Trao đổi dữ liệu:

**Bên Gửi**

public class MainActivity extends Activity {  
 Button btnGuiTin;  
 EditText txtSoA;  
 EditText txtSoB;  
 Button btnChuyen;  
 TextView lblTongNhan;  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.activity\_main);  
 btnGuiTin = findViewById(R.id.btnGuiTin);  
 txtSoA = findViewById(R.id.txtSoA);  
 txtSoB = findViewById(R.id.txtSoB);  
 btnChuyen = findViewById(R.id.btnChuyen);  
 lblTongNhan = findViewById(R.id.lblTongNhan);  
  
 btnGuiTin.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View view) {  
// guiTinNhanVaTruyenDataExtra();

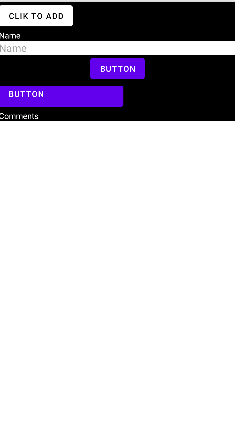
// Tạo ứng dụng cho phép người dùng chọn một contact từ danh bạ và hiển thị chị tiết của contact đó  
 Intent it = new Intent(Intent.ACTION\_PICK);  
 it.setType(ContactsContract.Contacts.CONTENT\_TYPE);  
 startActivityForResult(it,103);  
 }  
 });  
  
 btnChuyen.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View view) {  
 xuLyGuiTraDuLieu();  
 }  
 });  
  
 }  
  
 private void guiTinNhanVaTruyenDataExtra(){  
 Intent intent = new Intent(Intent.ACTION\_SENDTO, Uri.parse("sms:0963325802"));  
 intent.putExtra("sms\_body","Hello everyone!");  
 startActivity(intent);  
 }  
  
  
  
 private void xuLyGuiTraDuLieu(){  
 String soA = txtSoA.getText().toString().trim();  
 String soB = txtSoB.getText().toString().trim();  
 Intent intent = new Intent(MainActivity.this,ActivityNhan.class);  
  
// Kiểu Bundle  
// Bundle bundle = new Bundle();  
// bundle.putString("soA",soA);  
// bundle.putString("soB",soB);  
// intent.putExtras(bundle);  
  
// Kieu thuong  
 intent.putExtra("soA",soA);  
 intent.putExtra("soB",soB);  
  
 startActivityForResult(intent,123);  
 }  
  
 //Nhan ket qua tra ve  
 @Override  
 protected void onActivityResult(int requestCode, int resultCode, Intent data) {  
 super.onActivityResult(requestCode, resultCode, data);  
 try{  
 if(requestCode == 123 && resultCode == Activity.RESULT\_OK){  
 int tong = data.getIntExtra("tong",0);  
 lblTongNhan.setText(""+tong);  
 }

// xem chi tiết danh bạ đó  
 if(requestCode == 103 && resultCode == Activity.RESULT\_OK){  
 Uri uri = data.getData();  
 Toast.makeText(this, ""+uri, Toast.LENGTH\_SHORT).show();  
 Intent intent = new Intent(Intent.ACTION\_VIEW);  
 intent.setData(uri);  
 startActivity(intent);  
 }  
 }catch(Exception e){  
 e.printStackTrace();  
 }  
 }  
}

**Bên Nhận**

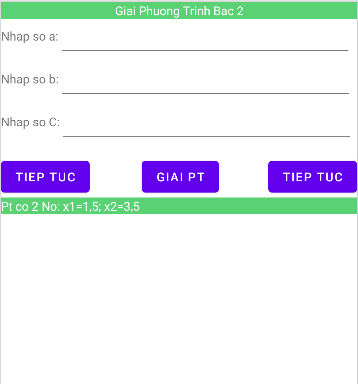
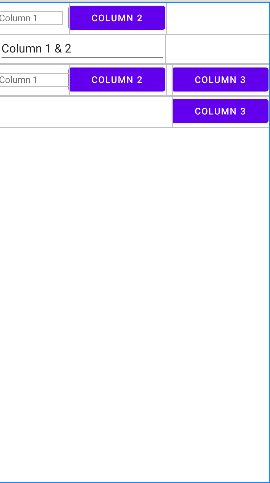
public class ActivityNhan extends AppCompatActivity {  
 TextView lblSoA;  
 TextView lblSoB;  
 TextView lblTong;  
 Button btnTraKQ;  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.activity\_nhan);  
  
 lblSoA = findViewById(R.id.lblSoA);  
 lblSoB = findViewById(R.id.lblSoB);  
 lblTong = findViewById(R.id.lblTong);  
 btnTraKQ = findViewById(R.id.btnTraKQ);  
  
 Intent intentNhan = getIntent();  
  
// Nhan kieu bundle  
// Bundle bundleNhan = intentNhan.getExtras();  
// String soA = bundleNhan.getString("soA");  
// String soB = bundleNhan.getString("soB");  
  
// Nhan kieu thuong  
 String soA = intentNhan.getStringExtra("soA");  
 String soB = intentNhan.getStringExtra("soB");  
 lblSoA.setText(soA);  
 lblSoB.setText(soB);  
  
 int tong = Integer.parseInt(soA) + Integer.parseInt(soB);  
 lblTong.setText(""+tong);  
  
 btnTraKQ.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View view) {  
 intentNhan.putExtra("tong",tong);  
 setResult(Activity.RESULT\_OK,intentNhan);  
 finish();  
 }  
 });  
 }  
}

**LinearLayout**

****<?xml version="1.0" encoding="utf-8"?>  
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 xmlns:tools="http://schemas.android.com/tools"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 android:orientation="vertical"  
 android:background="#000"  
 tools:context=".MainActivity">  
  
 <Button  
 android:id="@+id/button"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:backgroundTint="#fff"  
 android:textColor="#000"  
 android:text="Clik to add"  
 />  
  
 <TextView  
 android:id="@+id/textView2"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:textColor="#FBFBFB"  
 android:text="Name" />  
  
 <EditText  
 android:id="@+id/editTextTextPersonName2"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:background="#fff"  
 android:hint="Name" />  
  
 <Button  
 android:id="@+id/button3"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_gravity="center"  
 android:text="Button" />  
  
 <Button  
 android:id="@+id/button2"  
 android:layout\_width="216dp"  
 android:layout\_height="wrap\_content"  
 android:gravity="left"  
 android:text="Button" />  
  
 <TextView  
 android:id="@+id/textView"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Comments"  
 android:textColor="#fff" />  
  
 <EditText  
 android:id="@+id/editTextTextPersonName"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_weight="2"  
 android:background="#fff" />  
  
</LinearLayout>

<?xml version="1.0" encoding="utf-8"?>  
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 android:orientation="horizontal">  
  
 <Button  
 android:id="@+id/button4"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginTop="20dp"  
 android:layout\_weight="1"  
 android:text="Button" />  
  
 <Button  
 android:id="@+id/button5"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:paddingLeft="50dp"  
 android:layout\_weight="1"  
 android:text="Button" />  
</LinearLayout>

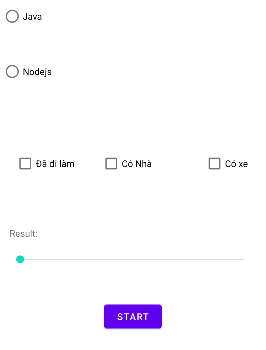
**RelativeLayout**

<?xml version="1.0" encoding="utf-8"?>  
<RelativeLayout xmlns:app="http://schemas.android.com/apk/res-auto"  
 xmlns:tools="http://schemas.android.com/tools"  
 xmlns:android="http://schemas.android.com/apk/res/android"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 tools:context=".RelativeLayout">  
  
 <TextView  
 android:id="@+id/lblHeader"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:background="#5AD173"  
 android:gravity="center"  
 android:text="Giai Phuong Trinh Bac 2"  
 android:textColor="#fff" />  
  
 <TextView  
 android:id="@+id/lblSoA"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_below="@+id/lblHeader"  
 android:layout\_marginTop="10dp"  
 android:text="Nhap so a:" />  
  
 <EditText  
 android:id="@+id/editTextTextPersonName3"  
 android:layout\_width="339dp"  
 android:layout\_height="wrap\_content"  
 android:layout\_below="@+id/lblHeader"  
 android:layout\_toRightOf="@+id/lblSoA" />  
  
 <TextView  
 android:id="@+id/lblSoB"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_below="@+id/lblSoA"  
 android:layout\_marginTop="30dp"  
 android:text="Nhap so b:" />  
  
 <EditText  
 android:id="@+id/editTextTextPersonName4"  
 android:layout\_width="339dp"  
 android:layout\_height="wrap\_content"  
 android:layout\_below="@+id/lblSoA"  
 android:layout\_marginTop="20dp"  
 android:layout\_toRightOf="@+id/lblSoB" />  
  
  
 <TextView  
 android:id="@+id/lblSoC"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_below="@+id/lblSoB"  
 android:layout\_marginTop="30dp"  
 android:text="Nhap so C:" />  
  
 <EditText  
 android:id="@+id/editTextTextPersonName5"  
 android:layout\_width="339dp"  
 android:layout\_height="wrap\_content"  
 android:layout\_below="@+id/lblSoB"  
 android:layout\_marginTop="20dp"  
 android:layout\_toRightOf="@+id/lblSoC" />  
  
 <Button  
 android:id="@+id/btnTiepTuc"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_below="@+id/lblSoC"  
 android:layout\_marginTop="30dp"  
 android:text="Tiep tuc" />  
  
 <Button  
 android:id="@+id/btnGiai"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_below="@+id/lblSoC"  
 android:layout\_marginLeft="60dp"  
 android:layout\_marginTop="30dp"  
 android:layout\_toRightOf="@+id/btnTiepTuc"  
 android:text="Giai PT" />  
  
 <Button  
 android:id="@+id/btnThoat"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_below="@+id/lblSoC"  
 android:layout\_alignParentRight="true"  
 android:layout\_marginLeft="10dp"  
 android:layout\_marginTop="30dp"  
 android:text="Tiep tuc" />  
  
 <TextView  
 android:id="@+id/lblKQ"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_below="@+id/btnThoat"  
 android:background="#5AD173"  
 android:textColor="#fff"  
 android:text="Pt co 2 No: x1=1,5; x2=3,5" />  
</RelativeLayout>

**TableLayout**

<?xml version="1.0" encoding="utf-8"?>  
<TableLayout 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="fill\_parent"  
 android:layout\_height="fill\_parent"  
 android:stretchColumns="\*"  
 tools:context=".TableLayout">  
  
 <TableRow  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content">  
 <TextView  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginRight="10dp"  
 android:text="Column 1"/>  
 <Button  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Column 2"  
 />  
 </TableRow>  
  
 <TableRow  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content">  
 <EditText  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Column 1 &amp; 2"  
 android:layout\_span="2"  
 />  
 </TableRow>  
  
 <View android:layout\_height="1dp"  
 android:background="#FB1B1B"/>  
  
 <TableRow  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content">  
 <TextView  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Column 1"/>  
 <Button  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Column 2"  
 />  
 <Button  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginLeft="10dp"  
 android:text="Column 3"  
 />  
 </TableRow>  
  
 <TableRow  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content">  
 <Button  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginLeft="10dp"  
 android:layout\_column="2"  
 android:text="Column 3"  
 />  
 </TableRow>  
  
</TableLayout>

**Radio, Check box, SeekBar**

  
 <RadioGroup  
 android:id="@+id/radioGroup"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 >  
 <RadioButton  
 android:id="@+id/rdJava"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginTop="76dp"  
 android:text="Java"  
 />  
 <RadioButton  
 android:id="@+id/rdNode"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginTop="36dp"  
 android:text="Nodejs"  
 />  
 </RadioGroup>  
 <CheckBox  
 android:id="@+id/cbLam"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginStart="24dp"  
 android:layout\_marginTop="92dp"  
 android:text="Đã đi làm"  
 />  
 <CheckBox  
 android:id="@+id/cbNha"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginStart="40dp"  
 android:layout\_marginTop="92dp"  
 android:text="Có Nhà"  
 />  
 <CheckBox  
 android:id="@+id/cbXe"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginTop="92dp"  
 android:layout\_marginEnd="32dp"  
 android:text="Có xe"  
 />  
 <SeekBar  
 android:id="@+id/seekBar"  
 android:layout\_width="373dp"  
 android:layout\_height="37dp"  
 android:layout\_marginStart="16dp"  
 android:layout\_marginTop="104dp"  
 />  
 <Button  
 android:id="@+id/btnStart"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginStart="160dp"  
 android:layout\_marginTop="44dp"  
 android:text="Start"  
 />  
 <TextView  
 android:id="@+id/textView3"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginStart="16dp"  
 android:layout\_marginBottom="12dp"  
 android:text="Result: "  
 />  
 <TextView  
 android:id="@+id/txtResult"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginStart="8dp"  
 app:layout\_constraintBottom\_toBottomOf="@+id/textView3"/>

**Xử lý**

public class MainActivity extends AppCompatActivity {  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.activity\_main);  
 RadioGroup rdGroup = findViewById(R.id.radioGroup);  
 RadioButton rdJava = findViewById(R.id.rdJava);  
 RadioButton rdNode = findViewById(R.id.rdNode);  
 CheckBox cbLam = findViewById(R.id.cbLam);  
 CheckBox cbNha = findViewById(R.id.cbNha);  
 CheckBox cbXe = findViewById(R.id.cbXe);  
 SeekBar seekBar = findViewById(R.id.seekBar);  
 TextView txtResult = findViewById(R.id.txtResult);  
 seekBar.setMax(200);

seekBar.setOnSeekBarChangeListener(new SeekBar.OnSeekBarChangeListener() {  
 @Override  
 public void onProgressChanged(SeekBar seekBar, int i, boolean b) {  
 }  
 @Override  
 public void onStartTrackingTouch(SeekBar seekBar) {  
 //gia tri luc bat dau keo  
 }  
 @Override  
 public void onStopTrackingTouch(SeekBar seekBar) {  
 txtResult.setText(""+seekBar.getProgress());  
 }  
 });  
  
 Button btnStart = findViewById(R.id.btnStart);  
 btnStart.setOnClickListener(new View.OnClickListener() {  
 @Override  
 public void onClick(View view) {  
 String msg = "";  
// int idRadio = rdGroup.getCheckedRadioButtonId();  
 if(rdJava.isChecked()){  
 msg +="Java ";  
 }  
 if(rdNode.isChecked()){  
 msg +="nodejs ";  
 }  
  
 if(cbLam.isChecked()){  
 msg += "đã đi làm ";  
 }  
 if(cbNha.isChecked()){  
 msg += "Có nhà ";  
 }  
 if(cbXe.isChecked()){  
 msg += "Có xe ";  
 }  
  
 Toast.makeText(getApplicationContext(), msg , Toast.LENGTH\_SHORT).show();  
 CountDownTimer countDownTimer = new CountDownTimer(20000,1000) {  
 @Override  
 public void onTick(long l) {  
 int result = seekBar.getProgress();  
 if(result >= 200){  
 Toast.makeText(getApplicationContext(),"Het bai",Toast.LENGTH\_SHORT).show();  
 }  
 result +=10;  
 seekBar.setProgress(result);  
 txtResult.setText(""+seekBar.getProgress());  
 }  
 @Override  
 public void onFinish() {  
 Toast.makeText(getApplicationContext(),"Het bai",Toast.LENGTH\_SHORT).show();  
 }  
 }.start();  
 }  
 });  
 }  
}

**Menu, dialog, listview thường**

<?xml version="1.0" encoding="utf-8"?>  
<menu xmlns:android="http://schemas.android.com/apk/res/android">  
 <item android:id="@+id/lang"  
 android:title="Ngon ngu"/>  
 <item android:id="@+id/avatar"  
 android:title="Avatar"/>  
 <item android:id="@+id/logout"  
 android:title="Dang xuat"/>  
</menu>

<ListView  
 android:id="@+id/listView"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent" />

public class MainActivity extends AppCompatActivity {  
 ListView lv;  
 ArrayAdapter adapter;  
 ArrayList<String> data;  
 int positon = -1;  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.activity\_main);  
  
 data = new ArrayList<>(Arrays.asList("Nam","Dung","Minh","Tra","Ha"));  
 lv = findViewById(R.id.listView);  
  
 adapter = new ArrayAdapter(MainActivity.this,android.R.layout.simple\_list\_item\_1,data);  
 lv.setAdapter(adapter);  
  
// registerForContextMenu(lv);  
 lv.setOnItemClickListener(new AdapterView.OnItemClickListener() {  
 @Override  
 public void onItemClick(AdapterView<?> adapterView, View view, int i, long l) {  
 view.setOnCreateContextMenuListener(MainActivity.this);  
 positon = i;  
 }  
 });  
 }  
  
 @Override  
 public boolean onCreateOptionsMenu(Menu menu) {  
 MenuInflater menuInflater =getMenuInflater();  
 menuInflater.inflate(R.menu.option\_menu,menu);  
 return super.onCreateOptionsMenu(menu);  
 }  
 @Override  
 public boolean onOptionsItemSelected(@NonNull MenuItem item) {  
 int itemSelect = item.getItemId();  
 switch(itemSelect){  
 case R.id.contact: {  
 Toast.makeText(this, "Contact", Toast.LENGTH\_SHORT).show();  
 break;  
 }  
 case R.id.setting:{  
 Toast.makeText(this, "Setting", Toast.LENGTH\_SHORT).show();  
 break;  
 }  
 case R.id.help:{  
 Toast.makeText(this, "Help", Toast.LENGTH\_SHORT).show();  
 break;  
 }  
 }  
 return super.onOptionsItemSelected(item);  
 }  
  
 @Override  
 public void onCreateContextMenu(ContextMenu menu, View v, ContextMenu.ContextMenuInfo menuInfo) {  
 super.onCreateContextMenu(menu, v, menuInfo);  
 MenuInflater menuInflater = getMenuInflater();  
 menuInflater.inflate(R.menu.context\_menu,menu);  
 }  
 @Override  
 public boolean onContextItemSelected(@NonNull MenuItem item) {  
 int itemSelect = item.getItemId();  
 switch(itemSelect){  
 case R.id.xemCT:{  
 Toast.makeText(this, "Xem Chi tiet: "+positon, Toast.LENGTH\_SHORT).show();  
 break;  
 }  
 case R.id.capNhat:{  
 Toast.makeText(this, "Cap nhat", Toast.LENGTH\_SHORT).show();  
 break;  
 }  
 case R.id.xoa:{  
 **//AlertDialog**  
 AlertDialog alertDialog = new AlertDialog.Builder(MainActivity.this).create();  
 alertDialog.setTitle("Question");  
 alertDialog.setMessage("Are you sure delete index "+positon);  
 alertDialog.setButton(AlertDialog.BUTTON\_POSITIVE, "OK", new DialogInterface.OnClickListener() {  
 @Override  
 public void onClick(DialogInterface dialogInterface, int i) {  
 data.remove(positon);  
 adapter.notifyDataSetChanged();  
 }  
 });  
 alertDialog.setButton(AlertDialog.BUTTON\_NEGATIVE, "No", new DialogInterface.OnClickListener() {  
 @Override  
 public void onClick(DialogInterface dialogInterface, int i) {  
  
 }  
 });  
 alertDialog.show();  
 break;  
 }  
 }  
 return super.onContextItemSelected(item);  
 }  
}

**SpinnerView**

Spinner  
 android:id="@+id/sp"  
 android:layout\_width="402dp"  
 android:layout\_height="41dp"/>

@Override  
protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.activity\_spinner);  
  
 Spinner sp = findViewById(R.id.sp);  
 ArrayList<String> subjects = new ArrayList<>(Arrays.asList("Java","Nodejs","Reactjs","C#"));  
 ArrayAdapter arrayAdapter = new ArrayAdapter(  
 SpinnerEx.this, android.R.layout.simple\_spinner\_dropdown\_item,subjects);  
 sp.setAdapter(arrayAdapter);  
 sp.setOnItemSelectedListener(new AdapterView.OnItemSelectedListener() {  
 @Override  
 public void onItemSelected(AdapterView<?> adapterView, View view, int i, long l) {  
 Toast.makeText(getApplicationContext(),""+i,Toast.LENGTH\_SHORT).show();  
 }  
 @Override  
 public void onNothingSelected(AdapterView<?> adapterView) {  
 }  
 });  
}

**ListView Nâng Cao**

public class Anh {  
 private int anh;  
 private String tenAnh;  
  
 public Anh() {  
 }  
  
 public Anh(int anh, String tenAnh) {  
 this.anh = anh;  
 this.tenAnh = tenAnh;  
 }  
  
 public int getAnh() {  
 return anh;  
 }  
  
 public void setAnh(int anh) {  
 this.anh = anh;  
 }  
  
 public String getTenAnh() {  
 return tenAnh;  
 }  
  
 public void setTenAnh(String tenAnh) {  
 this.tenAnh = tenAnh;  
 }  
}

<?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"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent">  
  
  
 <ImageView  
 android:id="@+id/img"  
 android:layout\_width="152dp"  
 android:layout\_height="147dp"  
 android:scaleType="centerCrop"  
 app:srcCompat="@drawable/item\_anh" />  
  
 <TextView  
 android:id="@+id/lblTenAnh"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:gravity="center"  
 android:layout\_marginTop="40dp"  
 android:text="Tên ảnh" />  
  
</LinearLayout>

<ListView  
 android:id="@+id/lsv"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent" />

public class MyAdapter extends ArrayAdapter {  
 Activity activity;  
 int idLayout;  
 ArrayList<Anh> anhs;  
  
 public MyAdapter(Activity activity, int idLayout, ArrayList<Anh> anhs) {  
 super(activity, idLayout,anhs);  
 this.activity = activity;  
 this.idLayout = idLayout;  
 this.anhs = anhs;  
 }  
  
 @NonNull  
 @Override  
 public View getView(int position, @Nullable View convertView, @NonNull ViewGroup parent) {  
 LayoutInflater inflater = activity.getLayoutInflater();  
 convertView = inflater.inflate(R.layout.item\_view,null);  
 Anh anh = anhs.get(position);  
  
 ImageView imageView = convertView.findViewById(R.id.img);  
 imageView.setImageResource(anh.getAnh());  
  
 TextView lblName = convertView.findViewById(R.id.lblTenAnh);  
 lblName.setText(anh.getTenAnh());  
  
 return convertView;  
 }  
}

public class ListViewNangCao extends AppCompatActivity {  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.activity\_list\_view\_nang\_cao);  
  
 ArrayList<Anh> anhs = new ArrayList<>();  
 Anh anh = new Anh(R.drawable.item\_anh,"Anh Cây cỏ");  
 Anh anh1 = new Anh(R.drawable.item\_anh,"Anh Windown");  
 Anh anh2 = new Anh(R.drawable.item\_anh,"Anh Bầu trời");  
 anhs.add(anh);  
 anhs.add(anh1);  
 anhs.add(anh2);  
  
 ListView listView = findViewById(R.id.lsv);  
 MyAdapter myAdapter = new MyAdapter(ListViewNangCao.this,R.layout.activity\_list\_view\_nang\_cao,anhs);  
 listView.setAdapter(myAdapter);  
 }  
}

**-\*\*\* Dữ liệu Assets (chỉ có thể đọc, không thể ghi)**

private void readAssets(){

AssetManager assetManager = getAssets();

try{

InputStream inputStream = assetManager.open("assets.txt");

// InputStream inputStream = assetManager.open("font/assets.txt");

int size = inputStream.available();

byte[] buffer = new byte[size];

inputStream.read(buffer);

inputStream.close();

String data = new String(buffer);

txtResultView.setText(data);

}catch(Exception e){

e.printStackTrace();

}

}

**-\*\*\* ShardPreference (Dữ liệu của Shared Preferences được lưu cục bộ trong phạm vi ứng dụng, lưu theo cặp (key,value))**

private void writeLoginShared(){

txtUser = findViewById(R.id.txtUser);

txtPass = findViewById(R.id.txtPass);

chkLuu = findViewById(R.id.chkLuu);

SharedPreferences sharedPreferences = getSharedPreferences("user",MODE\_PRIVATE);

SharedPreferences.Editor editor = sharedPreferences.edit();

if(chkLuu.isChecked()){

editor.putString("user",txtUser.getText().toString());

editor.putString("pass",txtPass.getText().toString());

editor.putBoolean("chkLuu",chkLuu.isChecked());

} else {

editor.clear();

}

editor.commit();

}

private void readLoginShared() {

txtUser = findViewById(R.id.txtUser);

txtPass = findViewById(R.id.txtPass);

chkLuu = findViewById(R.id.chkLuu);

SharedPreferences sharedPreferences = getSharedPreferences("user",MODE\_PRIVATE);

boolean luu = sharedPreferences.getBoolean("chkLuu",false);

if(luu){

txtUser.setText(sharedPreferences.getString("user",""));

txtPass.setText(sharedPreferences.getString("pass",""));

chkLuu.setChecked(true);

}

}

**-\*\*\* Internal storage – Thẻ nhớ trong**

//path là tên file.txt hoặc đường dẫn tương đối

private void readData(String path){

try {

FileInputStream inputStream = openFileInput(path);

int size = inputStream.available();

byte[] data = new byte[size];

inputStream.read(data);

inputStream.close();

String dataString = new String(data);

txtData.setText(""+dataString);

} catch (Exception e) {

e.printStackTrace();

}

}

private void writeData(String path){

String data = txtData.getText().toString();

try {

FileOutputStream outputStream = openFileOutput(path, Context.MODE\_PRIVATE);

OutputStreamWriter outputStreamWriter = new OutputStreamWriter(outputStream);

outputStreamWriter.write(data);

outputStreamWriter.close();

} catch (Exception e) {

e.printStackTrace();

}

}

**-\*\*\* External Storage (bộ nhớ ngoài)**

+ XIN QUYỀN:

(trong file AndroidManifest.xml)

<uses-permission android:name="android.permission.WRITE\_EXTERNAL\_STORAGE"/>

<uses-permission android:name="android.permission.READ\_EXTERNAL\_STORAGE"/>

(trong file MainActivity)

protected void makeRequest() {

ActivityCompat.requestPermissions(this, new String[]{

android.Manifest.permission.WRITE\_EXTERNAL\_STORAGE,

android.Manifest.permission.READ\_EXTERNAL\_STORAGE}, 1);

}

private void readDataEx(){

makeRequest();

String sdPath = Environment.getExternalStorageDirectory().getAbsolutePath();

try {

FileInputStream inputStream = new FileInputStream(sdPath+"/number.txt");

Scanner sc = new Scanner(inputStream);

String data = "";

while (sc.hasNext()){

data +=(sc.nextLine()+"\n");

Toast.makeText(this, "1", Toast.LENGTH\_SHORT).show();

}

sc.close();

txtData.setText(""+data);

} catch (Exception e) {

Toast.makeText(this, "2", Toast.LENGTH\_SHORT).show();

e.printStackTrace();

}

}

private void writeDataEx(){

makeRequest();

String data = txtData.getText().toString();

String sdPath = Environment.getExternalStorageDirectory().getAbsolutePath();

String path = sdPath+"/number.txt";

try {

FileOutputStream fileOut = new FileOutputStream(path);

OutputStreamWriter writer = new OutputStreamWriter(fileOut);

writer.write(data);

writer.close();

Toast.makeText(this,data, Toast.LENGTH\_LONG).show();

} catch (Exception e) {

e.printStackTrace();

}

}

**-\*\*\* SQLite(SQLiteOpenHelper)**

public class CustomerDB extends SQLiteOpenHelper {

public static final String DATA\_NAME = "dataCustomer.db3";

public static final String TABLE\_NAME = "Customer";

public static final String CREATE\_TABLE = "CREATE TABLE IF NOT EXISTS " + TABLE\_NAME +

"(id INTEGER PRIMARY KEY AUTOINCREMENT," +

"name TEXT NOT NULL," +

"password TEXT NOT NULL" +

")";

// "CREATE TABLE IF NOT EXISTS " + TABLE\_NAME +

// "(id INTEGER NOT NULL UNIQUE ," +

// "role TEXT NOT NULL," +

// "password TEXT NOT NULL," +

// "PRIMARY KEY(id)" +

// ")";

public static final int VERSION = 1;

public CustomerDB(@Nullable Context context) {

super(context, DATA\_NAME, null, VERSION);

}

public void queryData(String query, String[] strings){

SQLiteDatabase database = getWritableDatabase();

database.execSQL(query,strings);

}

public Cursor getData(String query,String[] strings){

SQLiteDatabase database = getReadableDatabase();

return database.rawQuery(query,strings);

}

public void resultData(String query){

SQLiteDatabase database = getWritableDatabase();

database.execSQL(query);

}

@Override

public void onCreate(SQLiteDatabase sqLiteDatabase) {

sqLiteDatabase.execSQL(CREATE\_TABLE);

}

@Override

public void onUpgrade(SQLiteDatabase sqLiteDatabase, int i, int i1) {

sqLiteDatabase.execSQL("DROP TABLE IF EXISTS "+ TABLE\_NAME);

onCreate(sqLiteDatabase);

}

}

+Thực thi:

customerDB = new CustomerDB(this);

//FindAll

String selectAll = "select \* from "+ CustomerDB.TABLE\_NAME;

Cursor cursor = customerDB.getData(selectAll,null);

while(cursor.moveToNext()){

dataListView.add(cursor.getString(1));

}

ArrayAdapter<String> adapter = new ArrayAdapter(this,android.R.layout.simple\_list\_item\_1,dataListView);

listView.setAdapter(adapter);

//Insert

String name = txtName.getText().toString().trim();

String query = "INSERT INTO "+ CustomerDB.TABLE\_NAME

+ "(name,password)"

+ "values(?,?)";

customerDB.queryData(query,new String[]{name,"12345"});

dataListView.add(name);

adapter.notifyDataSetChanged();

//Delete

String query = "DELETE FROM " + CustomerDB.TABLE\_NAME + " WHERE id=?";

customerDB.queryData(query,new String[]{"1"});

//Update

String query = "UPDATE Role SET name =?, password=? WHERE id=?";

customerDB.queryData(query,new String[]{"Admin","12345","1"});

+ loại thường (trong ảnh)

**-\*\*\* Content Provider**

**+Bên server(content provider)**

public class CustomerContentProvider extends ContentProvider {

static final String PROVIDER\_NAME = "edu.iuh.fit.provider.CustomerContentProvider";

static final String URL = "content://" + PROVIDER\_NAME + "/customer";

static final Uri CONTENT\_URI = Uri.parse(URL);

private SQLiteDatabase db;

@Override

public boolean onCreate() {

Context context = getContext();

CustomerDB dbHelper = new CustomerDB(context);

db = dbHelper.getWritableDatabase();

return (db == null)? false:true;

}

@Nullable

@Override

public Cursor query(Uri uri, String[] projection, String selection,String[] selectionArgs, String sortOrder) {

SQLiteQueryBuilder qb = new SQLiteQueryBuilder();

qb.setTables(CustomerDB.TABLE\_NAME);

Cursor c = qb.query(db, projection, selection,

selectionArgs,null, null, null);

c.setNotificationUri(getContext().getContentResolver(), uri);

return c;

}

@Nullable

@Override

public String getType(@NonNull Uri uri) {

return null;

}

@Nullable

@Override

public Uri insert(Uri uri, ContentValues values) {

long rowID = db.insert( CustomerDB.TABLE\_NAME, "", values);

if (rowID > 0) {

Uri \_uri = ContentUris.withAppendedId(CONTENT\_URI, rowID);

getContext().getContentResolver().notifyChange(\_uri, null);

return \_uri;

}

throw new SQLException("Failed to add a record into " + uri);

}

@Override

public int delete(@NonNull Uri uri, @Nullable String s, @Nullable String[] strings) {

db.delete(CustomerDB.TABLE\_NAME, s, strings);

return 1;

}

@Override

public int update(@NonNull Uri uri, @Nullable ContentValues contentValues, @Nullable String s, @Nullable String[] strings) {

int count = 0;

switch (uriMatcher.match(uri)) {

case uriCode:

count = db.update(CustomerDB.TABLE\_NAME, contentValues, s, strings);

break;

default:

throw new IllegalArgumentException("Unknown URI " + uri);

}

getContext().getContentResolver().notifyChange(uri, null);

return count;

}

}}

+ trong AndroidManifest:

<permission android:name="edu.iuh.fit.provider.READ\_PERMISSION" android:protectionLevel="normal"/>

<permission android:name="edu.iuh.fit.provider.WRITE\_PERMISSION" android:protectionLevel="normal"/>

<provider

android:authorities="edu.iuh.fit.provider.CustomerContentProvider"

android:name=".CustomerContentProvider"

android:exported="true"

android:readPermission="edu.iuh.fit.provider.READ\_PERMISSION"

android:writePermission="edu.iuh.fit.provider.WRITE\_PERMISSION" >

</provider>

**+ bên client:**

//FindAll

ArrayList<String> dataLV = new ArrayList<>();

Uri uriGetListData = Uri.parse("content://edu.iuh.fit.provider.CustomerContentProvider/customer");

Cursor c = getContentResolver().query(uriGetListData,null,null,null,null);

if(c.moveToFirst()){

do{

String name = "Name: " + c.getString(0);

dataLV.add(name);

}while (c.moveToNext());

}

ArrayAdapter<String> adapter = new ArrayAdapter<>(this, android.R.layout.simple\_list\_item\_1,dataLV);

listView.setAdapter(adapter);

//Insert

String name = txtName.getText().toString().trim();

ContentValues values = new ContentValues();

values.put("name",name);

values.put("password","12345");

getContentResolver().insert(uriGetListData,values);

//Delete

getContentResolver().delete(uriGetListData,"id=?",new String[]{""+2});

+ trong AndroidManifest:

<uses-permission android:name="edu.iuh.fit.provider.READ\_PERMISSION" />

<uses-permission android:name="edu.iuh.fit.provider.WRITE\_PERMISSION" />

Espresso.onView(ViewMatcher.withId(R.id.txtA).perform(ViewActions.typeText("1")); Espresso.onView(ViewMatcher.withId(R.id.txtB).perform(ViewActions.typeText("2")); Espresso.onView(withId(R.id.tong).check(viewAssertions.matches(ViewMatchers.withText("3));

@Test

public void testCheckSum() {

// Launch the activity that contains the checkSum function

ActivityScenario.launch(MainActivity.class);

// Type 1 and 2 into the EditTexts

Espresso.onView(ViewMatchers.withId(R.id.editText1)).perform(ViewActions.typeText("1"));

Espresso.onView(ViewMatchers.withId(R.id.editText2)).perform(ViewActions.typeText("2"));

// Click the Button

Espresso.onView(ViewMatchers.withId(R.id.sumButton)).perform(ViewActions.click());

// Check if the sum is displayed correctly

Espresso.onView(ViewMatchers.withId(R.id.sumTextView))

.check(ViewAssertions.matches(ViewMatchers.withText("3")));

}

dependencies {

// ...

androidTestImplementation 'androidx.test.espresso:espresso-core:3.4.0'

androidTestImplementation 'androidx.test:runner:1.4.0'

androidTestImplementation 'androidx.test:rules:1.4.0'

}