent intent=new Intent(SelectPhone.this,ListView.class);  
 //Passing The Intend Values to The PhoneDetails Class so that We Can Use the Phone make and price Information to Segregate The Data from the Database !  
 intent.putExtra("make",spinnerPhoneSelect.getSelectedItem().toString());  
 intent.putExtra("price",price);  
 intent.putExtra("ram",selectRam);  
 intent.putExtra("rom",selectedRom);  
 Log.d("rom","Rom Selected is"+selectedRom);  
 Log.d("ramSe","Ram Selected is"+selectRam);  
 startActivity(intent);  
  
 }  
 });  
 }  
 @Override  
 public boolean onCreateOptionsMenu(Menu menu) {  
 getMenuInflater().inflate(R.menu.select\_phone\_option\_menu,menu);  
  
 return super.onCreateOptionsMenu(menu);  
 }  
  
 @Override  
 public boolean onOptionsItemSelected(@NonNull MenuItem item) {  
 switch (item.getItemId()){  
 case R.id.logout:  
 Toast.makeText(getApplicationContext(),"Logged Out !",Toast.LENGTH\_LONG).show();  
 startActivity(new Intent(SelectPhone.this,LoginActivity.class));  
 return true;  
 case R.id.profile:  
 Intent intent=new Intent(SelectPhone.this,Profile.class);  
 String user[]=userDatabase.info(username);  
 intent.putExtra("username",user[0]);  
 intent.putExtra("email",user[1]);  
 intent.putExtra("pass",user[2]);  
 startActivity(intent);  
 return true;  
 }  
 return super.onOptionsItemSelected(item);  
 }  
}

**Search Result Class**

package com.example.project\_login;  
  
import androidx.appcompat.app.AppCompatActivity;  
import androidx.recyclerview.widget.LinearLayoutManager;  
import androidx.recyclerview.widget.RecyclerView;  
  
import android.database.Cursor;  
import android.os.Bundle;  
import android.util.Log;  
import android.widget.ProgressBar;  
import android.widget.Toast;  
  
import java.util.ArrayList;  
//  
public class ListView extends AppCompatActivity {  
 RecyclerView recyclerView;  
 ArrayList<Phone>phones;  
 ProgressBar progressBar;  
 CustomAdapter customAdapter;  
 PhoneDatabase phoneDatabase;  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.activity\_list\_view);  
 recyclerView = findViewById(R.id.recycle);  
 progressBar = findViewById(R.id.progressBar);  
 phones = new ArrayList<>();  
  
  
 phoneDatabase = new PhoneDatabase(ListView.this);  
 if(phoneDatabase.selectAllPhones().getCount()==0){  
 addPhonesToDB();  
 }  
  
 //addToList();  
 //First of All We Check The Intend is Null Or Not !  
 if(getIntent()!=null){  
 //Then it Checks Whether The Intent Contains the Rom and Ram Inforamtion,if They Both are Null We Can show The Phones Based on The Price(Show All) or On The Basis is name and Price  
 if(getIntent().getStringExtra("rom")==null && getIntent().getStringExtra("ram")==null){  
 //Show All Price  
 if(getIntent().getStringExtra("make").equals("Show All")){  
 addToListShowAll(getIntent().getDoubleExtra("price",10000.99));  
 }  
 //Based on The name and price  
 else {  
 addToListBasedOnName(getIntent().getStringExtra("make"),getIntent().getDoubleExtra("price",10000.99));  
 }  
 }  
 //Checking The Condition Where the Rom is Given While is Ram is Not !  
 else if(getIntent().getStringExtra("rom")!=null && getIntent().getStringExtra("ram")==null){  
 //Show All Price  
 if(getIntent().getStringExtra("make").equals("Show All")){  
 addToListShowAllPriceAndRom(getIntent().getDoubleExtra("price",10000.99),getIntent().getStringExtra("rom"));  
  
 }  
 //Based on The name,price and rom  
 else {  
 addToListNamePriceAndRom(getIntent().getStringExtra("make"),getIntent().getDoubleExtra("price",10000.99),getIntent().getStringExtra("rom"));  
 }  
 }  
 //Checking The Condition Where the Ram is Given While is Rom is Not !  
 else if(getIntent().getStringExtra("rom")==null && getIntent().getStringExtra("ram")!=null){  
 //Show All Price  
 if(getIntent().getStringExtra("make").equals("Show All")){  
 addToListShowAllPriceAndRam(getIntent().getDoubleExtra("price",10000.99),getIntent().getStringExtra("ram"));  
  
 }  
 //Based on The name,price and ram  
 else {  
 addToListShowAllANamePriceAndRam(getIntent().getStringExtra("make"),getIntent().getDoubleExtra("price",10000.99),getIntent().getStringExtra("ram"));  
 }  
 }  
 //Checking The Condition Where both RAM and ROM are Given !  
 else if(getIntent().getStringExtra("rom")!=null && getIntent().getStringExtra("ram")!=null){  
 //Show All Price  
 if(getIntent().getStringExtra("make").equals("Show All")){  
 //Adding all The Phones to The ArrayList based on Price range,ram and the Rom  
 addToListShowAllPriceRomAndRam(getIntent().getDoubleExtra("price",10000.99),getIntent().getStringExtra("rom"),getIntent().getStringExtra("ram"));  
  
 }  
 //Based on The name,price and ram  
 else {  
 //Adding The Phones to The ArrayList based on The Make,Price range,ram and the Rom  
 addToListShowAllANamePriceAndRomAndRam(getIntent().getStringExtra("make"),getIntent().getDoubleExtra("price",10000.99),getIntent().getStringExtra("rom"),getIntent().getStringExtra("ram"));  
 }  
 }  
 }  
 Toast.makeText(getApplicationContext(),getIntent().getStringExtra("make")+" "+getIntent().getDoubleExtra("price",100),Toast.LENGTH\_LONG).show();  
 customAdapter = new CustomAdapter(this, phones);  
 recyclerView.setAdapter(customAdapter);  
 recyclerView.setLayoutManager(new LinearLayoutManager(this));  
  
  
 }  
 //Adding all the Phones to teh ArraysList Based on the price,ram and rom  
 private void addToListShowAllPriceRomAndRam(double price, String ram, String rom) {  
 Cursor cursor=phoneDatabase.selectAllPhonesPriceRamRom(price,ram,rom);  
 while (cursor.moveToNext()){  
 phones.add(new Phone(cursor.getString(0)+"",cursor.getString(1)+"",cursor.getString(2)+"",cursor.getDouble(3),cursor.getString(4)+"",cursor.getString(5)+"",cursor.getString(6)+"",cursor.getString(7)+"",cursor.getString(8),cursor.getString(9)));  
 Log.d("buy",cursor.getString(4));  
 }  
 }  
 //Adding all the Phones to teh ArraysList Based on the price  
 private void addToListShowAll(double price){  
 Cursor cursor=phoneDatabase.selectAllPhones(price);  
 while (cursor.moveToNext()){  
 phones.add(new Phone(cursor.getString(0)+"",cursor.getString(1)+"",cursor.getString(2)+"",cursor.getDouble(3),cursor.getString(4)+"",cursor.getString(5)+"",cursor.getString(6)+"",cursor.getString(7)+"",cursor.getString(8),cursor.getString(9)));  
 Log.d("buy",cursor.getString(4));  
 }  
 }  
 //Adding all the Phones to the ArraysList Based on the price and rom  
 private void addToListShowAllPriceAndRom(double price,String rom){  
 Cursor cursor=phoneDatabase.selectAllPhones(price,rom);  
 while (cursor.moveToNext()){  
 phones.add(new Phone(cursor.getString(0)+"",cursor.getString(1)+"",cursor.getString(2)+"",cursor.getDouble(3),cursor.getString(4)+"",cursor.getString(5)+"",cursor.getString(6)+"",cursor.getString(7)+"",cursor.getString(8),cursor.getString(9)));  
 Log.d("buy",cursor.getString(4));  
 }  
 }  
 //Adding all the Phones to the ArraysList Based on the name and price  
 private void addToListBasedOnName(String name, double price){  
 Cursor cursor = phoneDatabase.selectAllPhonesByNamePrice(name, price);  
 while (cursor.moveToNext()) {  
 phones.add(new Phone(cursor.getString(0) + "", cursor.getString(1) + "", cursor.getString(2) + "", cursor.getDouble(3), cursor.getString(4) + "", cursor.getString(5) + "", cursor.getString(6) + "", cursor.getString(7) + "",cursor.getString(8),cursor.getString(9)));  
 }  
 }  
 //Adding all the Phones to teh ArraysList Based on the price,name and rom  
 private void addToListNamePriceAndRom(String name, double price, String rom){  
 Cursor cursor = phoneDatabase.selectAllPhonesByNamePriceAndROM(name, price,rom);  
 while (cursor.moveToNext()) {  
 phones.add(new Phone(cursor.getString(0) + "", cursor.getString(1) + "", cursor.getString(2) + "", cursor.getDouble(3), cursor.getString(4) + "", cursor.getString(5) + "", cursor.getString(6) + "", cursor.getString(7) + "",cursor.getString(8),cursor.getString(9)));  
 }  
 }  
 //Adding all the Phones to teh ArraysList Based on the price,ram and rom and make  
 private void addToListShowAllANamePriceAndRomAndRam(String name,double price,String rom,String ram){  
 Cursor cursor=phoneDatabase.selectAllPhonesByNamePriceROMAndRAM(name,price,rom,ram);  
 while (cursor.moveToNext()){  
 phones.add(new Phone(cursor.getString(0)+"",cursor.getString(1)+"",cursor.getString(2)+"",cursor.getDouble(3),cursor.getString(4)+"",cursor.getString(5)+"",cursor.getString(6)+"",cursor.getString(7)+"",cursor.getString(8),cursor.getString(9)));  
 Log.d("buy",cursor.getString(4));  
 }  
 }  
 //Adding to The ArraysList Based on the name,price and ram  
 private void addToListShowAllANamePriceAndRam(String name,double price,String ram){  
 Cursor cursor=phoneDatabase.selectAllPhonesByNamePriceAndRAM(name,price,ram);  
 while (cursor.moveToNext()){  
 phones.add(new Phone(cursor.getString(0)+"",cursor.getString(1)+"",cursor.getString(2)+"",cursor.getDouble(3),cursor.getString(4)+"",cursor.getString(5)+"",cursor.getString(6)+"",cursor.getString(7)+"",cursor.getString(8),cursor.getString(9)));  
 Log.d("buy",cursor.getString(4));  
 }  
 }  
 //Based in Ram and The price range only  
 private void addToListShowAllPriceAndRam(double price,String ram){  
 Cursor cursor=phoneDatabase.selectAllPhonesByPriceAndRAM(price,ram);  
 while (cursor.moveToNext()){  
 phones.add(new Phone(cursor.getString(0)+"",cursor.getString(1)+"",cursor.getString(2)+"",cursor.getDouble(3),cursor.getString(4)+"",cursor.getString(5)+"",cursor.getString(6)+"",cursor.getString(7)+"",cursor.getString(8),cursor.getString(9)));  
 Log.d("buy",cursor.getString(4));  
 }  
 }  
 //Adding all The phones, independent of the Brand and specs  
 void addPhonesToDB(){  
 //Samsung Phones  
 phoneDatabase.addPhoneInfo("Samsung","Galaxy A10s","https://m.media-amazon.com/images/I/81e6XvJzKgL.\_AC\_UY218\_.jpg",10489.00,"https://www.amazon.in/Samsung-Galaxy-Storage-Additional-Exchange/dp/B07SBJZS5C/ref=sr\_1\_9?dchild=1&keywords=smartphones&qid=1606138906&refinements=p\_n\_feature\_eight\_browse-bin%3A8561114031%2Cp\_n\_feature\_seven\_browse-bin%3A8561132031%2Cp\_89%3ASamsung&rnid=3837712031&s=electronics&sr=1-9","4.0","3GB","32GB","4000mAH","MediaTek MT6762 octa core processor");  
 phoneDatabase.addPhoneInfo("Samsung","Galaxy M11","https://m.media-amazon.com/images/I/71hqi389rcL.\_AC\_UY218\_.jpg",9999.00,"https://www.amazon.in/Samsung-Metallic-Storage-Additional-Exchange/dp/B086K9YCVN/ref=sr\_1\_6?dchild=1&keywords=smartphones&qid=1606138906&refinements=p\_n\_feature\_eight\_browse-bin%3A8561114031%2Cp\_n\_feature\_seven\_browse-bin%3A8561132031%2Cp\_89%3ASamsung&rnid=3837712031&s=electronics&sr=1-6","4.1","3GB","32GB","5000mAH","1.8GHz Qualcomm SDM450-F01 octa core processor");  
 phoneDatabase.addPhoneInfo("Samsung","Galaxy M21","https://m.media-amazon.com/images/I/71dujTTJDZL.\_AC\_UY218\_.jpg",13999.00,"https://www.amazon.in/Samsung-Galaxy-Midnight-Blue-Storage/dp/B07HGJJ559/ref=sr\_1\_1?dchild=1&keywords=smartphones&qid=1606139488&refinements=p\_n\_feature\_seven\_browse-bin%3A8561132031%7C8561133031%2Cp\_89%3ASamsung%2Cp\_n\_feature\_eight\_browse-bin%3A8561116031&rnid=8561129031&s=electronics&sr=1-1","4.2","4GB","64GB","6000mAH","Exynos 9611 2.3GHz,1.7GHz Octa-Core processor");  
 phoneDatabase.addPhoneInfo("Samsung","Galaxy M11","https://m.media-amazon.com/images/I/718dLm80KcL.\_AC\_UY218\_.jpg",11999.00,"https://www.amazon.in/Samsung-Galaxy-Storage-Additional-Exchange/dp/B086KCC68B/ref=sr\_1\_4?dchild=1&keywords=smartphones&qid=1606139488&refinements=p\_n\_feature\_seven\_browse-bin%3A8561132031%7C8561133031%2Cp\_89%3ASamsung%2Cp\_n\_feature\_eight\_browse-bin%3A8561116031&rnid=8561129031&s=electronics&sr=1-4","4.1","4GB","64GB","5000mAH","1.8GHz Qualcomm SDM450-F01 octa core processor");  
 phoneDatabase.addPhoneInfo("Samsung","Galaxy A21s","https://m.media-amazon.com/images/I/811RH5e-snL.\_AC\_UY218\_.jpg",14999.00,"https://www.amazon.in/Samsung-Galaxy-Storage-Additional-Exchange/dp/B086KC85W8/ref=sr\_1\_8?dchild=1&keywords=smartphones&qid=1606139488&refinements=p\_n\_feature\_seven\_browse-bin%3A8561132031%7C8561133031%2Cp\_89%3ASamsung%2Cp\_n\_feature\_eight\_browse-bin%3A8561116031&rnid=8561129031&s=electronics&sr=1-8","3.6","4GB","64GB","5000mAH","2.0GHz Exynos 850 octa-core processor");  
 phoneDatabase.addPhoneInfo("Samsung","Galaxy M31","https://m.media-amazon.com/images/I/71-Su4Wr0HL.\_AC\_UY218\_.jpg",15999.00,"https://www.amazon.in/Samsung-Galaxy-Ocean-Blue-Storage/dp/B07HGJKDQL/ref=sr\_1\_1?dchild=1&keywords=smartphones&qid=1606140012&refinements=p\_89%3ASamsung%2Cp\_n\_feature\_eight\_browse-bin%3A8561116031%2Cp\_n\_feature\_seven\_browse-bin%3A16757454031%7C8561132031&rnid=8561129031&s=electronics&sr=1-1","4.2","6GB","64GB","6000mAH","2.3GHz + 1.7GHz Exynos 9611 Octa core processor");  
 phoneDatabase.addPhoneInfo("Samsung","Galaxy A71","https://m.media-amazon.com/images/I/81e6XvJzKgL.\_AC\_UY218\_.jpg",29999.00,"https://www.amazon.in/gp/slredirect/picassoRedirect.html/ref=pa\_sp\_atf\_electronics\_sr\_pg1\_1?ie=UTF8&adId=A07003152YYRDEZZ4YOLV&url=%2FSamsung-Galaxy-Storage-Additional-Exchange%2Fdp%2FB07X9YNP5M%2Fref%3Dsr\_1\_2\_sspa%3Fdchild%3D1%26keywords%3Dsamsung%26qid%3D1606140574%26refinements%3Dp\_n\_feature\_seven\_browse-bin%253A16757455031%26rnid%3D8561129031%26s%3Delectronics%26sr%3D1-2-spons%26psc%3D1&qualifier=1606140584&id=6849709272327052&widgetName=sp\_atf","4.3","8GB","128GB","4500mAH","2.3GHz+1.7GHz Qualcomm SM7150 octa core processor");  
 phoneDatabase.addPhoneInfo("Samsung","Galaxy M51","https://m.media-amazon.com/images/I/713AhSUtbHL.\_AC\_UY218\_.jpg",24999.00,"https://www.amazon.in/gp/slredirect/picassoRedirect.html/ref=pa\_sp\_atf\_electronics\_sr\_pg1\_1?ie=UTF8&adId=A001861434VOTEG3D8QD4&url=%2FSamsung-Galaxy-Celestial-Black-Storage%2Fdp%2FB085J1CPCW%2Fref%3Dsr\_1\_1\_sspa%3Fdchild%3D1%26keywords%3Dsamsung%26qid%3D1606140574%26refinements%3Dp\_n\_feature\_seven\_browse-bin%253A16757455031%26rnid%3D8561129031%26s%3Delectronics%26sr%3D1-1-spons%26psc%3D1&qualifier=1606140584&id=6849709272327052&widgetName=sp\_atf","4.3","8GB","128GB","7000mAH"," 2.2GHz+1.8GHz Qualcomm SD730G octa core processor");  
 phoneDatabase.addPhoneInfo("Samsung","Galaxy Z Fold2 5G","https://m.media-amazon.com/images/I/71U9nzW+XsL.\_AC\_UY218\_.jpg",149999.00,"https://www.amazon.in/Samsung-Galaxy-Storage-Additional-Exchange/dp/B086KFBNV5/ref=sr\_1\_1?dchild=1&keywords=samsung&qid=1606140838&refinements=p\_n\_feature\_seven\_browse-bin%3A16757455031%2Cp\_n\_feature\_eight\_browse-bin%3A14267636031%2Cp\_89%3ASamsung&rnid=3837712031&s=electronics&sr=1-1","4.6","12GB","256GB","4500mAH","1.8GHz+2.4GHz+3.09GHz Qualcomm SM8250-2-AB octa core processor");  
 phoneDatabase.addPhoneInfo("Samsung","Galaxy Note 10","https://m.media-amazon.com/images/I/710H5rWYI0L.\_AC\_UY218\_.jpg",51989.00,"https://www.amazon.in/Samsung-Galaxy-Storage-Additional-Exchange/dp/B07PQ7DK2N/ref=sr\_1\_10?dchild=1&keywords=samsung&qid=1606140838&refinements=p\_n\_feature\_seven\_browse-bin%3A16757455031%2Cp\_n\_feature\_eight\_browse-bin%3A14267636031%2Cp\_89%3ASamsung&rnid=3837712031&s=electronics&sr=1-10","4.4","8GB","256GB","3500mAH","2.7GHz Exynos 9825 octa core processor");  
 phoneDatabase.addPhoneInfo("Samsung","Galaxy M21","https://m.media-amazon.com/images/I/71QLvGIAq5L.\_AC\_UY218\_.jpg",15999.00,"https://www.amazon.in/Samsung-Galaxy-Raven-Black-Storage/dp/B07HGH8ML7/ref=sr\_1\_1?crid=13FYOKMM863W9&dchild=1&keywords=samsung+6gb+128gb&qid=1606713729&refinements=p\_n\_feature\_eight\_browse-bin%3A8561112031%2Cp\_n\_feature\_seven\_browse-bin%3A16757454031&rnid=8561129031&s=electronics&sprefix=Samsung+6gb+128%2Caps%2C310&sr=1-1","4.2","6GB","128GB","6000mAH","Exynos 9611,2.3GHz,1.7GHz Octa-Core processor");  
  
 //End Of Samsung  
 //Oppo Phones  
 phoneDatabase.addPhoneInfo("Oppo","Reno 3 Pro","https://m.media-amazon.com/images/I/81dxd7vkdZL.\_AC\_UY218\_.jpg",27990.00,"https://www.amazon.in/Midnight-Storage-Additional-Exchange-Offers/dp/B084457WQB/ref=sr\_1\_1?dchild=1&keywords=Oppo+smartphones&qid=1606141309&refinements=p\_n\_feature\_seven\_browse-bin%3A16757455031%2Cp\_n\_feature\_eight\_browse-bin%3A14267636031&rnid=8561111031&s=electronics&sr=1-1","4.0","8GB","256GB","4025mAH","2.2GHz MediaTek Helio P95 octa core processor");  
 phoneDatabase.addPhoneInfo("Oppo","Reno 2","https://m.media-amazon.com/images/I/81kmbC6WfjL.\_AC\_UY218\_.jpg",38990.00,"https://www.amazon.in/Luminous-Storage-Additional-Exchange-Offers/dp/B07SBJXQC7/ref=sr\_1\_4?dchild=1&keywords=Oppo+smartphones&qid=1606141309&refinements=p\_n\_feature\_seven\_browse-bin%3A16757455031%2Cp\_n\_feature\_eight\_browse-bin%3A14267636031&rnid=8561111031&s=electronics&sr=1-4","4.4","8GB","256GB","4000mAH","2.2GHz Qualcomm 730G octa core processor");  
 phoneDatabase.addPhoneInfo("Oppo","Reno 2 Z","https://m.media-amazon.com/images/I/71p33agBY2L.\_AC\_UY218\_.jpg",27490.00,"https://www.amazon.in/Reno2-Storage-Additional-Exchange-Offers/dp/B07S7DXJWT/ref=sr\_1\_5?dchild=1&keywords=Oppo+smartphones&qid=1606141309&refinements=p\_n\_feature\_seven\_browse-bin%3A16757455031%2Cp\_n\_feature\_eight\_browse-bin%3A14267636031&rnid=8561111031&s=electronics&sr=1-5","4.3","8GB","256GB","400mAH","2.2GHz Helio P90 octa core processor");  
 phoneDatabase.addPhoneInfo("Oppo","A52","https://m.media-amazon.com/images/I/71FPmXaDfbL.\_AC\_UY218\_.jpg",13990.00,"https://www.amazon.in/Oppo-Twilight-Storage-Additional-Exchange/dp/B086KCDPMR/ref=sr\_1\_1?dchild=1&keywords=Oppo+smartphones&qid=1606141665&refinements=p\_n\_feature\_eight\_browse-bin%3A14267636031%7C8561112031%2Cp\_n\_feature\_seven\_browse-bin%3A16757454031&rnid=8561129031&s=electronics&sr=1-1","4.1","6GB","128GB","5000mAH","2.0GHz Qualcomm Snapdragon 665 octa core processor");  
 phoneDatabase.addPhoneInfo("Oppo","A31","https://m.media-amazon.com/images/I/61CnyJ-IbML.\_AC\_UY218\_.jpg",11990.00,"https://www.amazon.in/Oppo-Fantasy-Storage-Additional-Exchange/dp/B08444SXZ6/ref=sr\_1\_2?dchild=1&keywords=Oppo+smartphones&qid=1606141665&refinements=p\_n\_feature\_eight\_browse-bin%3A14267636031%7C8561112031%2Cp\_n\_feature\_seven\_browse-bin%3A16757454031&rnid=8561129031&s=electronics&sr=1-2","4.1","6GB","128GB","4230mAH","2.3GHz Mediatek 6765 octa core processor");  
 phoneDatabase.addPhoneInfo("Oppo","A53","https://m.media-amazon.com/images/I/71QJyXZYPuL.\_AC\_UY218\_.jpg",15499.00,"https://www.amazon.in/Fancy-Storage-Additional-Exchange-Offers/dp/B089MRYXN7/ref=sr\_1\_5?dchild=1&keywords=Oppo+smartphones&qid=1606141665&refinements=p\_n\_feature\_eight\_browse-bin%3A14267636031%7C8561112031%2Cp\_n\_feature\_seven\_browse-bin%3A16757454031&rnid=8561129031&s=electronics&sr=1-5","4.0","6GB","128GB","5000mAH","1.8GHz Qualcomm Snapdragon 460 octa core processor");  
 phoneDatabase.addPhoneInfo("Oppo","A12","https://m.media-amazon.com/images/I/71-nSoWl8iL.\_AC\_UY218\_.jpg",11490.00,"https://www.amazon.in/OPPO-Storage-Additional-Exchange-Offers/dp/B08444X3CN/ref=sr\_1\_1?dchild=1&keywords=oppo&qid=1606142095&refinements=p\_89%3AOppo%2Cp\_n\_feature\_eight\_browse-bin%3A8561116031&rnid=8561129031&s=electronics&sr=1-1","4.0","4GB","64GB","4230mAH","2.3GHz MediaTek Helio P35 octa core processor");  
 phoneDatabase.addPhoneInfo("Oppo","A5S","https://m.media-amazon.com/images/I/71ZU4VsevqL.\_AC\_UY218\_.jpg",8990.00,"https://www.amazon.in/Black-Storage-Additional-Exchange-Offers/dp/B07PP2K69Z/ref=sr\_1\_3?dchild=1&keywords=Oppo+A5S&qid=1606279310&s=electronics&sr=1-3","4.1","3GB","32GB","4230mAH","2.4GHz Mediatek MT6765 octa core processor");  
 phoneDatabase.addPhoneInfo("Oppo","A15","https://m.media-amazon.com/images/I/71wPwmxo2NL.\_AC\_UY218\_.jpg",9990.00,"https://www.amazon.in/Test-TST\_Exclusive1018-Exclusive-1018/dp/B08445GY29/ref=sr\_1\_3?dchild=1&keywords=oppo&qid=1606191957&refinements=p\_n\_feature\_seven\_browse-bin%3A8561132031&rnid=8561129031&s=electronics&sr=1-3","3.8","3GB","32GB","4230mAH","2.3GHz MediaTek Helio P35 octa core processor");  
 //End Of Oppo  
 //Vivo  
 phoneDatabase.addPhoneInfo("Vivo","Y50","https://m.media-amazon.com/images/I/514ETCdN3CL.\_AC\_UY218\_.jpg",16490.00,"https://www.amazon.in/gp/slredirect/picassoRedirect.html/ref=pa\_sp\_atf\_electronics\_sr\_pg1\_1?ie=UTF8&adId=A06788371W60J10GOSUAG&url=%2FVivo-Storage-Additional-Exchange-Offers%2Fdp%2FB086KDZGTZ%2Fref%3Dsr\_1\_1\_sspa%3Fdchild%3D1%26keywords%3DVivo%26qid%3D1606197666%26refinements%3Dp\_n\_feature\_seven\_browse-bin%253A16757455031%26rnid%3D8561129031%26s%3Delectronics%26sr%3D1-1-spons%26psc%3D1&qualifier=1606197673&id=1014131249803151&widgetName=sp\_atf","4.0","8GB","128GB","5000mAH","2.0GHz Qualcomm Snapdragon 665 octa core processor");  
 phoneDatabase.addPhoneInfo("Vivo","V20","https://m.media-amazon.com/images/I/613-W6czeJL.\_AC\_UY218\_.jpg",24990.00,"https://www.amazon.in/Test-TST\_Exclusive1011-Exclusive-1011/dp/B084459L1C/ref=sr\_1\_2?dchild=1&keywords=Vivo&qid=1606197666&refinements=p\_n\_feature\_seven\_browse-bin%3A16757455031&rnid=8561129031&s=electronics&sr=1-2","4.3","8GB","128GB","4000mAH","Qualcomm Snapdragon 720G octa core processor");  
 phoneDatabase.addPhoneInfo("Vivo","Y20","https://m.media-amazon.com/images/I/71SVzNmepQL.\_AC\_UY218\_.jpg",13990.00,"https://www.amazon.in/gp/slredirect/picassoRedirect.html/ref=pa\_sp\_atf\_electronics\_sr\_pg1\_1?ie=UTF8&adId=A10363793MDAU9DQCMPOZ&url=%2FVivo-Purist-Storage-Additional-Exchange%2Fdp%2FB089MT22SH%2Fref%3Dsr\_1\_1\_sspa%3Fdchild%3D1%26keywords%3DVivo%26qid%3D1606198026%26refinements%3Dp\_n\_feature\_seven\_browse-bin%253A16757454031%26rnid%3D8561129031%26s%3Delectronics%26sr%3D1-1-spons%26psc%3D1&qualifier=1606198030&id=6707354744850596&widgetName=sp\_atf","4.1","6GB","64GB","5000mAH","Qualcomm Snapdragon 460 octa core processor");  
 phoneDatabase.addPhoneInfo("Vivo","Z1x","https://m.media-amazon.com/images/I/4163N5X5v7L.\_AC\_UY218\_.jpg",19990.00,"https://www.amazon.in/Vivo-Z1x-64GB-Fusion-Blue/dp/B0826217JG/ref=sr\_1\_6?dchild=1&keywords=Vivo&qid=1606198026&refinements=p\_n\_feature\_seven\_browse-bin%3A16757454031&rnid=8561129031&s=electronics&sr=1-6","4.8","6GB","64GB","4500mAH","Qualcomm Snapdragon 712 AIE Processor");  
 phoneDatabase.addPhoneInfo("Vivo","Y20","https://m.media-amazon.com/images/I/71SVzNmepQL.\_AC\_UY218\_.jpg",12990.00,"https://www.amazon.in/gp/slredirect/picassoRedirect.html/ref=pa\_sp\_atf\_electronics\_sr\_pg1\_1?ie=UTF8&adId=A086505434CHEYNPAIZU5&url=%2FVivo-Obsidian-Storage-Additional-Exchange%2Fdp%2FB089MS3GL9%2Fref%3Dsr\_1\_1\_sspa%3Fdchild%3D1%26keywords%3DVivo%26qid%3D1606198310%26refinements%3Dp\_n\_feature\_seven\_browse-bin%253A8561133031%26rnid%3D8561129031%26s%3Delectronics%26sr%3D1-1-spons%26psc%3D1&qualifier=1606198315&id=3552055794466947&widgetName=sp\_atf","4.1","4GB","64GB","5000mAH","Qualcomm Snapdragon 460 octa core processor");  
 phoneDatabase.addPhoneInfo("Vivo","Y30","https://m.media-amazon.com/images/I/51320C1CrsL.\_AC\_UY218\_.jpg",11990.00,"https://www.amazon.in/Vivo-Emerald-Storage-Additional-Exchange/dp/B086KG11W3/ref=sr\_1\_3?dchild=1&keywords=Vivo&qid=1606198310&refinements=p\_n\_feature\_seven\_browse-bin%3A8561133031&rnid=8561129031&s=electronics&sr=1-3","4.2","4GB","128GB","500mAH","MediaTek Helio P35 octa core processor");  
 phoneDatabase.addPhoneInfo("Vivo","Y91i","https://m.media-amazon.com/images/I/51+yaqN2O0L.\_AC\_UY218\_.jpg",8490.00,"https://www.amazon.in/Vivo-Storage-Additional-Exchange-Offers/dp/B086KCCSF7/ref=sr\_1\_2?dchild=1&keywords=Vivo&qid=1606198569&refinements=p\_n\_feature\_seven\_browse-bin%3A8561132031&rnid=8561129031&s=electronics&sr=1-2","4.2","3GB","32GB","4030mAH","2.0GHz Mediatek Helio P22 octa core processor");  
 phoneDatabase.addPhoneInfo("Vivo","Y11","https://m.media-amazon.com/images/I/71BBqZGY3dL.\_AC\_UY218\_.jpg",8990.00,"https://www.amazon.in/Vivo-Mineral-Storage-Additional-Exchange/dp/B07XD2FWBC/ref=sr\_1\_4?dchild=1&keywords=Vivo&qid=1606198569&refinements=p\_n\_feature\_seven\_browse-bin%3A8561132031&rnid=8561129031&s=electronics&sr=1-4","4.1","3GB","32GB","5000mAH"," Qualcomm Snapdragon 439 octa core processor");  
 phoneDatabase.addPhoneInfo("Vivo","Y20i","https://m.media-amazon.com/images/I/71INGYhIf0L.\_AC\_UY218\_.jpg",11490.00,"https://www.amazon.in/Vivo-Nebula-Storage-Additional-Exchange/dp/B089MQ7JQ3/ref=sr\_1\_5?dchild=1&keywords=Vivo&qid=1606198569&refinements=p\_n\_feature\_seven\_browse-bin%3A8561132031&rnid=8561129031&s=electronics&sr=1-5","4.1","3GB","64GB","5000mAH","Qualcomm Snapdragon 460 octa core processor");  
 //End Of Vivo  
 //Redmi  
 phoneDatabase.addPhoneInfo("Redmi","Note 8 Pro","https://m.media-amazon.com/images/I/61ACGAKmw3L.\_AC\_UY218\_.jpg",18499.00,"https://www.amazon.in/Renewed-Redmi-Note-Storage-Processor/dp/B084KV1R4J/ref=sr\_1\_1?dchild=1&keywords=redmi&qid=1606199221&refinements=p\_n\_feature\_seven\_browse-bin%3A16757455031&rnid=8561129031&s=electronics&sr=1-1","3.7","8GB","128GB","5000mAH","Helio G90T gaming processor");  
 phoneDatabase.addPhoneInfo("Redmi","K20 Pro","https://m.media-amazon.com/images/I/31J0tdzHjyL.\_AC\_UY218\_.jpg",25999.00,"https://www.amazon.in/Renewed-Redmi-Carbon-Black-Storage/dp/B081858KB9/ref=sr\_1\_2?dchild=1&keywords=redmi&qid=1606199221&refinements=p\_n\_feature\_seven\_browse-bin%3A16757455031&rnid=8561129031&s=electronics&sr=1-2","2.4","8GB","256GB","400mAH","2.84GHz Kryo 485 + 3x2.42GHz Kryo 485 + 4x1.8GHz Kryo 485 Qualcomm Snapdragon 855 octa core processor");  
 phoneDatabase.addPhoneInfo("Redmi","Note 9 Pro Max","https://m.media-amazon.com/images/I/81u6E5niDiL.\_AC\_UY218\_.jpg",16999.00, "https://www.amazon.in/Test-Exclusive-557/dp/B077PWJ8RS/ref=sr\_1\_1?dchild=1&keywords=redmi&qid=1606199461&refinements=p\_n\_feature\_seven\_browse-bin%3A16757454031&rnid=8561129031&s=electronics&sr=1-1","4.1","6GB","64GB","5020mAH","2.3GHz Qualcomm Snapdragon 720G");  
 phoneDatabase.addPhoneInfo("Redmi","Note 9","https://m.media-amazon.com/images/I/4163N5X5v7L.\_AC\_UY218\_.jpg",16990.00,"https://www.amazon.in/Redmi-Note-Pebble-Grey-Storage/dp/B086977TR6/ref=sr\_1\_2?dchild=1&keywords=redmi+note+9&qid=1606279773&s=electronics&sr=1-2","4.1","4GB","64GB","5020mAH","2.0GHz Mediatek Helio G85 octa core processor");  
 phoneDatabase.addPhoneInfo("Redmi","9","https://m.media-amazon.com/images/I/71uZrDPrsRL.\_AC\_UY218\_.jpg",8999.00,"https://www.amazon.in/Redmi-Sky-Blue-64GB-Storage/dp/B08697N43N/ref=sr\_1\_1?dchild=1&keywords=redmi&qid=1606200469&refinements=p\_n\_feature\_seven\_browse-bin%3A16757454031%7C8561133031&rnid=8561129031&s=electronics&sr=1-1","4.0","4GB","64GB","5000mAH","2.3GHz Mediatek Helio G35 octa core processor");  
 phoneDatabase.addPhoneInfo("Redmi","9 Prime","https://m.media-amazon.com/images/I/719lhUzicYL.\_AC\_UY218\_.jpg",9990.00,"https://www.amazon.in/Redmi-Prime-Storage-Display-Camera/dp/B08697MJDK/ref=sr\_1\_7?dchild=1&keywords=redmi&qid=1606200469&refinements=p\_n\_feature\_seven\_browse-bin%3A16757454031%7C8561133031&rnid=8561129031&s=electronics&sr=1-7","4.2","4GB","64GB","5020mAH","2.0 GHz Mediatek Helio G80 octa core processor");  
 phoneDatabase.addPhoneInfo("Redmi","9A","https://m.media-amazon.com/images/I/51+yaqN2O0L.\_AC\_UY218\_.jpg",7499.00,"https://www.amazon.in/Redmi-9A-Midnight-3GB-32GB/dp/B08697KLZP/ref=sr\_1\_1?dchild=1&keywords=redmi&qid=1606200685&refinements=p\_n\_feature\_seven\_browse-bin%3A8561132031&rnid=8561129031&s=electronics&sr=1-1","4.2","3GB","32GB","5000mAH","2.0GHz clock speed Mediatek Helio G25 octa core processor");  
 phoneDatabase.addPhoneInfo("Redmi","8A","https://m.media-amazon.com/images/I/71BBqZGY3dL.\_AC\_UY218\_.jpg",8999.00,"https://www.amazon.in/Redmi-8A-Dual-Midnight-Storage/dp/B086982VLB/ref=sr\_1\_3?dchild=1&keywords=redmi&qid=1606200685&refinements=p\_n\_feature\_seven\_browse-bin%3A8561132031&rnid=8561129031&s=electronics&sr=1-3","4.0","3GB","64GB","5000mAH","1.95Ghz Snapdragon 439 processor");  
 phoneDatabase.addPhoneInfo("Redmi","MI 6 Pro","https://m.media-amazon.com/images/I/819ak1fO+1L.\_AC\_UY218\_.jpg",12851.00,"https://www.amazon.in/REDMI-Note-PRO-64GB-RED/dp/B07N8SDZ4M/ref=sr\_1\_9?dchild=1&keywords=Redmi&qid=1606713971&refinements=p\_89%3ARedmi%2Cp\_n\_feature\_seven\_browse-bin%3A16757454031%2Cp\_n\_feature\_eight\_browse-bin%3A8561116031&rnid=8561111031&s=electronics&sr=1-9","4.2","6GB","64GB","4000mAH","1.8GHz Qualcomm Snapdragon 636 octa core processor");  
  
 //End Of Redmi  
 //One Plus  
 phoneDatabase.addPhoneInfo("One Plus","Nord 5G","https://m.media-amazon.com/images/I/71aqNzEqj0L.\_AC\_UY218\_.jpg",27999.00,"https://www.amazon.in/OnePlus-Nord-Marble-128GB-Storage/dp/B086977J3K/ref=sr\_1\_1?dchild=1&keywords=oneplus&qid=1606200914&refinements=p\_89%3AOnePlus%2Cp\_n\_feature\_seven\_browse-bin%3A16757455031&rnid=8561129031&s=electronics&sr=1-1","4.1","8GB","128GB","4115mAH","2.4GHz Kryo 475 Prime + 2.2GHz Kryo 475 Gold + 6x1.8GHz Kryo 475 Silver Qualcomm Snapdragon 765G 5G Mobile Platform octa core processor");  
 phoneDatabase.addPhoneInfo("One Plus","Nord 5G","https://m.media-amazon.com/images/I/71zlbKfhFsL.\_AC\_UY218\_.jpg",29999.00,"https://www.amazon.in/OnePlus-Nord-Gray-256GB-Storage/dp/B08697WT6D/ref=sr\_1\_2?dchild=1&keywords=oneplus&qid=1606200914&refinements=p\_89%3AOnePlus%2Cp\_n\_feature\_seven\_browse-bin%3A16757455031&rnid=8561129031&s=electronics&sr=1-2","4.1","12GB","256GB","4115mAH","2.4GHz Kryo 475 Prime + 2.2GHz Kryo 475 Gold + 6x1.8GHz Kryo 475 Silver Qualcomm Snapdragon 765G 5G mobile platform octa core processor");  
 phoneDatabase.addPhoneInfo("One Plus","8T 5G","https://m.media-amazon.com/images/I/71m05O2uNdL.\_AC\_UY218\_.jpg",45990.00,"https://www.amazon.in/OnePlus-Mirror-Black-128GB-Storage/dp/B085J19V4P/ref=sr\_1\_4?dchild=1&keywords=oneplus&qid=1606200914&refinements=p\_89%3AOnePlus%2Cp\_n\_feature\_seven\_browse-bin%3A16757455031&rnid=8561129031&s=electronics&sr=1-4","4.2","12GB","256GB","4500mAH","2.86 GHz Qualcomm Snapdragon 865 Octa-core Processor");  
 phoneDatabase.addPhoneInfo("One Plus","8","https://m.media-amazon.com/images/I/71vjeMN4V9L.\_AC\_UY218\_.jpg",41999.00,"https://www.amazon.in/OnePlus-Onyx-Black-128GB-Storage/dp/B071Z97T2C/ref=sr\_1\_7?dchild=1&keywords=oneplus&qid=1606200914&refinements=p\_89%3AOnePlus%2Cp\_n\_feature\_seven\_browse-bin%3A16757455031&rnid=8561129031&s=electronics&sr=1-7","4.3","8GB","128GB","4300mAH"," 2.86GHz of clock speed with Qualcomm Snapdragon 865 powered by Kryo 585 CPU octa core processor");  
 phoneDatabase.addPhoneInfo("One Plus","7T Pro","https://m.media-amazon.com/images/I/61FRLa8IFTL.\_AC\_UY218\_.jpg",43990.00,"https://www.amazon.in/Test-Exclusive-749/dp/B07DJ8K2KT/ref=sr\_1\_10?dchild=1&keywords=oneplus&qid=1606200914&refinements=p\_89%3AOnePlus%2Cp\_n\_feature\_seven\_browse-bin%3A16757455031&rnid=8561129031&s=electronics&sr=1-10","4.4","8GB","256GB","4085mAH",".96GHz Qualcomm Snapdragon 855 Plus AI Engine octa-core, 7nm processor");  
 phoneDatabase.addPhoneInfo("One Plus","8 Pro","https://m.media-amazon.com/images/I/61YSMhOd5EL.\_AC\_UY218\_.jpg",59999.00,"https://www.amazon.in/Test-Exclusive-545/dp/B077Q42GDF/ref=sr\_1\_10?dchild=1&keywords=oneplus&qid=1606714272&refinements=p\_n\_feature\_seven\_browse-bin%3A16757454031%7C16757455031&rnid=8561129031&s=electronics&sr=1-10","4.3","12GB","256GB","4150mAH","Qualcomm Snapdragon 865, powered by Kryo 585 CPU octa core processor");  
 phoneDatabase.addPhoneInfo("One Plus","7T","https://m.media-amazon.com/images/I/71ncRs6HzyL.\_AC\_UY218\_.jpg",37999.00,"https://www.amazon.in/Test-Exclusive-748/dp/B07DJLVJ5M/ref=sr\_1\_9?dchild=1&keywords=oneplus&qid=1606714272&refinements=p\_n\_feature\_seven\_browse-bin%3A16757454031%7C16757455031&rnid=8561129031&s=electronics&sr=1-9","4.5","8GB","256GB","3800mAH","2.96GHz Qualcomm Snapdragon 855 Plus AI Engine octa-core, 7nm processor");  
 phoneDatabase.addPhoneInfo("One Plus","5T","https://m.media-amazon.com/images/I/81qqBAKRhTL.\_AC\_UY218\_.jpg",37999.00,"https://www.amazon.in/Certified-REFURBISHED-OnePlus-5T-Midnight/dp/B078T6991W/ref=sr\_1\_19?dchild=1&keywords=oneplus&qid=1606714272&refinements=p\_n\_feature\_seven\_browse-bin%3A16757454031%7C16757455031&rnid=8561129031&s=electronics&sr=1-19#customerReviews","3.0","8GB","128GB","3300mAH","2.45GHz Qualcomm MSM8998 Snapdragon 835 dual core processor");  
 //One Plus  
 }  
 }

**Buying Page Class**

package com.example.project\_login;  
  
import androidx.annotation.NonNull;  
import androidx.appcompat.app.AppCompatActivity;  
import androidx.appcompat.widget.ShareActionProvider;  
import androidx.core.view.MenuItemCompat;  
  
  
import android.content.Intent;  
import android.net.Uri;  
import android.os.Bundle;  
import android.view.ContextMenu;  
import android.view.Menu;  
import android.view.MenuInflater;  
import android.view.MenuItem;  
import android.view.View;  
  
import android.widget.Button;  
import android.widget.ImageView;  
import android.widget.RatingBar;  
  
import android.widget.TextView;  
import android.widget.Toast;  
  
import com.squareup.picasso.Picasso;  
  
public class PhoneDetails extends AppCompatActivity {  
 TextView specs,name;  
 RatingBar ratingBar;  
 ImageView imageView;  
 Button button;  
 String buyLink;  
 ShareActionProvider shareActionProvider;  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_phone\_details*);  
 ratingBar = findViewById(R.id.*ratingBar*);  
 imageView = findViewById(R.id.*phoneDetailsImage*);  
 name = findViewById(R.id.*phoneDetailsName*);  
 registerForContextMenu(imageView);  
 specs = findViewById(R.id.*phoneDetailsPrice*);  
  
 button = findViewById(R.id.*buyBtn*);  
 if (getIntent() != null) {  
 buyLink=getIntent().getStringExtra("link");  
 specs.setText(getIntent().getStringExtra("specs"));  
 ratingBar.setRating(Float.*parseFloat*(getIntent().getStringExtra("rating")));  
 Picasso.*get*().load(getIntent().getStringExtra("img")).into(imageView);  
 name.setText(getIntent().getStringExtra("name"));  
 button.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View v) {  
  
 goToLink(buyLink);  
 }  
 });  
 }  
 }  
 //Context Menu Declaration and The Toast message  
 @Override  
 public void onCreateContextMenu(ContextMenu menu, View v, ContextMenu.ContextMenuInfo menuInfo)  
 {  
 super.onCreateContextMenu(menu, v, menuInfo);  
 MenuInflater inflater = getMenuInflater();  
 inflater.inflate(R.menu.*context\_menu*, menu);  
 menu.setHeaderTitle("Phone Image Actions");  
 }  
 //When The Context Menu is clicked the We Will The Do The Specific Action !  
 @Override  
 public boolean onContextItemSelected(MenuItem item){  
 if(item.getItemId()==R.id.*download*){  
 goToLink(getIntent().getStringExtra("img"));  
 }  
 else if(item.getItemId()==R.id.*flip*){  
 String gotToFlipkart=String.*format*("https://www.flipkart.com/search?q=%s",getIntent().getStringExtra("name").replace(" ","+"));  
 goToLink(gotToFlipkart);  
 }  
 else if(item.getItemId()==R.id.*gsm*){  
 String gotToGsm=String.*format*("https://www.gsmarena.com/res.php3?sSearch=%s",getIntent().getStringExtra("name").replace(" ","+"));  
 goToLink(gotToGsm);  
 }  
 else{  
 return false;  
 }  
 return true;  
 }  
 private void goToLink(String linkStr){  
 String url = linkStr;  
 Intent i = new Intent(Intent.*ACTION\_VIEW*);  
 i.setData(Uri.*parse*(url));  
 startActivity(i);  
 }  
 //Options Menu With the Sharing Feature Which can Share The Link of The Phone !  
 @Override  
 public boolean onCreateOptionsMenu(Menu menu) {  
 MenuInflater menuInflater=getMenuInflater();  
 menuInflater.inflate(R.menu.*menubar\_menu*,menu);  
 MenuItem shareItem = menu.findItem(R.id.*share*);  
 shareActionProvider=(ShareActionProvider) MenuItemCompat.*getActionProvider*(shareItem);  
 Intent intentShareLink = new Intent(Intent.*ACTION\_SEND*);  
 intentShareLink.setType("text/plain");  
 //Sending the Name of The Phone and Its Buy Link !  
 intentShareLink.putExtra(Intent.*EXTRA\_TEXT*,"Buy The Latest "+name.getText().toString()+" Using this Link :"+buyLink+" Exclusively From Phonespot and Get 35% Off");  
 shareActionProvider.setShareIntent(intentShareLink);  
 return true;  
 }  
  
 @Override  
 public boolean onOptionsItemSelected(@NonNull MenuItem item) {  
 switch (item.getItemId()){  
  
 case R.id.*profile*:  
 Toast.*makeText*(getApplicationContext(),"Profile",Toast.*LENGTH\_LONG*).show();  
 return true;  
 }  
 return super.onOptionsItemSelected(item);  
 }  
}

**Profile Class**

package com.example.project\_login;  
  
import androidx.appcompat.app.AppCompatActivity;  
  
import android.content.Intent;  
import android.os.Bundle;  
import android.view.View;  
import android.widget.Button;  
import android.widget.EditText;  
import android.widget.TextView;  
import android.widget.Toast;  
/\*  
\* This class is concerned with Showing the profile information of the logged in user  
\* The Username EditText is uneditable as it is the primary key  
\* The Email and Password is Editable and can be updated, using the Username.  
\* The current class has two ActionListeners for Update and Delete Button Respectively, which invokes the upDateUser function of the database and The  
\* delUser function of the DatabaseAssist class  
\* \*/  
public class Profile extends AppCompatActivity {  
 //The EditText of the Username, Email and Password  
 EditText username,email,password;  
 Button delBtn,upBtn;  
 String name,emailStr,pass;  
 DataBaseAssist dataBaseAssist;  
 String changed=null;  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 dataBaseAssist=new DataBaseAssist(Profile.this);  
 setContentView(R.layout.activity\_profile);  
 delBtn=findViewById(R.id.delBtn);  
 upBtn=findViewById(R.id.upBtn);  
 username=findViewById(R.id.usernameEdit);  
 email=findViewById(R.id.emailEdit);  
 password=findViewById(R.id.pass);  
  
 if(getIntent()!=null){  
 name=getIntent().getStringExtra("username");  
 emailStr=getIntent().getStringExtra("email");  
 pass=getIntent().getStringExtra("pass");  
 username.setText(name);  
 email.setText(emailStr);  
 password.setText(pass);  
 }  
 delBtn.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View v) {  
 if(dataBaseAssist.deleteUser(name)){  
 Toast.makeText(getApplicationContext(),"User Deleted ! Please Log In",Toast.LENGTH\_SHORT).show();  
 Intent intent=new Intent(Profile.this,LoginActivity.class);  
 changed="changed";  
 intent.putExtra("status",changed);  
 startActivity(intent);  
  
 }  
 else  
 {  
 Toast.makeText(getApplicationContext(),"Something Went Wrong !",Toast.LENGTH\_SHORT).show();  
 }  
 }  
 });  
 upBtn.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View v) {  
 if(dataBaseAssist.upDateUser(name,email.getText().toString(),password.getText().toString())){  
 Toast.makeText(getApplicationContext(),"User Credentials Updated !",Toast.LENGTH\_SHORT).show();  
 Intent intent=new Intent(Profile.this,LoginActivity.class);  
 changed="changed";  
 intent.putExtra("status",changed);  
 startActivity(intent);  
 }  
 else {  
 Toast.makeText(getApplicationContext(),"Updation Failed !",Toast.LENGTH\_SHORT).show();  
 }  
 }  
 });  
 }  
  
  
}

**Custom Adapter**

package com.example.project\_login;  
  
import android.content.Context;  
import android.content.Intent;  
import android.util.Log;  
import android.view.LayoutInflater;  
import android.view.View;  
import android.view.ViewGroup;  
import android.widget.ImageView;  
import android.widget.LinearLayout;  
import android.widget.TextView;  
  
import androidx.annotation.NonNull;  
import androidx.recyclerview.widget.RecyclerView;  
  
import com.squareup.picasso.Picasso;  
  
import java.util.ArrayList;  
  
public class CustomAdapter extends RecyclerView.Adapter<CustomAdapter.ViewHolder> {  
 Context context;  
 ArrayList<Phone>phones;  
 public CustomAdapter(Context context,ArrayList<Phone>phones){  
 this.context=context;  
 this.phones=phones;  
 }  
 @NonNull  
 @Override  
  
 public CustomAdapter.ViewHolder onCreateViewHolder(@NonNull ViewGroup parent, int viewType) {  
 LayoutInflater layoutInflater=LayoutInflater.from(context);  
 View view=layoutInflater.inflate(R.layout.row,null,false);  
  
 return new ViewHolder(view);  
 }  
  
 @Override  
 public void onBindViewHolder(@NonNull CustomAdapter.ViewHolder holder, final int position) {  
  
 holder.name.setText(phones.get(position).getMake()+" "+phones.get(position).getPhoneName());  
 holder.price.setText(phones.get(position).getPrice()+"");  
 Log.d("priceShow",phones.get(position).getPrice()+"");  
 Picasso.get().load(phones.get(position).getImageUrl()).into(holder.phoneImage);  
 holder.layout.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View v) {  
 int i=position;  
 Intent intent=new Intent(context,PhoneDetails.class);  
 intent.putExtra("name",phones.get(i).getMake()+" "+phones.get(i).getPhoneName());  
 intent.putExtra("rating",phones.get(i).getRating());  
 intent.putExtra("img",phones.get(i).getImageUrl());  
 intent.putExtra("specs","Price: "+phones.get(i).getPrice()+"\n\nROM: "+phones.get(i).getRom()+"\n\nRAM: "+phones.get(i).getRam()+"\n\nProcessor: "+phones.get(i).getProcessor()+"\n\nBattery: "+phones.get(i).getBattery());  
 intent.putExtra("link",phones.get(i).getBuy\_link());  
 context.startActivity(intent);  
 }  
 });  
 }  
  
 @Override  
 public int getItemCount() {  
 return phones.size();  
 }  
 public class ViewHolder extends RecyclerView.ViewHolder{  
 LinearLayout layout;  
 TextView name,price;  
 ImageView phoneImage;  
 public ViewHolder(@NonNull View itemView) {  
 super(itemView);  
 layout=itemView.findViewById(R.id.linear);  
 name=itemView.findViewById(R.id.nameRow);  
 price=itemView.findViewById(R.id.priceRow);  
 phoneImage=itemView.findViewById(R.id.imageView);  
 }  
  
 }  
}

**UserDatabase Class**

package com.example.project\_login;  
  
import android.content.ContentValues;  
import android.content.Context;  
import android.database.Cursor;  
import android.database.sqlite.SQLiteDatabase;  
import android.database.sqlite.SQLiteOpenHelper;  
import android.widget.Toast;  
  
import androidx.annotation.Nullable;  
  
public class DataBaseAssist extends SQLiteOpenHelper {  
 Context context;  
 private static final String DATABASE\_NAME="Info.db";  
 private static final int VERSION=1;  
 private static final String TABLE="Users";  
 private static final String USERNAME="username";  
 private static final String EMAIL="email";  
 private static final String PASSWORD="password";  
 public DataBaseAssist(@Nullable Context context) {  
 super(context, DATABASE\_NAME, null, VERSION);  
 this.context=context;  
 }  
  
 @Override  
 public void onCreate(SQLiteDatabase db) {  
 //Create a Table Users To Store The User Information !  
 String sql\_create\_table="CREATE TABLE "+TABLE+" ("+USERNAME+" TEXT PRIMARY KEY, "+EMAIL+" TEXT, "+PASSWORD+" TEXT);";  
 db.execSQL(sql\_create\_table);  
 }  
  
 @Override  
 public void onUpgrade(SQLiteDatabase db, int oldVersion, int newVersion) {  
 db.execSQL("DROP TABLE IF EXISTS "+TABLE);  
 onCreate(db);  
 }  
 //Below is The Function to Add Users to The Database !  
 Boolean addUser(String username,String email,String password){  
 SQLiteDatabase sqLiteDatabase=this.getWritableDatabase();  
 ContentValues contentValues=new ContentValues();  
 contentValues.put(USERNAME,username);  
 contentValues.put(EMAIL,email);  
 contentValues.put(PASSWORD,password);  
 //Actually Inserting into the Database  
 long result= sqLiteDatabase.insert(TABLE,null,contentValues);  
 if(result!=-1){  
 //Return True If the User is Added and False if he is not Added !  
 return true;  
 }  
 return false;  
  
 }  
 //Used to Check Whether Alredy Exists !  
 Cursor checkCurrentUser(String username){  
 String sql="SELECT \* FROM "+TABLE+" where username ='"+username+"'";  
 SQLiteDatabase sqLiteDatabase=this.getReadableDatabase();  
 Cursor cursor=null;  
 if(sqLiteDatabase!=null){  
 cursor=sqLiteDatabase.rawQuery(sql,null);  
 }  
 return cursor;  
 }  
 //Authenticate The User,if exists in the Database !  
 Cursor authUser(String username,String password){  
 String sql="SELECT \* FROM "+TABLE+" where username ='"+username+"' and password = '"+password+"'";  
 SQLiteDatabase sqLiteDatabase=this.getReadableDatabase();  
 Cursor cursor=null;  
 if(sqLiteDatabase!=null){  
 cursor=sqLiteDatabase.rawQuery(sql,null);  
 }  
 return cursor;  
 }  
 //get All User Info  
 String []info(String username){  
 String sql="SELECT \* FROM "+TABLE+" where username ='"+username+"'";  
 String []arr=new String[3];  
 SQLiteDatabase sqLiteDatabase=this.getReadableDatabase();  
 Cursor cursor=null;  
 if(sqLiteDatabase!=null){  
 cursor=sqLiteDatabase.rawQuery(sql,null);  
 if(cursor.moveToNext()){  
 arr[0]=cursor.getString(0);  
 arr[1]=cursor.getString(1);  
 arr[2]=cursor.getString(2);  
 }  
 }  
 return arr;  
 }  
 public Boolean deleteUser(String username){  
  
 SQLiteDatabase sqLiteDatabase=this.getWritableDatabase();  
 long result=sqLiteDatabase.delete(TABLE,"username=?",new String[]{username});  
 if(result!=-1){  
 return true;  
 }  
 return false;  
 }  
 public Boolean upDateUser(String username,String email,String pass){  
 SQLiteDatabase sqLiteDatabase=this.getWritableDatabase();  
 ContentValues contentValues=new ContentValues();  
 contentValues.put(EMAIL,email);  
 contentValues.put(PASSWORD,pass);  
 long result=sqLiteDatabase.update(TABLE,contentValues,"username=?",new String[]{username});  
 if(result!=-1){  
 return true;  
 }  
 return false;  
 }  
}

**PhoneDatabase Class**

package com.example.project\_login;  
  
import android.content.ContentValues;  
import android.content.Context;  
import android.database.Cursor;  
import android.database.sqlite.SQLiteDatabase;  
import android.database.sqlite.SQLiteOpenHelper;  
import android.util.Log;  
import android.widget.Toast;  
  
import androidx.annotation.Nullable;  
  
import java.util.zip.CheckedOutputStream;  
/\*  
\*Below is the class for the Database for phones.  
\* Database Name:phones  
\* Table Name for the phones :phones\_info  
\* Columns are the Make(eg:Samsung),Model(eg:Galaxy S20 Ultra),price,url for buying, image url for the picasso(Picassso library is used to cache the image and download),Rating,ROM,RAM,Battery Info and The Processor  
\* The onUpgrade method is called when the version of the database is changed from 1.  
\* addPhoneInfo method is used to add the Phones To The DATABASE ONCE !!  
\* selectAllPhones(double price) will retrieve all the phones from the database whose price is less than that given by the progress bar  
\* selectAllPhones() retrieves all the phones from the Database  
\* selectAllPhonesByNamePrice(String make,double price) retrives all the phones from the database whose name and price are specified  
\* NOTE:THE PHONES FETCHED FROM THE DATABASE ARE ADDED TO THE ARRAYLIST, FROM WHERE IT IS PASSED ON TO THE RECYCLER VIEW.  
\*/  
public class PhoneDatabase extends SQLiteOpenHelper {  
 private Context context;  
 private static final String DATABASE\_NAME="phones.db";  
 private static final int version=1;  
 private static final String TABLE="phone\_info";  
 private static final String PHONE\_MAKE="make";  
 private static final String PHONE\_NAME="name";  
 private static final String PHONE\_PRICE="price";  
 private static final String BUY\_URL="buy";  
 private static final String PHONE\_IMAGE="image";  
 private static final String RATING="rating";  
 private static final String RAM="ram";  
 private static final String ROM="rom";  
 private static final String BATTERY="battery";  
 private static final String PROCESSOR="processor";  
 public PhoneDatabase(@Nullable Context context) {  
 super(context, DATABASE\_NAME, null, version);  
 this.context=context;  
 }  
  
 @Override  
 public void onCreate(SQLiteDatabase db) {  
 String sql="CREATE TABLE "+TABLE+" ("+  
 PHONE\_MAKE+" TEXT, "+  
 PHONE\_NAME+" TEXT, "+  
 PHONE\_IMAGE+" TEXT, "+  
 PHONE\_PRICE+" DOUBLE, "+  
 BUY\_URL+" TEXT, "+  
 RATING+" TEXT, "+  
 RAM+" TEXT, "+  
 ROM+" TEXT, "+  
 BATTERY+" TEXT, "+  
 PROCESSOR+" TEXT);";  
 db.execSQL(sql);  
 }  
  
 @Override  
 public void onUpgrade(SQLiteDatabase db, int oldVersion, int newVersion) {  
 db.execSQL("DROP TABLE IF EXISTS "+TABLE);  
 onCreate(db);  
 }  
 //Ading Phones to the Database  
 public void addPhoneInfo(String make,String name,String image,Double price,String buy\_url\_link,String rating,String ram,String rom,String battery,String processor){  
 SQLiteDatabase sqLiteDatabase=this.getWritableDatabase();  
 ContentValues contentValues=new ContentValues();  
 contentValues.put(PHONE\_MAKE,make);  
 contentValues.put(PHONE\_NAME,name);  
 contentValues.put(PHONE\_IMAGE,image);  
 contentValues.put(PHONE\_PRICE,price);  
 contentValues.put(BUY\_URL,buy\_url\_link);  
 contentValues.put(RATING,rating);  
 contentValues.put(RAM,ram);  
 contentValues.put(ROM,rom);  
 contentValues.put(BATTERY,battery);  
 contentValues.put(PROCESSOR,processor);  
 long result=sqLiteDatabase.insert(TABLE,null,contentValues);  
 if(result!=-1){  
 Log.d("Success DB","Adding Phones To Db Success !");  
 }  
 else {  
 Log.d("Failed DB","Adding Phones To Db Failed !");  
 }  
 }  
 //All Phones with given price segments are selected !  
 Cursor selectAllPhones(double price){  
 String sql="SELECT \* FROM "+TABLE+" WHERE "+PHONE\_PRICE+" <"+price+" ORDER BY "+PHONE\_PRICE+" ASC";  
 SQLiteDatabase sqLiteDatabase=this.getReadableDatabase();  
 Cursor cursor=null;  
 if(sqLiteDatabase!=null){  
 cursor=sqLiteDatabase.rawQuery(sql,null);  
 }  
 return cursor;  
 }  
 Cursor selectAllPhones(double price,String rom){  
 String sql="SELECT \* FROM "+TABLE+" WHERE "+ROM+"='"+rom+"' AND "+PHONE\_PRICE+" <"+price+" ORDER BY "+PHONE\_PRICE+" ASC";  
 SQLiteDatabase sqLiteDatabase=this.getReadableDatabase();  
 Cursor cursor=null;  
 if(sqLiteDatabase!=null){  
 cursor=sqLiteDatabase.rawQuery(sql,null);  
 }  
 return cursor;  
 }  
 //All Phones of all price segments are selected  
 Cursor selectAllPhones(){  
 String sql="SELECT \* FROM "+TABLE;  
 SQLiteDatabase sqLiteDatabase=this.getReadableDatabase();  
 Cursor cursor=null;  
 if(sqLiteDatabase!=null){  
 cursor=sqLiteDatabase.rawQuery(sql,null);  
 }  
 return cursor;  
 }  
 //This method selects all the phones from the database whose name and price are specified  
 Cursor selectAllPhonesByNamePrice(String make,double price){  
 //The Sql query for phone retrieval  
 String sql="SELECT \* FROM "+TABLE+" WHERE "+PHONE\_MAKE+" ='"+make+"' AND "+PHONE\_PRICE+" <"+price+";";  
 SQLiteDatabase sqLiteDatabase=this.getReadableDatabase();  
 Cursor cursor=null;  
  
 if(sqLiteDatabase!=null){  
 cursor=sqLiteDatabase.rawQuery(sql,null);  
 }  
 //In the checking function, the cursor is checked whether it has a next row !  
 return cursor;  
 }  
 //Selecting The Phones Based on The Price and Rom Informations(Show All)  
 Cursor selectAllPhonesByNamePriceAndROM(String make,double price,String rom){  
 //The Sql query for phone retrieval  
 String sql="SELECT \* FROM "+TABLE+" WHERE "+PHONE\_MAKE+" ='"+make+"' AND "+ROM+"='"+rom+"' AND "+PHONE\_PRICE+" <"+price+";";  
 SQLiteDatabase sqLiteDatabase=this.getReadableDatabase();  
 Cursor cursor=null;  
  
 if(sqLiteDatabase!=null){  
 cursor=sqLiteDatabase.rawQuery(sql,null);  
 }  
 //In the checking function, the cursor is checked whether it has a next row !  
 return cursor;  
 }  
 //Select Statement For Single RAM Selection  
 Cursor selectAllPhonesByNamePriceAndRAM(String make,double price,String ram){  
 //The Sql query for phone retrieval  
 String sql="SELECT \* FROM "+TABLE+" WHERE "+PHONE\_MAKE+" ='"+make+"' AND "+RAM+"='"+ram+"' AND "+PHONE\_PRICE+" <"+price+";";  
 SQLiteDatabase sqLiteDatabase=this.getReadableDatabase();  
 Cursor cursor=null;  
  
 if(sqLiteDatabase!=null){  
 cursor=sqLiteDatabase.rawQuery(sql,null);  
 }  
 //In the checking function, the cursor is checked whether it has a next row !  
 return cursor;  
 }  
 //Select Phones By Price,RAM and ROM  
 Cursor selectAllPhonesByNamePriceROMAndRAM(String make,double price,String rom,String ram){  
 //The Sql query for phone retrieval  
 String sql="SELECT \* FROM "+TABLE+" WHERE "+PHONE\_MAKE+" ='"+make+"' AND "+ROM+" ='"+rom+"' AND "+RAM+"='"+ram+"' AND "+PHONE\_PRICE+" <"+price+";";  
 SQLiteDatabase sqLiteDatabase=this.getReadableDatabase();  
 Cursor cursor=null;  
  
 if(sqLiteDatabase!=null){  
 cursor=sqLiteDatabase.rawQuery(sql,null);  
 }  
 //In the checking function, the cursor is checked whether it has a next row !  
 return cursor;  
 }  
 //Select Only for Show All  
 Cursor selectAllPhonesByPriceAndRAM(double price,String ram){  
 //The Sql query for phone retrieval  
 String sql="SELECT \* FROM "+TABLE+" WHERE "+RAM+"='"+ram+"' AND "+PHONE\_PRICE+" <"+price+";";  
 SQLiteDatabase sqLiteDatabase=this.getReadableDatabase();  
 Cursor cursor=null;  
  
 if(sqLiteDatabase!=null){  
 cursor=sqLiteDatabase.rawQuery(sql,null);  
 }  
 //In the checking function, the cursor is checked whether it has a next row !  
 return cursor;  
 }  
  
 public Cursor selectAllPhonesPriceRamRom(double price, String rom, String ram) {  
 //The Sql query for phone retrieval  
 String sql="SELECT \* FROM "+TABLE+" WHERE "+ROM+" = '"+rom+"' AND "+RAM+" ='"+ram+"' AND "+PHONE\_PRICE+" <"+price+";";  
 SQLiteDatabase sqLiteDatabase=this.getReadableDatabase();  
 Cursor cursor=null;  
  
 if(sqLiteDatabase!=null){  
 cursor=sqLiteDatabase.rawQuery(sql,null);  
 }  
 //In the checking function, the cursor is checked whether it has a next row !  
 return cursor;  
 }  
}

**Internet Connectivity Checking Class**

package com.example.project\_login;  
  
import android.content.Context;  
import android.net.ConnectivityManager;  
import android.net.NetworkInfo;  
/\*  
\*The InternetConnectivity Class is used by both the Login and Sign Up Activity(Mainly for the Purpose of Checking if there is an active Mobile Network or Wifi Connectivity)  
\* //If Either One of WIFI or Mobile is Available then the checkConn fucntion will return true ,but if there is no network ,then we are given a Alert Box Form Which we can  
\* Either cancel the alert box of Go to The Network Settings  
\* \*/  
public class InternetConnectivityCheck {  
 Context context;  
 ConnectivityManager connectivityManager;  
 public InternetConnectivityCheck(Context context){  
 this.context=context;  
 connectivityManager=(ConnectivityManager) context.getSystemService(Context.*CONNECTIVITY\_SERVICE*);  
 }  
 public Boolean checkConn(){  
 NetworkInfo networkInfo=connectivityManager.getActiveNetworkInfo();  
 if(networkInfo!=null){  
 if(networkInfo.getType()==ConnectivityManager.*TYPE\_WIFI*||networkInfo.getType()==ConnectivityManager.*TYPE\_MOBILE*){  
 return true;  
 }  
 }  
 return false;  
 }  
}

**XML**

**SignUp**

<?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=".SignUp">  
  
 <TextView  
 android:id="@+id/textView4"  
 android:layout\_width="200dp"  
 android:layout\_height="76dp"  
 android:text="Sign Up"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.497"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 app:layout\_constraintVertical\_bias="0.076"  
 tools:textSize="50sp" />  
  
 <TextView  
 android:id="@+id/text\_view\_date"  
 android:layout\_width="330dp"  
 android:layout\_height="41dp"  
 android:text="Date"  
 android:textSize="30sp"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.786"  
 app:layout\_constraintLeft\_toLeftOf="parent"  
 app:layout\_constraintRight\_toRightOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 app:layout\_constraintVertical\_bias="0.194" />  
  
 <EditText  
 android:id="@+id/password"  
 android:layout\_width="246dp"  
 android:layout\_height="46dp"  
 android:ems="10"  
 android:hint="Enter Password"  
 android:inputType="textPassword"  
  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.787"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 app:layout\_constraintVertical\_bias="0.567" />  
  
 <Button  
 android:id="@+id/SignBtn"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Sign Up"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.496"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 app:layout\_constraintVertical\_bias="0.745" />  
  
 <TextView  
 android:id="@+id/textView2"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Username :"  
  
 android:textSize="20sp"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.035"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 app:layout\_constraintVertical\_bias="0.446" />  
  
 <TextView  
 android:id="@+id/logIntent"  
 android:layout\_width="74dp"  
 android:layout\_height="29dp"  
 android:text="Login"  
 android:textColor="#673AB7"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.786"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 app:layout\_constraintVertical\_bias="0.84" />  
  
 <TextView  
 android:id="@+id/textView6"  
 android:layout\_width="148dp"  
 android:layout\_height="29dp"  
 android:text="Already have account?"  
  
 android:textColor="#000000"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.391"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 app:layout\_constraintVertical\_bias="0.84" />  
  
 <EditText  
 android:id="@+id/email"  
 android:layout\_width="243dp"  
 android:layout\_height="43dp"  
 android:ems="10"  
 android:inputType="textPersonName"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.791"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 app:layout\_constraintVertical\_bias="0.332" />  
  
 <TextView  
 android:id="@+id/textView3"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Password :"  
  
 android:textSize="20sp"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.035"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 app:layout\_constraintVertical\_bias="0.569" />  
  
 <EditText  
 android:id="@+id/username"  
 android:layout\_width="246dp"  
 android:layout\_height="47dp"  
 android:ems="10"  
 android:inputType="textPersonName"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.787"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 app:layout\_constraintVertical\_bias="0.447" />  
  
 <TextView  
 android:id="@+id/textView"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Email :"  
  
 android:textSize="20sp"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.042"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 app:layout\_constraintVertical\_bias="0.323" />  
  
</androidx.constraintlayout.widget.ConstraintLayout>

**Login**

<?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=".LoginActivity">  
  
  
 <TextView  
 android:id="@+id/textView5"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Login"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.498"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 app:layout\_constraintVertical\_bias="0.047"  
 tools:textSize="36sp" />  
  
  
 <TextView  
 android:id="@+id/textviewx"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Username :"  
  
 android:textSize="20sp"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.032"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 app:layout\_constraintVertical\_bias="0.237" />  
  
 <EditText  
 android:id="@+id/userLog"  
 android:layout\_width="246dp"  
 android:layout\_height="47dp"  
 android:ems="10"  
 android:inputType="textPersonName"  
 android:text="Enter Username"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.793"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 app:layout\_constraintVertical\_bias="0.225" />  
  
 <TextView  
 android:id="@+id/textView3"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Password :"  
  
 android:textSize="20sp"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.032"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 app:layout\_constraintVertical\_bias="0.352" />  
  
 <EditText  
 android:id="@+id/passLog"  
 android:layout\_width="246dp"  
 android:layout\_height="46dp"  
 android:ems="10"  
 android:hint="Enter Password"  
 android:inputType="textPassword"  
  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.793"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 app:layout\_constraintVertical\_bias="0.347" />  
  
 <Button  
 android:id="@+id/Logbtn"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Login"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.498"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 app:layout\_constraintVertical\_bias="0.711" />  
  
 <TextView  
 android:id="@+id/textView8"  
 android:layout\_width="148dp"  
 android:layout\_height="29dp"  
 android:text="Don't have an account?"  
  
 android:textColor="@android:color/black"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.247"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 app:layout\_constraintVertical\_bias="0.807" />  
  
 <TextView  
 android:id="@+id/signPrompt"  
 android:layout\_width="74dp"  
 android:layout\_height="29dp"  
 android:text="SignUp"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.706"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 app:layout\_constraintVertical\_bias="0.807" />  
  
 <CheckBox  
 android:id="@+id/rememberme"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Remember me"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.498"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 app:layout\_constraintVertical\_bias="0.499" />  
  
</androidx.constraintlayout.widget.ConstraintLayout>

**Select Phone**

<?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"  
  
 android:orientation="horizontal"  
 tools:context=".SelectPhone">  
  
  
  
  
 <Spinner  
 android:id="@+id/phoneSpinner"  
 android:layout\_width="392dp"  
 android:layout\_height="26dp"  
 android:layout\_marginStart="8dp"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 app:layout\_constraintVertical\_bias="0.164" />  
  
 <TextView  
 android:id="@+id/textView10"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Select the Phone Brand"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.105"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 app:layout\_constraintVertical\_bias="0.106" />  
  
 <TextView  
 android:id="@+id/textView11"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Select the Price Range"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.103"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 app:layout\_constraintVertical\_bias="0.244" />  
  
 <TextView  
 android:id="@+id/textView12"  
 android:layout\_width="73dp"  
 android:layout\_height="23dp"  
 android:text="Optional"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.047"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 app:layout\_constraintVertical\_bias="0.435" />  
  
 <TextView  
 android:id="@+id/textView13"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Select the Ram Size"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.059"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 app:layout\_constraintVertical\_bias="0.512" />  
  
 <TextView  
 android:id="@+id/textView14"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Select Internal Storage"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.059"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 app:layout\_constraintVertical\_bias="0.686" />  
  
 <RadioGroup  
 android:id="@+id/radioGroup"  
 android:layout\_width="377dp"  
 android:layout\_height="34dp"  
 android:orientation="horizontal"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.47"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 app:layout\_constraintVertical\_bias="0.763">  
  
 <RadioButton  
 android:id="@+id/radioButton"  
 android:layout\_width="82dp"  
 android:layout\_height="wrap\_content"  
  
 android:text="32GB"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.0"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 app:layout\_constraintVertical\_bias="0.0" />  
  
 <RadioButton  
 android:id="@+id/radioButton2"  
 android:layout\_width="85dp"  
 android:layout\_height="wrap\_content"  
 android:text="64GB"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.318"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 app:layout\_constraintVertical\_bias="0.0" />  
  
 <RadioButton  
 android:id="@+id/radioButton3"  
 android:layout\_width="103dp"  
 android:layout\_height="wrap\_content"  
 android:text="128GB"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.663"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 app:layout\_constraintVertical\_bias="0.0" />  
  
 <RadioButton  
 android:id="@+id/radioButton4"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="256GB"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="1.0"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 app:layout\_constraintVertical\_bias="0.0" />  
  
 </RadioGroup>  
  
 <Button  
 android:id="@+id/searchbutton"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="search"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.525"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 app:layout\_constraintVertical\_bias="0.884" />  
  
 <SeekBar  
 android:id="@+id/priceBar"  
 android:layout\_width="350dp"  
 android:layout\_height="36dp"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.459"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 app:layout\_constraintVertical\_bias="0.306" />  
  
 <TextView  
 android:id="@+id/price"  
 android:layout\_width="175dp"  
 android:layout\_height="31dp"  
 android:text="TextView"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.118"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 app:layout\_constraintVertical\_bias="0.375" />  
  
 <RadioGroup  
 android:id="@+id/radioGroupRAm"  
 android:layout\_width="378dp"  
 android:layout\_height="43dp"  
 android:orientation="horizontal"  
 app:layout\_constraintBottom\_toTopOf="@+id/textView14"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toBottomOf="@+id/textView13">  
  
 <RadioButton  
 android:id="@+id/threeGb"  
 android:layout\_width="68dp"  
 android:layout\_height="match\_parent"  
 android:text="3GB" />  
  
 <RadioButton  
 android:id="@+id/fourGb"  
 android:layout\_width="68dp"  
 android:layout\_height="match\_parent"  
 android:text="4GB" />  
  
 <RadioButton  
 android:id="@+id/sixGB"  
 android:layout\_width="68dp"  
 android:layout\_height="match\_parent"  
  
 android:text="6GB" />  
 <RadioButton  
 android:id="@+id/eightGb"  
 android:layout\_width="68dp"  
 android:layout\_height="match\_parent"  
 android:text="8GB" />  
  
 <RadioButton  
 android:id="@+id/twelGB"  
 android:layout\_width="92dp"  
 android:layout\_height="match\_parent"  
  
 android:text="12GB" />  
 </RadioGroup>  
  
  
  
</androidx.constraintlayout.widget.ConstraintLayout>

**Search Result**

<?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=".ListView">  
  
  
 <androidx.recyclerview.widget.RecyclerView  
 android:id="@+id/recycle"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent" />  
  
 <ProgressBar  
 android:id="@+id/progressBar"  
 style="?android:attr/progressBarStyle"  
 android:layout\_width="39dp"  
 android:layout\_height="36dp"  
 android:visibility="gone"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="@+id/recycle" />  
</androidx.constraintlayout.widget.ConstraintLayout>

**Buying Page**

<?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=".PhoneDetails">  
  
 <ImageView  
 android:id="@+id/phoneDetailsImage"  
 android:layout\_width="141dp"  
 android:layout\_height="212dp"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.062"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 app:layout\_constraintVertical\_bias="0.055"  
 tools:srcCompat="@tools:sample/avatars" />  
  
 <TextView  
 android:id="@+id/phoneDetailsPrice"  
 android:layout\_width="361dp"  
 android:layout\_height="186dp"  
 android:text="TextView"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.533"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 app:layout\_constraintVertical\_bias="0.526" />  
  
 <TextView  
 android:id="@+id/phoneDetailsName"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="102dp"  
 android:text="TextView"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.925"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 app:layout\_constraintVertical\_bias="0.058" />  
  
 <RatingBar  
 android:id="@+id/ratingBar"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="51dp"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.965"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 app:layout\_constraintVertical\_bias="0.238" />  
  
 <Button  
 android:id="@+id/buyBtn"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="buy"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.498"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 app:layout\_constraintVertical\_bias="0.793" />  
</androidx.constraintlayout.widget.ConstraintLayout>

**Row**

<?xml version="1.0" encoding="utf-8"?>  
<LinearLayout 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:id="@+id/linear"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:orientation="vertical">  
  
 <androidx.constraintlayout.widget.ConstraintLayout  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content">  
  
 <androidx.cardview.widget.CardView  
 android:layout\_width="378dp"  
 android:layout\_height="105dp"  
 android:layout\_marginStart="16dp"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 app:layout\_constraintVertical\_bias="0.025">  
  
 <androidx.constraintlayout.widget.ConstraintLayout  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent">  
  
 <ImageView  
 android:id="@+id/imageView"  
 android:layout\_width="85dp"  
 android:layout\_height="85dp"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.056"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 app:layout\_constraintVertical\_bias="0.407"  
 tools:srcCompat="@tools:sample/avatars" />  
  
 <TextView  
 android:id="@+id/nameRow"  
 android:layout\_width="244dp"  
 android:layout\_height="32dp"  
 android:text="Phone Name"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.88"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 app:layout\_constraintVertical\_bias="0.219" />  
  
 <TextView  
 android:id="@+id/priceRow"  
 android:layout\_width="244dp"  
 android:layout\_height="32dp"  
 android:text="Price"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.88"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 app:layout\_constraintVertical\_bias="0.78" />  
 </androidx.constraintlayout.widget.ConstraintLayout>  
 </androidx.cardview.widget.CardView>  
 </androidx.constraintlayout.widget.ConstraintLayout>  
  
</LinearLayout>

**Profile**

<?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=".Profile">  
  
 <TextView  
 android:id="@+id/textView7"  
 android:layout\_width="272dp"  
 android:layout\_height="61dp"  
 android:text="User Profile Information"  
 android:textSize="25sp"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.352"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toTopOf="parent"  
 app:layout\_constraintVertical\_bias="0.052" />  
  
 <TextView  
 android:id="@+id/textView9"  
 android:layout\_width="99dp"  
 android:layout\_height="20dp"  
 android:text="Username"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.051"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toBottomOf="@+id/textView7"  
 app:layout\_constraintVertical\_bias="0.068" />  
  
 <TextView  
 android:id="@+id/textView15"  
 android:layout\_width="99dp"  
 android:layout\_height="23dp"  
 android:text="Email:"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.051"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toBottomOf="@+id/textView9"  
 app:layout\_constraintVertical\_bias="0.12" />  
  
 <Button  
 android:id="@+id/delBtn"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Delete Profile"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.121"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toBottomOf="@+id/textView15"  
 app:layout\_constraintVertical\_bias="0.662" />  
  
 <TextView  
 android:id="@+id/textView16"  
 android:layout\_width="104dp"  
 android:layout\_height="33dp"  
 android:text="Password"  
 app:layout\_constraintBottom\_toTopOf="@+id/delBtn"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.052"  
 app:layout\_constraintStart\_toStartOf="parent"  
 app:layout\_constraintTop\_toBottomOf="@+id/textView15"  
 app:layout\_constraintVertical\_bias="0.218" />  
  
 <EditText  
 android:id="@+id/usernameEdit"  
 android:editable="false"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:ems="10"  
 android:inputType="textPersonName"  
 android:text="Name"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.698"  
 app:layout\_constraintStart\_toEndOf="@+id/textView9"  
 app:layout\_constraintTop\_toBottomOf="@+id/textView7"  
 app:layout\_constraintVertical\_bias="0.055" />  
  
 <EditText  
 android:id="@+id/emailEdit"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginStart="38dp"  
 android:ems="10"  
 android:inputType="textPersonName"  
 android:text="Name"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.25"  
 app:layout\_constraintStart\_toEndOf="@+id/textView15"  
 app:layout\_constraintTop\_toBottomOf="@+id/usernameEdit"  
 app:layout\_constraintVertical\_bias="0.099" />  
  
 <com.google.android.material.textfield.TextInputLayout  
 android:id="@+id/textInputLayout"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.513"  
 app:layout\_constraintStart\_toEndOf="@+id/textView16"  
 app:layout\_constraintTop\_toBottomOf="@+id/emailEdit"  
 app:passwordToggleEnabled="true"  
 app:layout\_constraintVertical\_bias="0.118">  
  
 <com.google.android.material.textfield.TextInputEditText  
 android:id="@+id/pass"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
  
 tools:layout\_editor\_absoluteX="185dp"  
 tools:layout\_editor\_absoluteY="308dp" />  
  
 </com.google.android.material.textfield.TextInputLayout>  
  
 <Button  
 android:id="@+id/upBtn"  
 android:layout\_width="137dp"  
 android:layout\_height="49dp"  
 android:layout\_marginStart="77dp"  
 android:text="Update"  
 app:layout\_constraintBottom\_toBottomOf="parent"  
 app:layout\_constraintEnd\_toEndOf="parent"  
 app:layout\_constraintHorizontal\_bias="0.218"  
 app:layout\_constraintStart\_toEndOf="@+id/delBtn"  
 app:layout\_constraintTop\_toBottomOf="@+id/textInputLayout"  
 app:layout\_constraintVertical\_bias="0.522" />  
  
  
</androidx.constraintlayout.widget.ConstraintLayout>

**Context menu**

<?xml version="1.0" encoding="utf-8"?>  
<menu xmlns:android="http://schemas.android.com/apk/res/android">  
 <item android:id="@+id/download"  
 android:title="Download Image" />  
 <item android:id="@+id/flip"  
 android:title="Search On Flipkart" />  
 <item android:id="@+id/gsm"  
 android:title="Search On GSM Arena" />  
</menu>

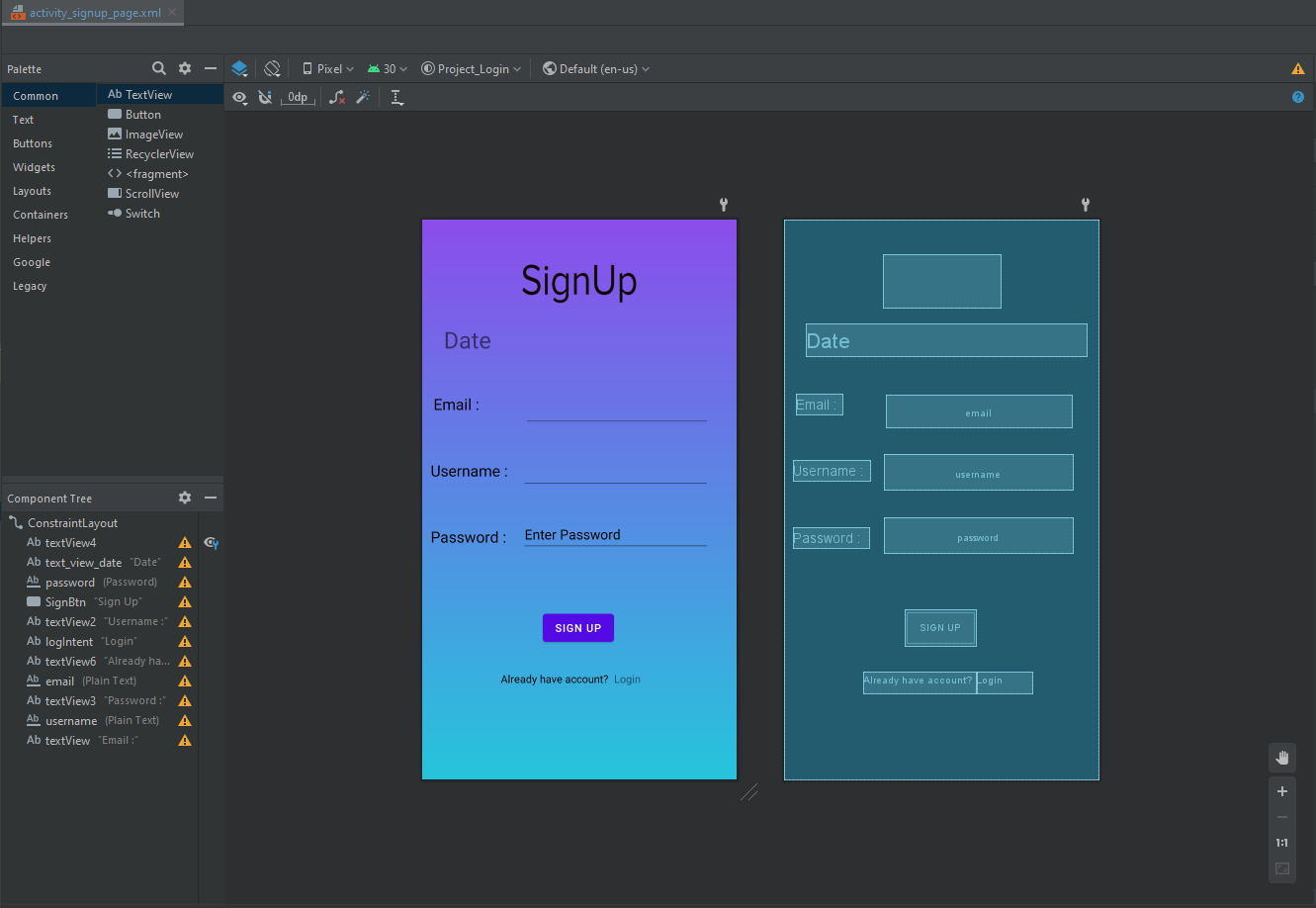
**Share Menu**

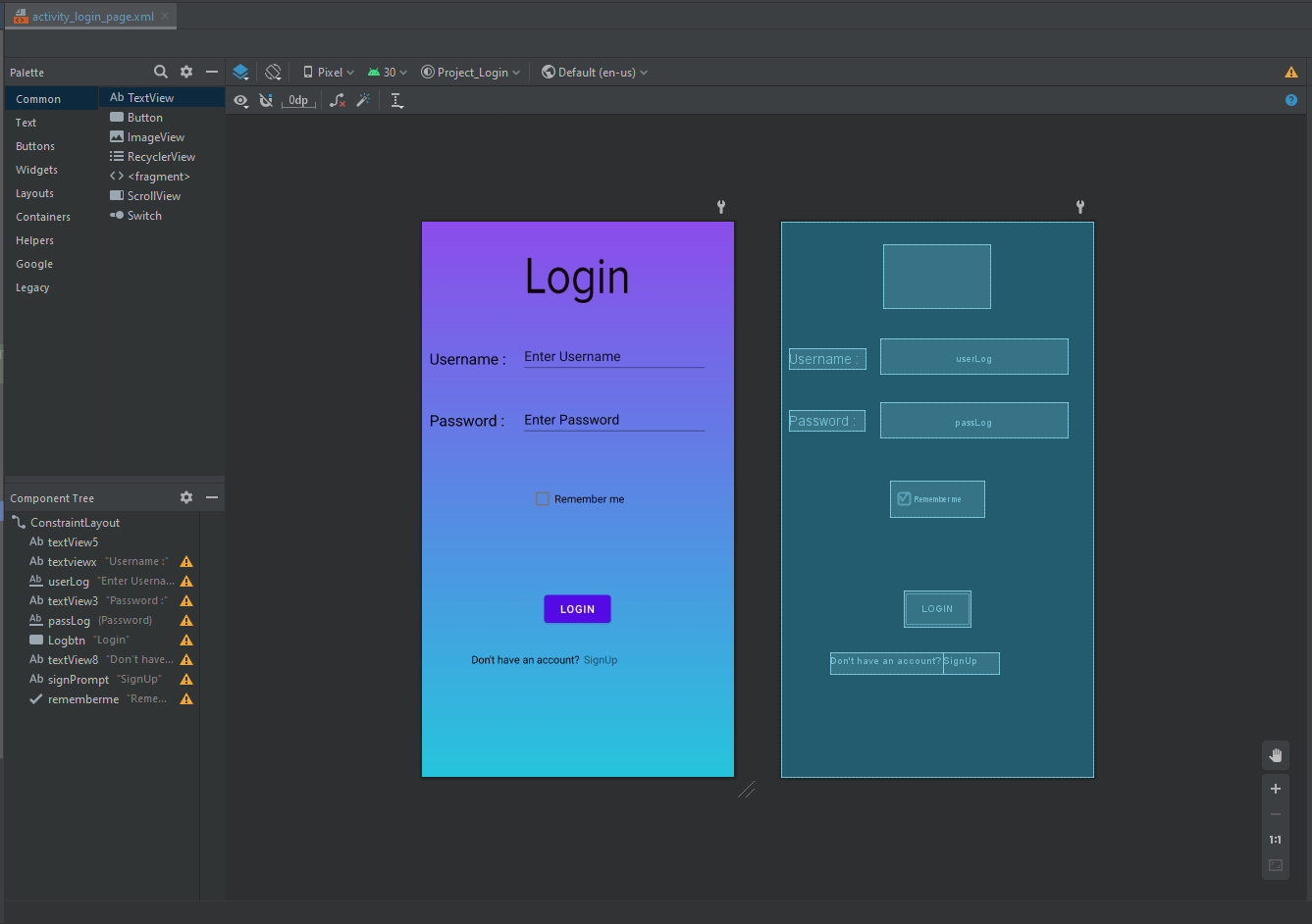
<?xml version="1.0" encoding="utf-8"?>  
<menu xmlns:android="http://schemas.android.com/apk/res/android"  
 xmlns:app="http://schemas.android.com/apk/res-auto">  
 <item android:id="@+id/share"  
 android:title="Share"  
  
 app:actionProviderClass="androidx.appcompat.widget.ShareActionProvider"  
 app:showAsAction="never"/>  
   
  
</menu>

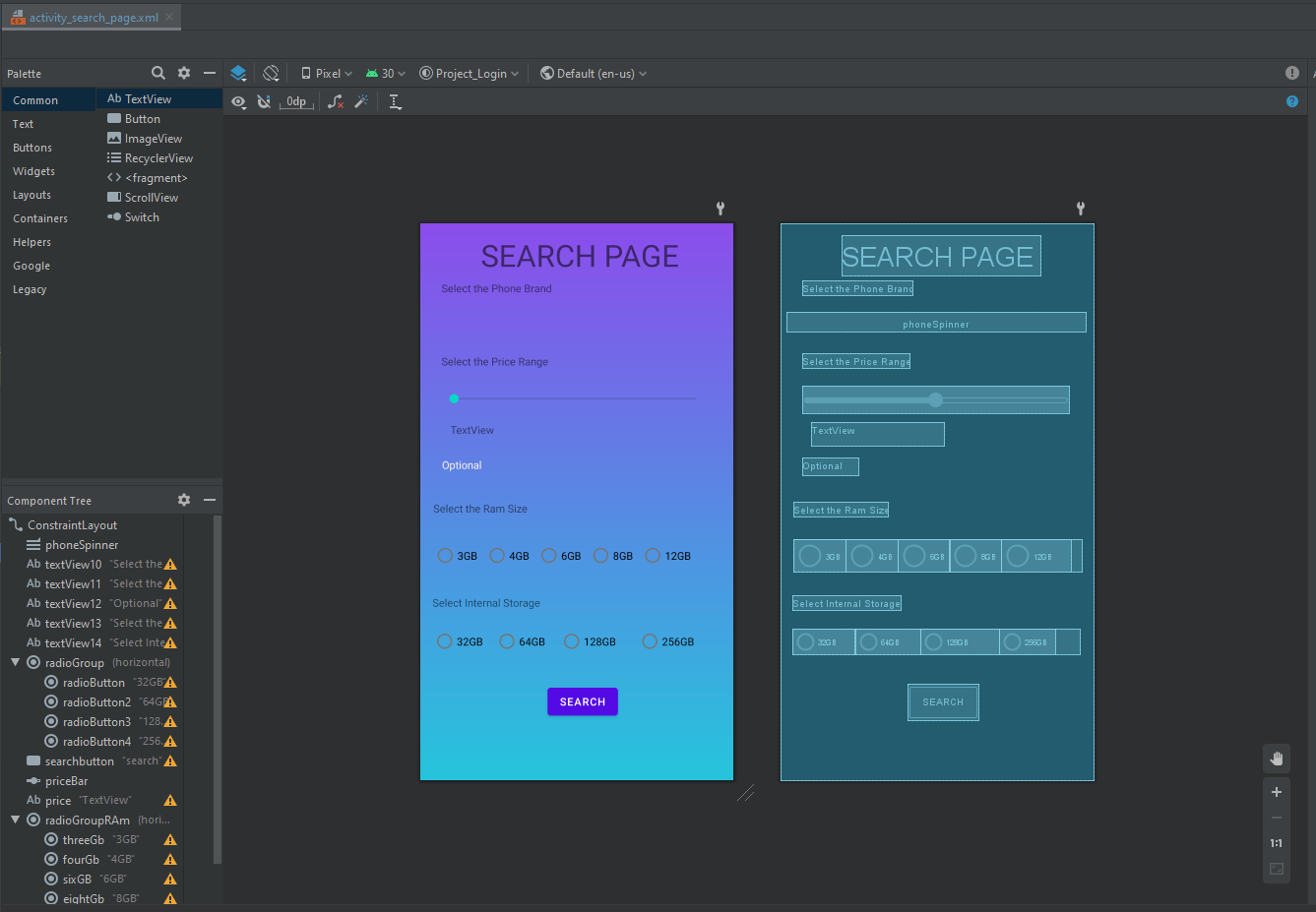
**Select Phone Options Menu**

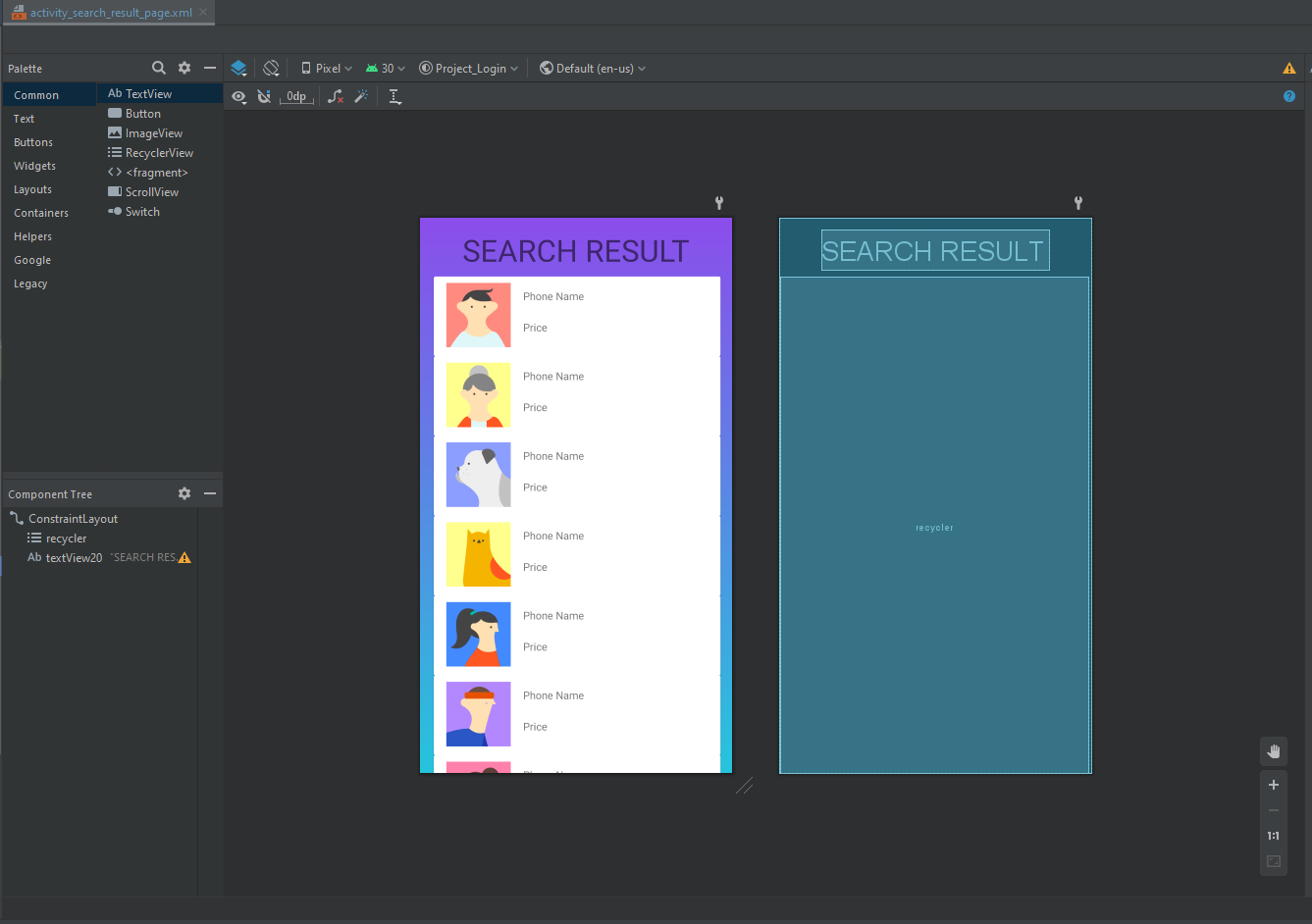
<?xml version="1.0" encoding="utf-8"?>  
<menu xmlns:android="http://schemas.android.com/apk/res/android">  
 <item android:title="Profile"  
 android:id="@+id/profile"/>  
 <item android:title="Logout"  
 android:id="@+id/logout"/>  
</menu>

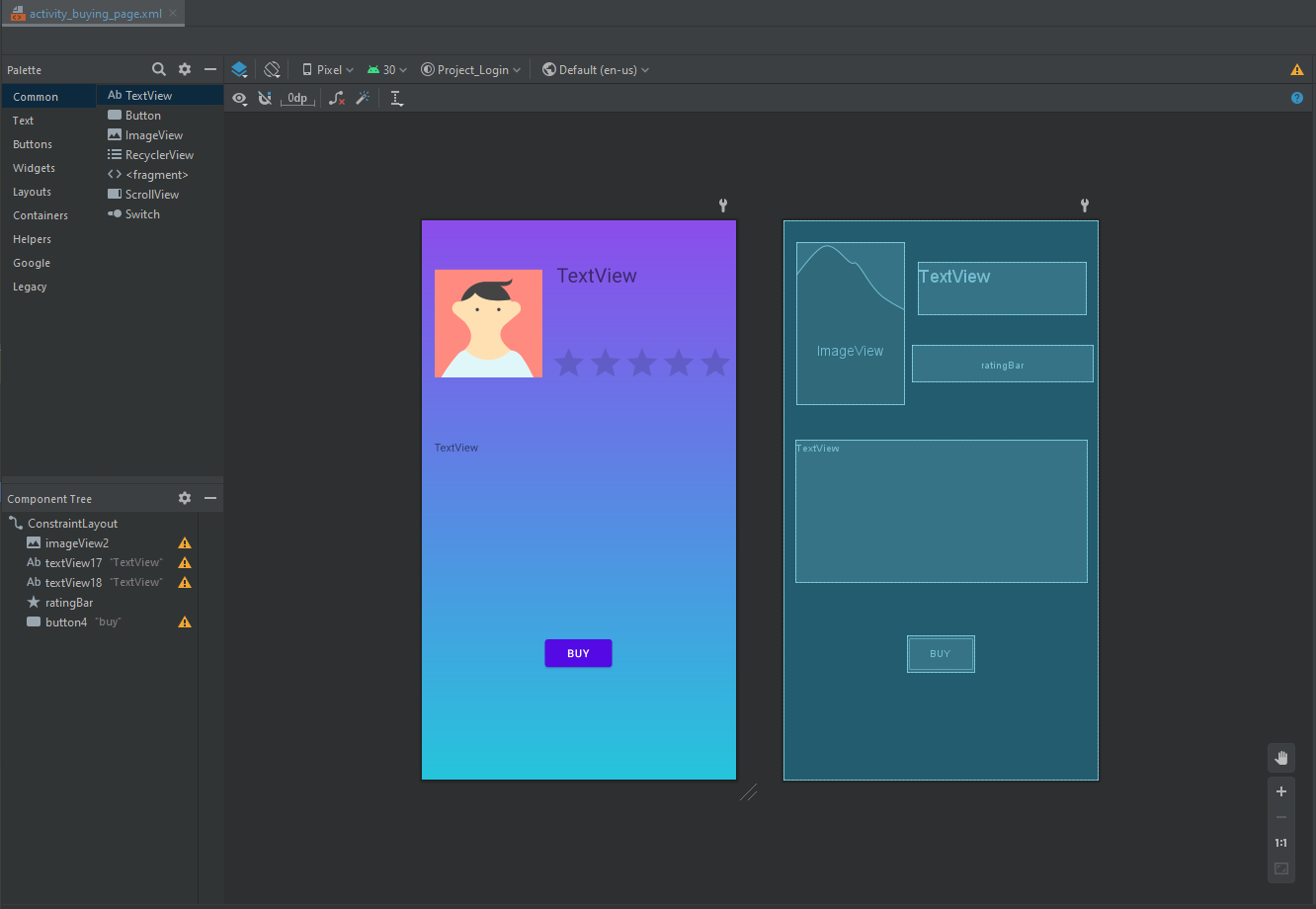
**Design Layout**

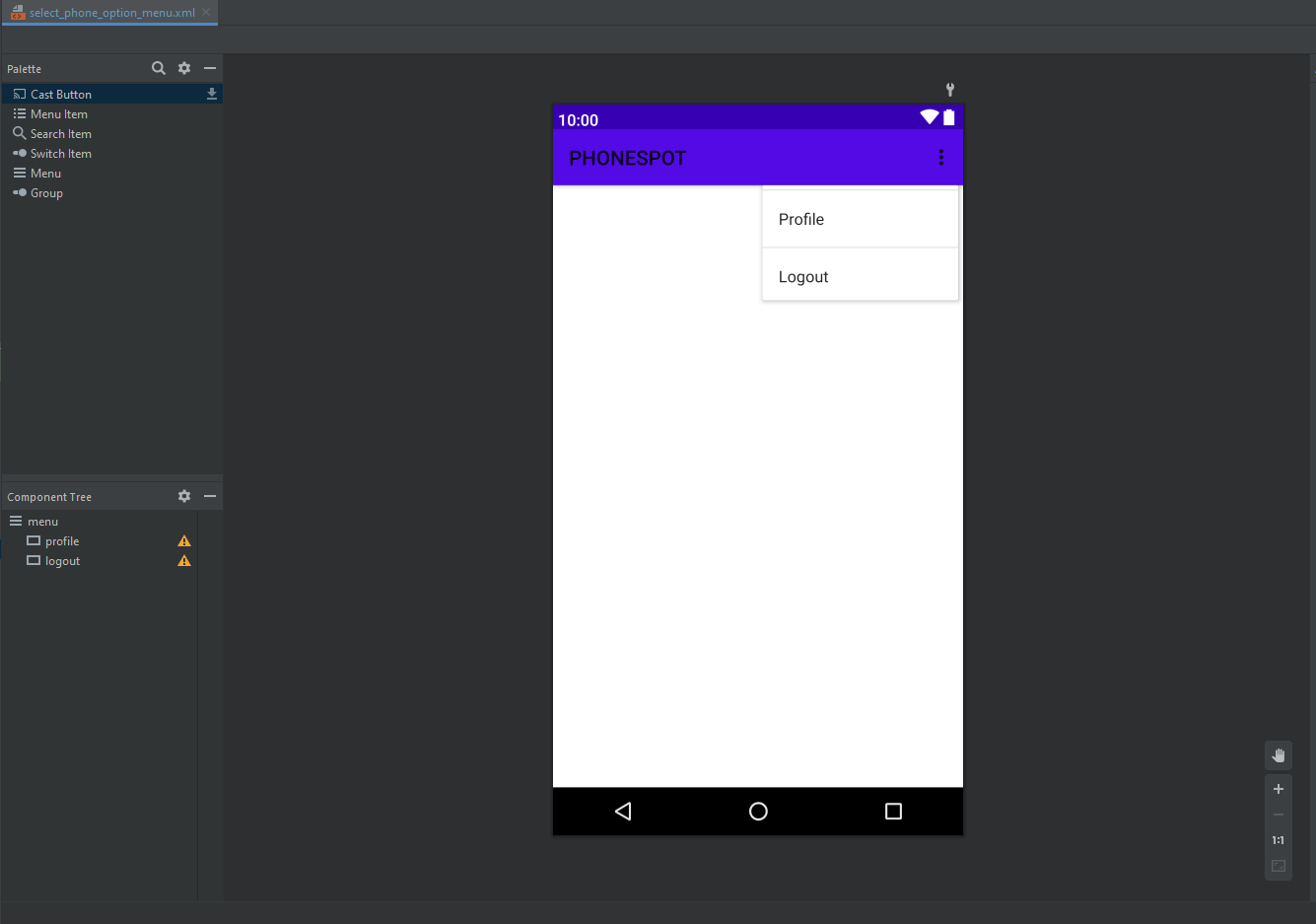
****

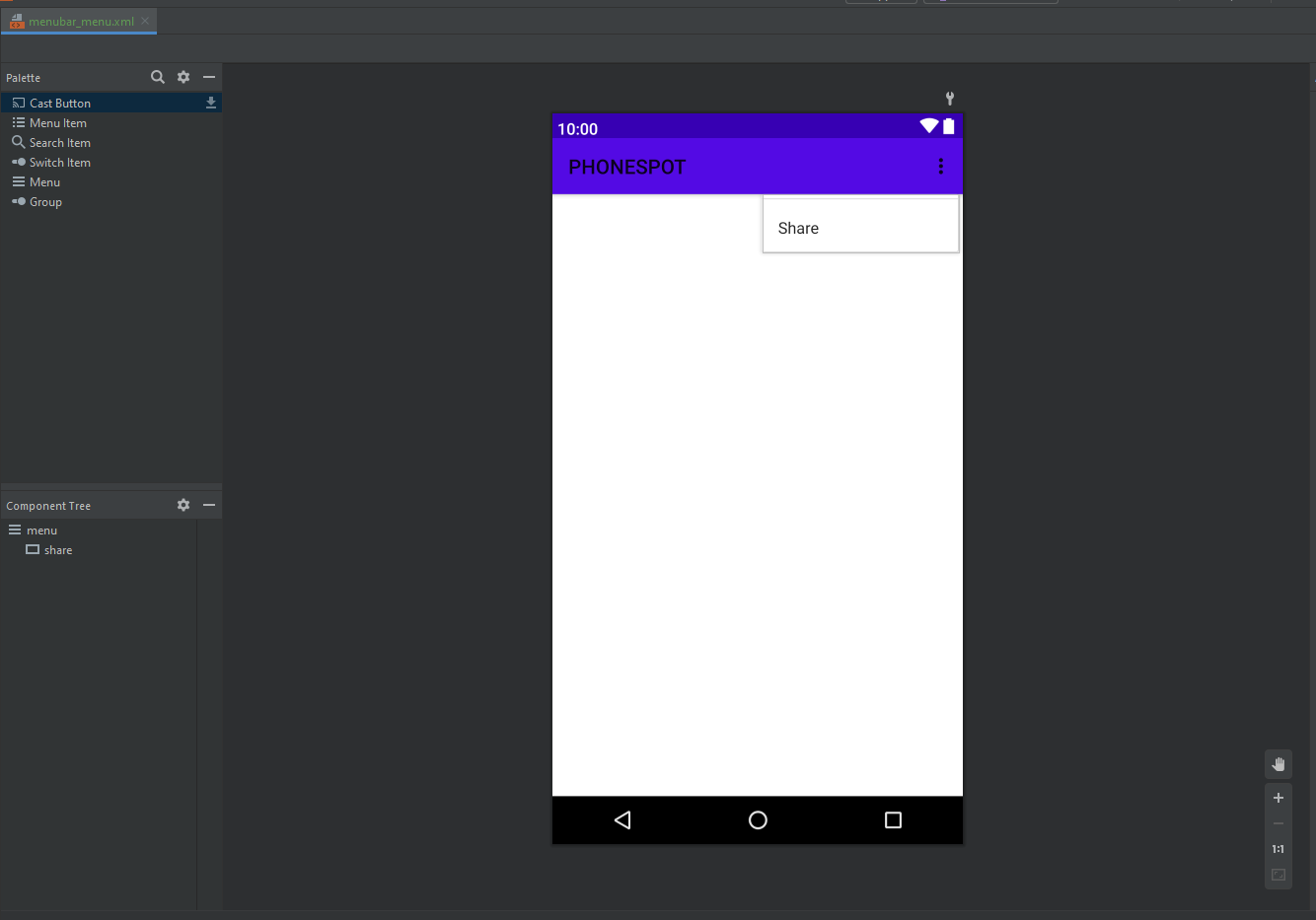
****

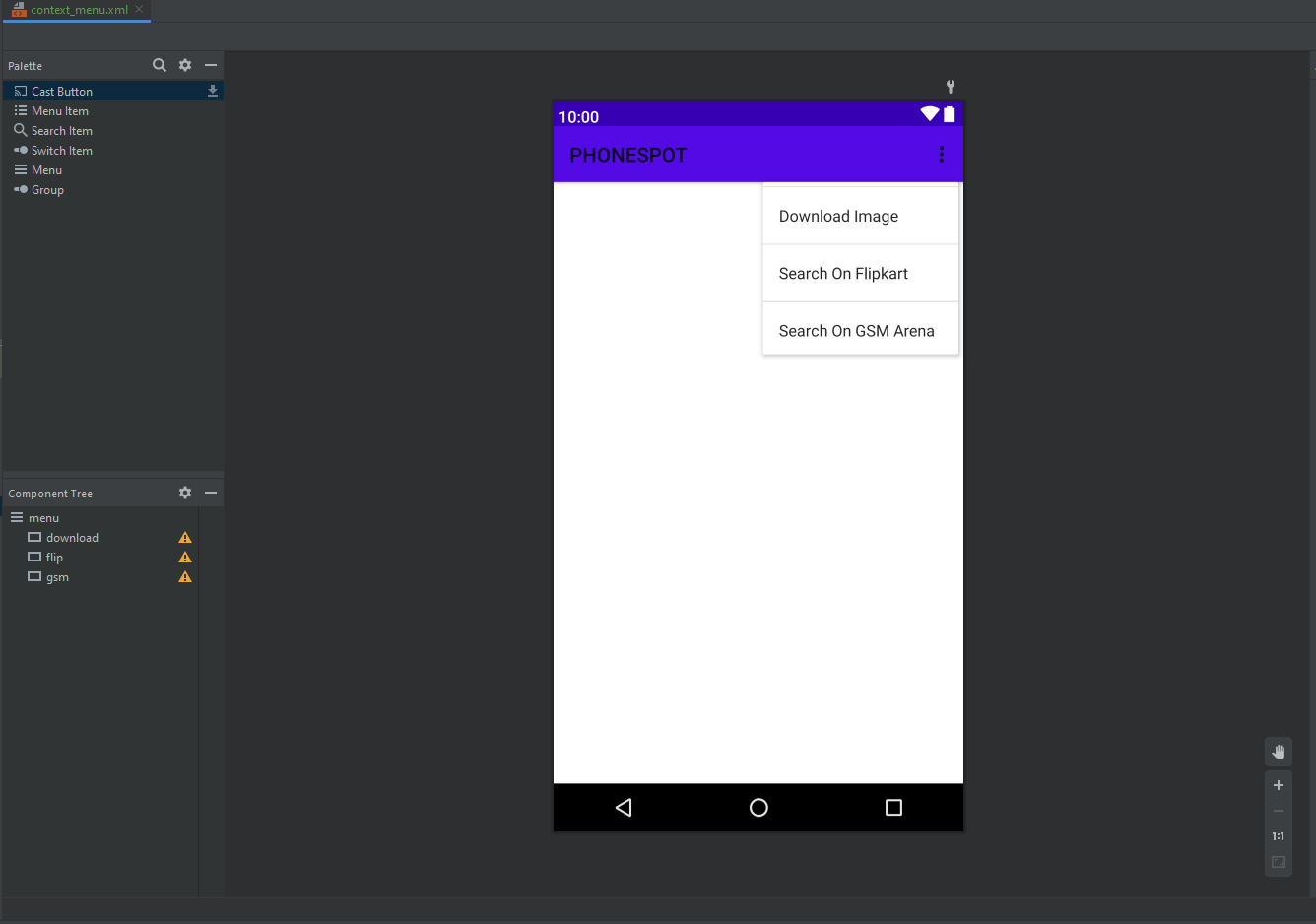
****

****

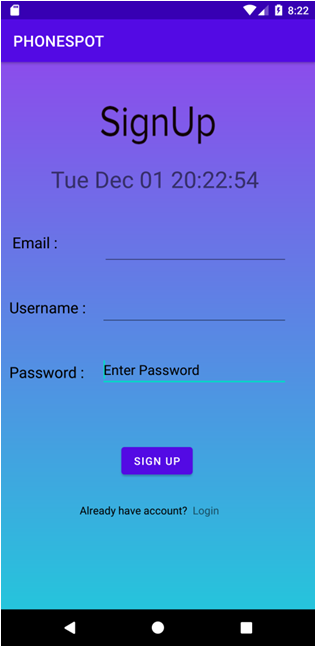
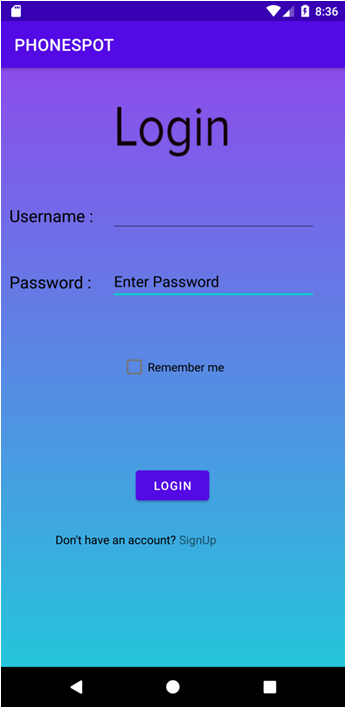
****

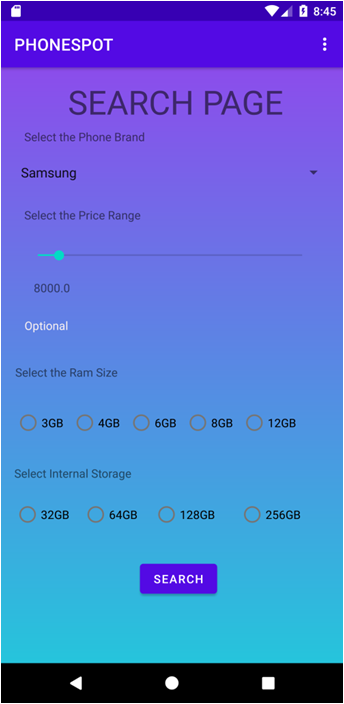
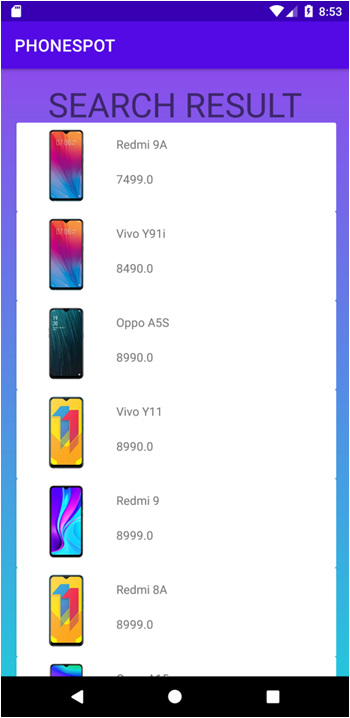
****

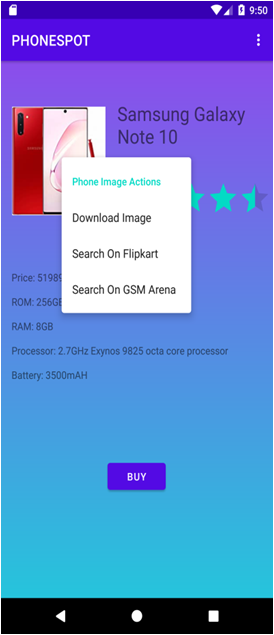
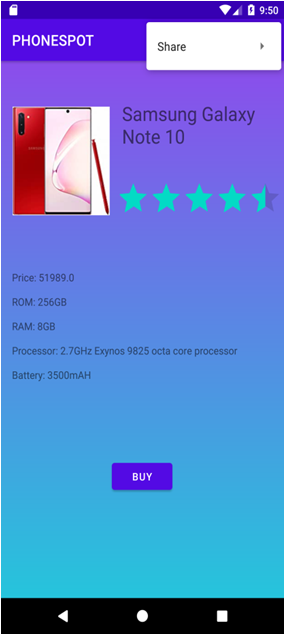
****

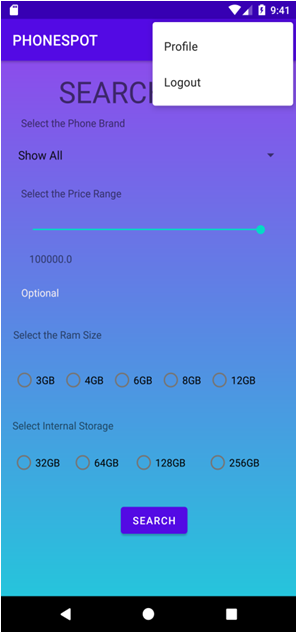
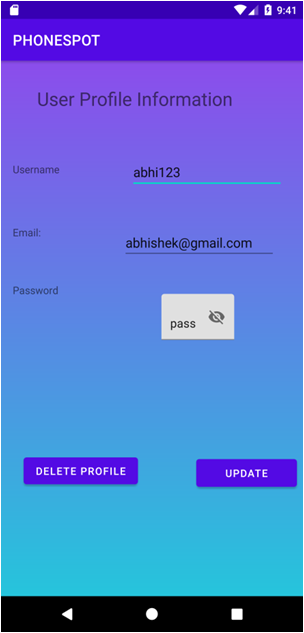
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**Output**

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