A white rectangular frame with black border

Description automatically generated

TRƯỜNG ĐẠI HỌC TÀI NGUYÊN VÀ MÔI TRƯỜNG

THÀNH PHỐ HỒ CHÍ MINH

KHOA CÔNG NGHỆ THÔNG TIN

A logo with a person holding a book

Description automatically generated

**TỔNG HỢP LAB LẬP TRÌNH DI ĐỘNG**

Giảng viên hướng dẫn: **ThS. Phạm Trọng Huynh**

Sinh viên thực hiện: **Nguyễn Hưng Văn Khánh**

Mã số sinh viên: 1150080021

Lớp**: ĐH\_11\_THMT**

Khoá**: 2025 - 2026**

***TP. Hồ Chí Minh, tháng 11, năm 2025***

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# LAB 1 BUỔI THỰC HÀNH 1

## BÀI 1

* 1. Tạo app có chức năng của một máy tính, có các phép +, -, \*, /, %

**MayTinhActivity**

package com.example.androidcoban;  
  
import androidx.appcompat.app.AppCompatActivity;  
import android.os.Bundle;  
import android.view.View;  
import android.widget.\*;  
  
public class MayTinhActivity extends AppCompatActivity {  
  
 EditText edtSoA, edtSoB;  
 TextView tvKetQua;  
 Button btnCong, btnTru, btnNhan, btnChia;  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_may\_tinh*);  
 initControl();  
 }  
  
 private void initControl() {  
 edtSoA = findViewById(R.id.*edtSoA*);  
 edtSoB = findViewById(R.id.*edtSoB*);  
 tvKetQua = findViewById(R.id.*tvKetQua*);  
 btnCong = findViewById(R.id.*btnCong*);  
 btnTru = findViewById(R.id.*btnTru*);  
 btnNhan = findViewById(R.id.*btnNhan*);  
 btnChia = findViewById(R.id.*btnChia*);  
  
 View.OnClickListener listener = v -> {  
 try {  
 double a = Double.*parseDouble*(edtSoA.getText().toString());  
 double b = Double.*parseDouble*(edtSoB.getText().toString());  
 double kq = 0;  
  
 if (v.getId() == R.id.*btnCong*) {  
 kq = a + b;  
 } else if (v.getId() == R.id.*btnTru*) {  
 kq = a - b;  
 } else if (v.getId() == R.id.*btnNhan*) {  
 kq = a \* b;  
 } else if (v.getId() == R.id.*btnChia*) {  
 if (b == 0) {  
 tvKetQua.setText("Không thể chia cho 0!");  
 return;  
 }  
 kq = a / b;  
 }  
 tvKetQua.setText("Kết quả: " + kq);  
  
 } catch (Exception e) {  
 tvKetQua.setText("⚠️ Vui lòng nhập số hợp lệ!");  
 }  
 };  
  
 btnCong.setOnClickListener(listener);  
 btnTru.setOnClickListener(listener);  
 btnNhan.setOnClickListener(listener);  
 btnChia.setOnClickListener(listener);  
 }  
}

**activity\_may\_tinh.xml**

<?xml version="1.0" encoding="utf-8"?>  
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 android:background="#FFF5FA"  
 android:orientation="vertical"  
 android:gravity="center"  
 android:padding="20dp">  
  
 <!-- Tiêu đề -->  
 <TextView  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Máy tính cơ bản"  
 android:textSize="20sp"  
 android:textStyle="bold"  
 android:textColor="#333333"  
 android:layout\_marginBottom="20dp"/>  
  
 <EditText  
 android:id="@+id/edtSoA"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:hint="Nhập số A"  
 android:inputType="numberDecimal"  
 android:background="@drawable/edittext\_bg"  
 android:padding="10dp"  
 android:textColor="#333"  
 android:textSize="16sp"  
 android:layout\_marginBottom="10dp" />  
  
 <EditText  
 android:id="@+id/edtSoB"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:hint="Nhập số B"  
 android:inputType="numberDecimal"  
 android:background="@drawable/edittext\_bg"  
 android:padding="10dp"  
 android:textColor="#333"  
 android:textSize="16sp"  
 android:layout\_marginBottom="10dp" />  
  
 <!-- Kết quả -->  
 <TextView  
 android:id="@+id/tvKetQua"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:text="Kết quả:"  
 android:textColor="#333333"  
 android:textSize="18sp"  
 android:layout\_marginTop="20dp"/>  
  
 <!-- Các nút phép tính -->  
 <LinearLayout  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:orientation="horizontal"  
 android:gravity="center"  
 android:layout\_marginTop="25dp"  
 android:weightSum="4">  
  
 <Button  
 android:id="@+id/btnCong"  
 android:layout\_width="0dp"  
 android:layout\_height="60dp"  
 android:layout\_weight="1"  
 android:text="+"  
 android:textSize="20sp"  
 android:textColor="#222"  
 android:textAlignment="center"  
 android:gravity="center"  
 android:background="@drawable/btn\_bg\_rounded"  
 android:backgroundTint="@null"  
 android:layout\_margin="6dp"/>  
  
 <Button  
 android:id="@+id/btnTru"  
 android:layout\_width="0dp"  
 android:layout\_height="60dp"  
 android:layout\_weight="1"  
 android:text="-"  
 android:textSize="20sp"  
 android:textColor="#222"  
 android:textAlignment="center"  
 android:gravity="center"  
 android:background="@drawable/btn\_bg\_yellow"  
 android:backgroundTint="@null"  
 android:layout\_margin="6dp"/>  
  
 <Button  
 android:id="@+id/btnNhan"  
 android:layout\_width="0dp"  
 android:layout\_height="60dp"  
 android:layout\_weight="1"  
 android:text="×"  
 android:textSize="20sp"  
 android:textColor="#222"  
 android:textAlignment="center"  
 android:gravity="center"  
 android:background="@drawable/btn\_bg\_mint"  
 android:backgroundTint="@null"  
 android:layout\_margin="6dp"/>  
  
 <Button  
 android:id="@+id/btnChia"  
 android:layout\_width="0dp"  
 android:layout\_height="60dp"  
 android:layout\_weight="1"  
 android:text="÷"  
 android:textSize="20sp"  
 android:textColor="#222"  
 android:textAlignment="center"  
 android:gravity="center"  
 android:background="@drawable/btn\_bg\_blue"  
 android:backgroundTint="@null"  
 android:layout\_margin="6dp"/>  
 </LinearLayout>  
  
</LinearLayout>

A screenshot of a cell phone

AI-generated content may be incorrect. A screenshot of a cell phone

AI-generated content may be incorrect. A screenshot of a cell phone

AI-generated content may be incorrect.

A screenshot of a cell phone

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* 1. Tạo app có Camera

**AndroidManifest.xml**

<?xml version="1.0" encoding="utf-8"?>  
<manifest xmlns:android="http://schemas.android.com/apk/res/android"  
 xmlns:tools="http://schemas.android.com/tools">  
  
 <uses-permission android:name="android.permission.RECEIVE\_SMS" />  
 <uses-permission android:name="android.permission.SEND\_SMS" />  
 <uses-permission android:name="android.permission.READ\_SMS" />  
 <uses-permission android:name="android.permission.INTERNET" />  
 <uses-permission android:name="android.permission.ACCESS\_FINE\_LOCATION" />  
 <uses-permission android:name="android.permission.ACCESS\_COARSE\_LOCATION" />  
 <uses-permission android:name="android.permission.POST\_NOTIFICATIONS" />  
 <uses-permission android:name="android.permission.CAMERA" />  
 <uses-feature android:name="android.hardware.camera" android:required="false" />  
 <uses-feature android:name="android.hardware.telephony" android:required="false" />  
  
 <application  
 android:allowBackup="true"  
 android:dataExtractionRules="@xml/data\_extraction\_rules"  
 android:fullBackupContent="@xml/backup\_rules"  
 android:icon="@mipmap/ic\_launcher"  
 android:label="@string/app\_name"  
 android:roundIcon="@mipmap/ic\_launcher\_round"  
 android:supportsRtl="true"  
 android:theme="@style/Theme.Androidcoban">  
  
 <activity android:name=".CameraActivity" />  
 <activity android:name=".LienLacActivity" />  
 <activity android:name=".XucXacActivity" />  
 <activity android:name=".MayTinhActivity" />  
  
 <activity  
 android:name=".MainActivity"  
 android:exported="true">  
 <intent-filter>  
 <action android:name="android.intent.action.MAIN" />  
 <category android:name="android.intent.category.LAUNCHER" />  
 </intent-filter>  
 </activity>  
  
 <receiver  
 android:name=".SmsReceiver"  
 android:exported="true"  
 tools:ignore="ExportedReceiver">  
 <intent-filter android:priority="1000">  
 <action android:name="android.provider.Telephony.SMS\_RECEIVED" />  
 </intent-filter>  
 </receiver>  
  
 <receiver  
 android:name=".PowerStateChangeReceiver"  
 android:exported="false">  
 <intent-filter>  
 <action android:name="android.intent.action.ACTION\_POWER\_CONNECTED" />  
 <action android:name="android.intent.action.ACTION\_POWER\_DISCONNECTED" />  
 </intent-filter>  
 </receiver>  
  
 </application>  
  
</manifest>

**CameraActivity**

package com.example.androidcoban;  
  
import androidx.activity.result.ActivityResultLauncher;  
import androidx.activity.result.contract.ActivityResultContracts;  
import androidx.annotation.NonNull;  
import androidx.appcompat.app.AppCompatActivity;  
import androidx.camera.core.CameraSelector;  
import androidx.camera.core.ImageCapture;  
import androidx.camera.core.ImageCaptureException;  
import androidx.camera.core.Preview;  
import androidx.camera.lifecycle.ProcessCameraProvider;  
import androidx.camera.view.PreviewView;  
import androidx.core.content.ContextCompat;  
  
import android.Manifest;  
import android.content.pm.PackageManager;  
import android.graphics.Bitmap;  
import android.graphics.BitmapFactory;  
import android.os.Bundle;  
import android.util.Log;  
import android.widget.Button;  
import android.widget.ImageView;  
import android.widget.Toast;  
  
import com.google.common.util.concurrent.ListenableFuture;  
  
import java.io.File;  
import java.io.IOException;  
import java.util.concurrent.ExecutionException;  
import java.util.concurrent.ExecutorService;  
import java.util.concurrent.Executors;  
  
public class CameraActivity extends AppCompatActivity {  
  
 private PreviewView previewView;  
 private Button btnCapture;  
 private ImageView imgResult;  
  
 private ImageCapture imageCapture;  
 private ExecutorService cameraExecutor;  
  
 private final ActivityResultLauncher<String> requestPermissionLauncher =  
 registerForActivityResult(new ActivityResultContracts.RequestPermission(), isGranted -> {  
 if (isGranted) {  
 startCamera();  
 } else {  
 Toast.*makeText*(this, "Cần cấp quyền camera để sử dụng!", Toast.*LENGTH\_SHORT*).show();  
 }  
 });  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_camera*);  
  
 previewView = findViewById(R.id.*previewView*);  
 btnCapture = findViewById(R.id.*btnCapture*);  
 imgResult = findViewById(R.id.*imgResult*);  
  
 cameraExecutor = Executors.*newSingleThreadExecutor*();  
  
 // Kiểm tra quyền camera  
 if (ContextCompat.*checkSelfPermission*(this, Manifest.permission.*CAMERA*)  
 == PackageManager.*PERMISSION\_GRANTED*) {  
 startCamera();  
 } else {  
 requestPermissionLauncher.launch(Manifest.permission.*CAMERA*);  
 }  
  
 btnCapture.setOnClickListener(v -> takePhoto());  
 }  
  
 @Override  
 protected void onResume() {  
 super.onResume();  
 if (previewView != null &&  
 ContextCompat.*checkSelfPermission*(this, Manifest.permission.*CAMERA*)  
 == PackageManager.*PERMISSION\_GRANTED*) {  
 startCamera();  
 }  
 }  
  
 private void startCamera() {  
 ListenableFuture<ProcessCameraProvider> cameraProviderFuture =  
 ProcessCameraProvider.*getInstance*(this);  
  
 cameraProviderFuture.addListener(() -> {  
 try {  
 ProcessCameraProvider cameraProvider = cameraProviderFuture.get();  
  
 Preview preview = new Preview.Builder().build();  
 imageCapture = new ImageCapture.Builder()  
 .setCaptureMode(ImageCapture.*CAPTURE\_MODE\_MINIMIZE\_LATENCY*)  
 .build();  
  
 CameraSelector cameraSelector = CameraSelector.*DEFAULT\_BACK\_CAMERA*;  
  
 if (previewView != null) {  
 preview.setSurfaceProvider(previewView.getSurfaceProvider());  
 } else {  
 Log.*e*("CameraX", "⚠️ previewView = null!");  
 return;  
 }  
  
 cameraProvider.unbindAll();  
 cameraProvider.bindToLifecycle(this, cameraSelector, preview, imageCapture);  
  
 } catch (ExecutionException | InterruptedException e) {  
 Log.*e*("CameraX", "Lỗi khởi tạo CameraX", e);  
 }  
 }, ContextCompat.*getMainExecutor*(this));  
 }  
  
 private void takePhoto() {  
 if (imageCapture == null) return;  
  
 try {  
 File photoFile = File.*createTempFile*("photo\_", ".jpg", getCacheDir());  
 ImageCapture.OutputFileOptions options =  
 new ImageCapture.OutputFileOptions.Builder(photoFile).build();  
  
 imageCapture.takePicture(options, ContextCompat.*getMainExecutor*(this),  
 new ImageCapture.OnImageSavedCallback() {  
 @Override  
 public void onImageSaved(@NonNull ImageCapture.OutputFileResults outputFileResults) {  
 Bitmap bitmap = BitmapFactory.*decodeFile*(photoFile.getAbsolutePath());  
 imgResult.setImageBitmap(bitmap);  
 Toast.*makeText*(CameraActivity.this, "📸 Đã chụp ảnh!", Toast.*LENGTH\_SHORT*).show();  
 }  
  
 @Override  
 public void onError(@NonNull ImageCaptureException exception) {  
 Toast.*makeText*(CameraActivity.this, "Lỗi khi chụp ảnh!", Toast.*LENGTH\_SHORT*).show();  
 }  
 });  
  
 } catch (IOException e) {  
 e.printStackTrace();  
 }  
 }  
  
 @Override  
 protected void onDestroy() {  
 super.onDestroy();  
 if (cameraExecutor != null) cameraExecutor.shutdown();  
 }  
}

**actvity\_camera.xml**

<?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:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 android:background="#FFF5FA"  
 android:orientation="vertical"  
 android:gravity="center\_horizontal"  
 android:padding="20dp"  
 tools:context=".CameraActivity">  
  
 <!-- Tiêu đề -->  
 <TextView  
 android:id="@+id/tvTitle"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="📷 Mở Camera"  
 android:textSize="20sp"  
 android:textStyle="bold"  
 android:textColor="#333333"  
 android:layout\_marginBottom="15dp" />  
  
 <!-- Camera Preview -->  
 <androidx.camera.view.PreviewView  
 android:id="@+id/previewView"  
 android:layout\_width="300dp"  
 android:layout\_height="300dp"  
 android:layout\_marginBottom="20dp"  
 android:background="#EDEDED"  
 app:implementationMode="performance"  
 android:elevation="4dp"  
 android:scaleType="centerCrop"  
 android:clipToOutline="true"  
 tools:background="@drawable/ic\_launcher\_foreground"  
 android:outlineProvider="background" />  
  
 <!-- Nút chụp ảnh -->  
 <Button  
 android:id="@+id/btnCapture"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="CHỤP ẢNH"  
 android:textSize="16sp"  
 android:textStyle="bold"  
 android:textColor="#222"  
 android:paddingHorizontal="30dp"  
 android:paddingVertical="12dp"  
 android:layout\_marginBottom="25dp"  
 android:background="@drawable/btn\_bg\_yellow"  
 android:backgroundTint="@null" />  
  
 <!-- Kết quả -->  
 <ImageView  
 android:id="@+id/imgResult"  
 android:layout\_width="250dp"  
 android:layout\_height="250dp"  
 android:layout\_gravity="center"  
 android:background="#F8F8F8"  
 android:scaleType="centerCrop"  
 tools:src="@drawable/ic\_launcher\_foreground"  
 android:contentDescription="Ảnh chụp kết quả" />  
  
</LinearLayout>

A screen shot of a phone

AI-generated content may be incorrect. A screenshot of a cell phone

AI-generated content may be incorrect.

* 1. Xây dựng một ứng dụng cho phép mỗi khi người dùng nhấn nút thì xuất một số ngẫu nhiên ra màn hình

**XucXacActivity**

package com.example.androidcoban;  
  
import androidx.appcompat.app.AppCompatActivity;  
import android.os.Bundle;  
import android.widget.\*;  
import java.util.Random;  
  
public class XucXacActivity extends AppCompatActivity {  
  
 private Button btnRoll;  
 private ImageView imgDice;  
 private TextView tvResult;  
 private final Random random = new Random();  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_xuc\_xac*);  
  
 // Ánh xạ view  
 btnRoll = findViewById(R.id.*btnRoll*);  
 imgDice = findViewById(R.id.*imgDice*);  
 tvResult = findViewById(R.id.*tvResult*);  
  
 // Xử lý sự kiện bấm nút  
 btnRoll.setOnClickListener(v -> {  
 int so = random.nextInt(6) + 1; // random 1–6  
  
 // Hiển thị kết quả  
 tvResult.setText("🎲 Kết quả: " + so);  
  
 // Gán hình xúc xắc tương ứng  
 switch (so) {  
 case 1:  
 imgDice.setImageResource(R.drawable.*dice1*);  
 break;  
 case 2:  
 imgDice.setImageResource(R.drawable.*dice2*);  
 break;  
 case 3:  
 imgDice.setImageResource(R.drawable.*dice3*);  
 break;  
 case 4:  
 imgDice.setImageResource(R.drawable.*dice4*);  
 break;  
 case 5:  
 imgDice.setImageResource(R.drawable.*dice5*);  
 break;  
 case 6:  
 imgDice.setImageResource(R.drawable.*dice6*);  
 break;  
 }  
 });  
 }  
}

**activity\_xuc\_xac.xml**

<?xml version="1.0" encoding="utf-8"?>  
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 android:background="#FFF5FA"  
 android:orientation="vertical"  
 android:gravity="center"  
 android:padding="20dp">  
  
 <TextView  
 android:text=" Tung xúc xắc"  
 android:textSize="20sp"  
 android:textStyle="bold"  
 android:textColor="#333"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginBottom="20dp" />  
  
 <ImageView  
 android:id="@+id/imgDice"  
 android:layout\_width="150dp"  
 android:layout\_height="150dp"  
 android:src="@drawable/dice1"  
 android:layout\_marginBottom="20dp" />  
  
 <TextView  
 android:id="@+id/tvResult"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Kết quả: Chưa tung "  
 android:textSize="18sp"  
 android:textColor="#333"  
 android:layout\_marginBottom="20dp" />  
  
 <Button  
 android:id="@+id/btnRoll"  
 android:text="TUNG XÚC XẮC"  
 android:textSize="16sp"  
 android:textColor="#222"  
 android:background="@drawable/btn\_bg\_mint"  
 android:backgroundTint="@null"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:padding="10dp" />  
</LinearLayout>

A screenshot of a phone

AI-generated content may be incorrect.

* 1. Viết chương trình cho phép gọi, nhắn tin trên Hệ điều hành Android.

**LienLacActivity**

package com.example.androidcoban;  
  
import androidx.appcompat.app.AppCompatActivity;  
import android.os.Bundle;  
import android.content.Intent;  
import android.net.Uri;  
import android.widget.\*;  
  
public class LienLacActivity extends AppCompatActivity {  
 EditText edtPhone;  
 Button btnCall, btnSms;  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_lien\_lac*);  
  
 edtPhone = findViewById(R.id.*edtPhone*);  
 btnCall = findViewById(R.id.*btnCall*);  
 btnSms = findViewById(R.id.*btnSms*);  
  
 btnCall.setOnClickListener(v -> {  
 String sdt = edtPhone.getText().toString();  
 if (sdt.isEmpty()) {  
 Toast.*makeText*(this, "Nhập số điện thoại!", Toast.*LENGTH\_SHORT*).show();  
 return;  
 }  
 Intent i = new Intent(Intent.*ACTION\_DIAL*, Uri.*parse*("tel:" + sdt));  
 startActivity(i);  
 });  
  
 btnSms.setOnClickListener(v -> {  
 String sdt = edtPhone.getText().toString();  
 if (sdt.isEmpty()) {  
 Toast.*makeText*(this, "Nhập số điện thoại!", Toast.*LENGTH\_SHORT*).show();  
 return;  
 }  
 Intent i = new Intent(Intent.*ACTION\_VIEW*, Uri.*parse*("sms:" + sdt));  
 i.putExtra("sms\_body", "Xin chào!");  
 startActivity(i);  
 });  
 }  
}

**actvity\_lien\_lac.xml**

<?xml version="1.0" encoding="utf-8"?>  
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 android:background="#FFF5FA"  
 android:orientation="vertical"  
 android:gravity="center\_horizontal"  
 android:padding="20dp">  
  
 <TextView  
 android:text="Liên lạc"  
 android:textSize="20sp"  
 android:textStyle="bold"  
 android:textColor="#333333"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginBottom="20dp"/>  
 <EditText  
 android:id="@+id/edtPhone"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:hint="Nhập số điện thoại"  
 android:inputType="phone"  
 android:background="@drawable/edittext\_bg"  
 android:padding="10dp"  
 android:textColor="#333333"  
 android:textSize="16sp"  
 android:layout\_marginBottom="20dp"/>  
  
 <Button  
 android:id="@+id/btnCall"  
 android:layout\_width="match\_parent"  
 android:layout\_height="30dp"  
 android:text="GỌI ĐIỆN"  
 android:textColor="#200"  
 android:textSize="18sp"  
 android:background="@drawable/btn\_bg\_blue"  
 android:layout\_marginBottom="10dp"  
 android:layout\_marginTop="10dp"/>  
  
 <Button  
 android:id="@+id/btnSms"  
 android:layout\_width="match\_parent"  
 android:layout\_height="30dp"  
 android:text="NHẮN TIN"  
 android:textColor="#200"  
 android:textSize="18sp"  
 android:background="@drawable/btn\_bg\_mint"  
 android:layout\_marginBottom="10dp"  
 android:layout\_marginTop="10dp"/>  
</LinearLayout>

**A screenshot of a phone

AI-generated content may be incorrect.** A screenshot of a phone call

AI-generated content may be incorrect.

## BÀI 2

* 1. Tạo ứng dụng Animal sound

**Bai1Activity.java**

package com.example.btap8;  
  
import androidx.appcompat.app.AppCompatActivity;  
import android.content.Intent;  
import android.os.Bundle;  
import android.os.Handler;  
import android.view.View;  
import android.widget.ImageView;  
import android.widget.LinearLayout;  
import android.widget.TextView;  
import java.util.Random;  
  
public class Bai1Activity extends AppCompatActivity {  
  
 private View loadingView;  
 private LinearLayout contentLayout;  
 private ImageView imgAnimal;  
 private TextView txtTitle, btnBack;  
  
 private int[] colors = { 0xFFE57373, 0xFF64B5F6, 0xFF81C784, 0xFFFFD54F, 0xFFBA68C8 };  
 private int[] icons = { R.drawable.*ic\_cat*, R.drawable.*ic\_dog*, R.drawable.*ic\_lion* };  
 private String[] names = { "Cat", "Dog", "Lion" };  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_bai1*);  
  
 // Ánh xạ View  
 loadingView = findViewById(R.id.*loadingView*);  
 contentLayout = findViewById(R.id.*contentLayout*);  
 imgAnimal = findViewById(R.id.*imgAnimal*);  
 txtTitle = findViewById(R.id.*txtTitle*);  
 btnBack = findViewById(R.id.*btnBack*);  
  
 // QUAY LẠI MENU  
 btnBack.setOnClickListener(v -> {  
 startActivity(new Intent(Bai1Activity.this, MainActivity.class));  
 finish();  
 });  
  
 // Loading 2 giây trước khi hiện Animal  
 new Handler().postDelayed(() -> {  
 loadingView.setVisibility(View.*GONE*);  
 contentLayout.setVisibility(View.*VISIBLE*);  
 randomSplash();  
 }, 2000);  
 }  
  
 private void randomSplash() {  
 Random random = new Random();  
 contentLayout.setBackgroundColor(colors[random.nextInt(colors.length)]);  
 int index = random.nextInt(icons.length);  
 imgAnimal.setImageResource(icons[index]);  
 txtTitle.setText("Animal Sound - " + names[index]);  
 }  
}

**activity\_main.xml**

<?xml version="1.0" encoding="utf-8"?>  
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 android:gravity="center"  
 android:orientation="vertical"  
 android:padding="24dp"  
 android:background="#FAFAFA">  
  
 <Button  
 android:id="@+id/btnBai1"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:text="Bài 1: Random Animal"  
 android:layout\_marginBottom="16dp" />  
  
 <Button  
 android:id="@+id/btnBai2"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:text="Bài 2: Loading Overlay" />  
</LinearLayout>

**activity\_bai1.xml**

<?xml version="1.0" encoding="utf-8"?>  
<FrameLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent">  
  
  
 <TextView  
 android:id="@+id/btnBack"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:gravity="center"  
 android:padding="16dp"  
 android:text="Quay lại"  
 android:textSize="18sp"  
 android:textStyle="bold" />  
  
 <!-- Giao diện Animal, đặt dưới nút quay lại -->  
 <LinearLayout  
 android:id="@+id/contentLayout"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 android:gravity="center"  
 android:orientation="vertical"  
 android:paddingTop="60dp">  
  
 <ImageView  
 android:id="@+id/imgAnimal"  
 android:layout\_width="200dp"  
 android:layout\_height="200dp"  
 android:scaleType="centerCrop" />  
  
 <TextView  
 android:id="@+id/txtTitle"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginTop="20dp"  
 android:textSize="24sp"  
 android:textColor="#000000" />  
 </LinearLayout>  
  
   
 <include  
 android:id="@+id/loadingView"  
 layout="@layout/item\_loading"  
 android:visibility="visible" />  
</FrameLayout>

A screenshot of a phone

AI-generated content may be incorrect.

* 1. Tạo giao diện loading

**ProfileActivity**

package com.example.btap8;  
  
import androidx.appcompat.app.AppCompatActivity;  
import android.os.Bundle;  
  
public class ProfileActivity extends AppCompatActivity {  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_profile*);  
 }  
}

**activity\_profile.xml**

<?xml version="1.0" encoding="utf-8"?>  
<ScrollView xmlns:android="http://schemas.android.com/apk/res/android"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 android:background="@color/gray\_light">  
  
 <LinearLayout  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:orientation="vertical"  
 android:padding="16dp"  
 android:gravity="center\_horizontal">  
  
 <ImageView  
 android:id="@+id/img\_avatar"  
 android:layout\_width="160dp"  
 android:layout\_height="160dp"  
 android:src="@drawable/avatar\_me"  
 android:layout\_marginTop="24dp"  
 android:layout\_marginBottom="16dp"  
 android:scaleType="centerCrop"  
 android:background="@drawable/bg\_oval"  
 android:clipToOutline="true" />  
  
 <TextView  
 android:id="@+id/tv\_name"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:text="Văn Khánh"  
 android:textColor="@color/indigo"  
 android:textSize="24sp"  
 android:textStyle="bold"  
 android:layout\_marginBottom="6dp" />  
  
 <TextView  
 android:text="Nhà bảo tồn động vật "  
 android:textColor="@color/gray\_mid"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:textSize="16sp"  
 android:layout\_marginBottom="12dp" />  
  
  
 <LinearLayout  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:orientation="horizontal"  
 android:gravity="center"  
 android:layout\_marginTop="24dp">  
  
 <ImageButton  
 android:layout\_width="60dp"  
 android:layout\_height="60dp"  
 android:src="@drawable/ic\_back"  
 android:background="@drawable/bg\_oval"  
 android:padding="14dp"  
 android:contentDescription="Quay lại" />  
  
  
 </LinearLayout>  
  
 </LinearLayout>  
</ScrollView>

A black cell phone with a white screen

AI-generated content may be incorrect.

* 1. Lập trình để khi bấm vào icon thì chuyển về cuộc gọi, sử dụng Intent.

**Bai2Activity.java**

package com.example.btap8;  
  
import androidx.appcompat.app.AppCompatActivity;  
import android.content.Intent;  
import android.net.Uri;  
import android.os.Bundle;  
import android.os.Handler;  
import android.view.View;  
import android.widget.Button;  
import android.widget.EditText;  
import android.widget.TextView;  
  
public class Bai2Activity extends AppCompatActivity {  
  
 private View loadingView;  
 private Button btnShowLoading, btnCall;  
 private EditText edtPhone;  
 private TextView btnBack;  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_bai2*);  
  
  
 loadingView = findViewById(R.id.*loadingView*);  
 btnShowLoading = findViewById(R.id.*btnShowLoading*);  
 btnCall = findViewById(R.id.*btnCall*);  
 edtPhone = findViewById(R.id.*edtPhone*);  
 btnBack = findViewById(R.id.*btnBack*);  
  
  
 btnBack.setOnClickListener(v -> {  
 startActivity(new Intent(Bai2Activity.this, MainActivity.class));  
 finish();  
 });  
  
  
 btnShowLoading.setOnClickListener(v -> {  
 loadingView.setVisibility(View.*VISIBLE*);  
 new Handler().postDelayed(() ->  
 loadingView.setVisibility(View.*GONE*), 2000);  
 });  
  
  
 btnCall.setOnClickListener(v -> {  
 String phone = edtPhone.getText().toString().trim();  
 if (!phone.isEmpty()) {  
 Intent intent = new Intent(Intent.*ACTION\_DIAL*, Uri.*parse*("tel:" + phone));  
 startActivity(intent);  
 } else {  
 edtPhone.setError("Vui lòng nhập số điện thoại");  
 }  
 });  
 }  
}

**activity\_bai2.xml**

<?xml version="1.0" encoding="utf-8"?>  
<FrameLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent">  
  
 <!-- Nút QUAY LẠI ở trên đầu, căn giữa -->  
 <TextView  
 android:id="@+id/btnBack"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:gravity="center"  
 android:padding="16dp"  
 android:text="Quay lại"  
 android:textSize="18sp"  
 android:textStyle="bold" />  
  
   
 <LinearLayout  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 android:gravity="center"  
 android:orientation="vertical"  
 android:paddingTop="70dp">  
  
  
 <Button  
 android:id="@+id/btnShowLoading"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"  
 android:text="Show Loading"  
 android:layout\_marginBottom="30dp" />  
  
   
 <EditText  
 android:id="@+id/edtPhone"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:hint="Nhập số điện thoại"  
 android:inputType="phone"  
 android:padding="12dp"  
 android:layout\_marginBottom="16dp" />  
  
   
 <Button  
 android:id="@+id/btnCall"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:text="Gọi điện" />  
 </LinearLayout>  
  
   
 <include  
 android:id="@+id/loadingView"  
 layout="@layout/item\_loading"  
 android:visibility="gone" />  
  
</FrameLayout>

A screenshot of a cell phone

AI-generated content may be incorrect.

# LAB 2 BUỔI THỰC HÀNH 2

## BÀI 3

* 1. Tạo chức năng On/Off xoay màn hình

package com.example.th2.techja.truyencuoi;  
  
import android.content.Context;  
import android.content.res.Configuration;  
import android.content.res.Resources;  
  
import java.util.Locale;  
  
public class LanguageHelper {  
  
 public static void changeLanguage(Context context, String langCode) {  
 Locale locale = new Locale(langCode);  
 Locale.*setDefault*(locale);  
  
 Resources res = context.getResources();  
 Configuration config = res.getConfiguration();  
 config.setLocale(locale);  
 res.updateConfiguration(config, res.getDisplayMetrics());  
 }  
}

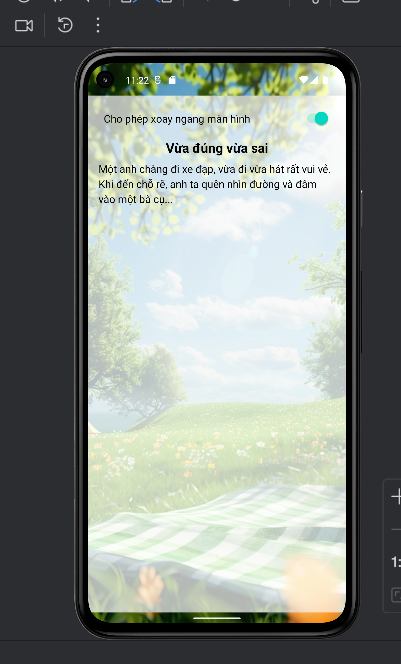
package com.example.th2.techja.truyencuoi;  
  
import android.os.Bundle;  
import android.os.Handler;  
import android.view.LayoutInflater;  
import android.view.View;  
import android.view.ViewGroup;  
import androidx.fragment.app.Fragment;  
  
import com.example.th2.R;  
  
public class M000SplashFrg extends Fragment {  
 @Override  
 public View onCreateView(LayoutInflater inflater, ViewGroup container, Bundle savedInstanceState) {  
 initViews();  
 return inflater.inflate(R.layout.*m000\_frg\_splash*, container, false);  
 }  
 private void initViews() {  
 new Handler().postDelayed(this::gotoM001Screen, 2000);  
 }  
 private void gotoM001Screen() {  
 ((MainActivity) getActivity()).gotoM001Screen();  
 }  
}

package com.example.th2.techja.truyencuoi;  
  
import android.os.Bundle;  
import android.view.LayoutInflater;  
import android.view.View;  
import android.view.ViewGroup;  
import android.widget.Button;  
import androidx.fragment.app.Fragment;  
import com.example.th2.R;  
  
public class M001TopicFrg extends Fragment {  
 @Override  
 public View onCreateView(LayoutInflater inflater, ViewGroup container, Bundle savedInstanceState) {  
 View view = inflater.inflate(R.layout.*m001\_frg\_topic*, container, false);  
  
 Button btnGirl = view.findViewById(R.id.*btnTopicGirl*);  
 Button btnFamily = view.findViewById(R.id.*btnTopicFamily*);  
  
 btnGirl.setOnClickListener(v -> ((MainActivity) getActivity()).gotoM002Screen("Con gái"));  
 btnFamily.setOnClickListener(v -> ((MainActivity) getActivity()).gotoM002Screen("Gia đình"));  
  
 return view;  
 }  
}

package com.example.th2.techja.truyencuoi;  
  
import android.os.Bundle;  
import android.view.LayoutInflater;  
import android.view.View;  
import android.view.ViewGroup;  
import android.widget.Button;  
import androidx.fragment.app.Fragment;  
import com.example.th2.R;  
import com.example.th2.techja.truyencuoi.model.StoryEntity;  
import java.util.ArrayList;  
  
public class M002StoryFrg extends Fragment {  
 @Override  
 public View onCreateView(LayoutInflater inflater, ViewGroup container, Bundle savedInstanceState) {  
 View view = inflater.inflate(R.layout.*m002\_frg\_story*, container, false);  
  
 Button btnStory1 = view.findViewById(R.id.*btnStory1*);  
 Button btnStory2 = view.findViewById(R.id.*btnStory2*);  
  
 btnStory1.setOnClickListener(v -> openStory("Vừa đúng vừa sai",  
 "Một anh chàng đi xe đạp, vừa đi vừa hát rất vui vẻ.\nKhi đến chỗ rẽ, anh ta quên nhìn đường và đâm vào một bà cụ..."));  
  
 btnStory2.setOnClickListener(v -> openStory("Chuyện vui khác",  
 "Một câu chuyện cười khác cũng thú vị không kém!"));  
  
 return view;  
 }  
  
 private void openStory(String title, String content) {  
 ArrayList<StoryEntity> list = new ArrayList<>();  
 list.add(new StoryEntity(title, content));  
 ((MainActivity) getActivity()).gotoM003Screen(list, list.get(0));  
 }  
}

package com.example.th2.techja.truyencuoi;  
  
import android.os.Bundle;  
import android.view.LayoutInflater;  
import android.view.View;  
import android.view.ViewGroup;  
import android.widget.Button;  
import android.widget.TextView;  
  
import androidx.annotation.NonNull;  
import androidx.annotation.Nullable;  
import androidx.fragment.app.Fragment;  
  
import com.example.th2.R;  
import com.example.th2.techja.truyencuoi.model.StoryEntity;  
  
import java.util.ArrayList;  
  
public class M003DetailFrg extends Fragment {  
  
 private static final String *ARG\_LIST* = "list\_story";  
 private static final String *ARG\_STORY* = "story";  
  
 private StoryEntity currentStory;  
 private ArrayList<StoryEntity> storyList;  
  
 public static M003DetailFrg newInstance(ArrayList<StoryEntity> list, StoryEntity story) {  
 M003DetailFrg frg = new M003DetailFrg();  
 Bundle args = new Bundle();  
 args.putSerializable(*ARG\_LIST*, list);  
 args.putSerializable(*ARG\_STORY*, story);  
 frg.setArguments(args);  
 return frg;  
 }  
  
 @Nullable  
 @Override  
 public View onCreateView(@NonNull LayoutInflater inflater,  
 @Nullable ViewGroup container,  
 @Nullable Bundle savedInstanceState) {  
  
 View view = inflater.inflate(R.layout.*m003\_frg\_detail*, container, false);  
  
 TextView tvTitle = view.findViewById(R.id.*tvStoryTitle*);  
 TextView tvContent = view.findViewById(R.id.*tvStoryContent*);  
 Button btnBack = view.findViewById(R.id.*btnBack*);  
  
 // Lấy dữ liệu từ arguments  
 if (getArguments() != null) {  
 storyList = (ArrayList<StoryEntity>) getArguments().getSerializable(*ARG\_LIST*);  
 currentStory = (StoryEntity) getArguments().getSerializable(*ARG\_STORY*);  
 }  
  
 if (currentStory != null) {  
 tvTitle.setText(currentStory.getTitle());  
 tvContent.setText(currentStory.getContent());  
 }  
  
 // Nút trở lại  
 btnBack.setOnClickListener(v -> ((MainActivity) getActivity()).gotoM002Screen("Con gái"));  
  
 return view;  
 }  
}

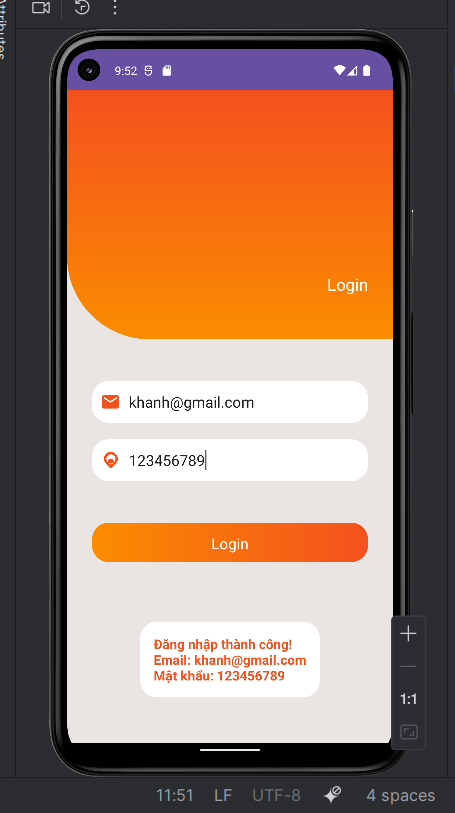
package com.example.th2.techja.truyencuoi;  
  
import android.content.pm.ActivityInfo;  
import android.os.Bundle;  
import android.view.Menu;  
import android.view.MenuItem;  
import android.widget.Switch;  
import android.widget.TextView;  
  
import androidx.appcompat.app.AppCompatActivity;  
import androidx.fragment.app.Fragment;  
  
import com.example.th2.R;  
import com.example.th2.techja.truyencuoi.model.StoryEntity;  
  
import java.util.ArrayList;  
import java.util.HashMap;  
  
public class MainActivity extends AppCompatActivity {  
  
 private String currentLang = "vi";  
 private Switch swRotate;  
 private TextView tvStoryTitle, tvStoryContent;  
 private HashMap<String, HashMap<String, String>> translations;  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
  
 // Ánh xạ view  
 swRotate = findViewById(R.id.*swRotate*);  
 tvStoryTitle = findViewById(R.id.*tvStoryTitle*);  
 tvStoryContent = findViewById(R.id.*tvStoryContent*);  
  
 // Xử lý xoay màn hình  
 swRotate.setOnCheckedChangeListener((btn, isChecked) -> {  
 if (isChecked)  
 setRequestedOrientation(ActivityInfo.*SCREEN\_ORIENTATION\_SENSOR*);  
 else  
 setRequestedOrientation(ActivityInfo.*SCREEN\_ORIENTATION\_PORTRAIT*);  
 });  
  
 // Nạp dữ liệu ngôn ngữ  
 setupTranslations();  
 applyLanguage("vi"); // mặc định tiếng Việt  
  
 // Mở màn hình splash đầu tiên  
 showFrg(new M000SplashFrg());  
 }  
  
 // Hàm thay fragment  
 private void showFrg(Fragment frg) {  
 getSupportFragmentManager().beginTransaction()  
 .replace(R.id.*fragment\_container*, frg, null)  
 .commit();  
 }  
  
 // ✅ THÊM LẠI 3 HÀM GỌI TỪ CÁC FRAGMENT  
 public void gotoM001Screen() {  
 showFrg(new M001TopicFrg());  
 }  
  
 public void gotoM002Screen(String topicName) {  
 showFrg(new M002StoryFrg());  
 }  
  
 public void gotoM003Screen(ArrayList<StoryEntity> listStory, StoryEntity story) {  
 M003DetailFrg frg = M003DetailFrg.*newInstance*(listStory, story);  
 showFrg(frg);  
 }  
  
 // ----------------- MENU NGÔN NGỮ -----------------  
 @Override  
 public boolean onCreateOptionsMenu(Menu menu) {  
 getMenuInflater().inflate(R.menu.*menu\_language*, menu);  
 return true;  
 }  
  
 @Override  
 public boolean onOptionsItemSelected(MenuItem item) {  
 int id = item.getItemId();  
  
 if (id == R.id.*lang\_vi*) {  
 applyLanguage("vi");  
 return true;  
 } else if (id == R.id.*lang\_en*) {  
 applyLanguage("en");  
 return true;  
 }  
  
 return super.onOptionsItemSelected(item);  
 }  
  
 private void setupTranslations() {  
 translations = new HashMap<>();  
  
 // 🇻🇳 Tiếng Việt  
 HashMap<String, String> vi = new HashMap<>();  
 vi.put("allow\_rotate", "Cho phép xoay ngang màn hình");  
 vi.put("story\_title", "Vừa đúng vừa sai");  
 vi.put("story\_content", "Một anh chàng đi xe đạp, vừa đi vừa hát rất vui vẻ.\nKhi đến chỗ rẽ, anh ta quên nhìn đường và đâm vào một bà cụ...");  
  
 // 🇬🇧 English  
 HashMap<String, String> en = new HashMap<>();  
 en.put("allow\_rotate", "Allow screen rotation");  
 en.put("story\_title", "Right and Wrong");  
 en.put("story\_content", "A young man was happily riding his bicycle while singing.\nAt a turn, he forgot to look and bumped into an old lady...");  
  
 translations.put("vi", vi);  
 translations.put("en", en);  
 }  
  
 private void applyLanguage(String lang) {  
 currentLang = lang;  
 HashMap<String, String> t = translations.get(lang);  
 if (t == null) return;  
  
 swRotate.setText(t.get("allow\_rotate"));  
 if (tvStoryTitle != null) tvStoryTitle.setText(t.get("story\_title"));  
 if (tvStoryContent != null) tvStoryContent.setText(t.get("story\_content"));  
 }  
}

****

## BÀI 4

* 1. Tạo 1 ứng dụng Login

package com.example.lab4advancedui;  
  
import android.os.Bundle;  
import android.view.Gravity;  
import android.view.LayoutInflater;  
import android.view.View;  
import android.widget.EditText;  
import android.widget.TextView;  
import android.widget.Toast;  
  
import android.content.Intent;  
  
  
  
import androidx.appcompat.app.AppCompatActivity;  
  
public class LoginActivity extends AppCompatActivity {  
 private EditText edtEmail, edtPassword;  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_login*);  
  
 edtEmail = findViewById(R.id.*edtEmail*);  
 edtPassword = findViewById(R.id.*edtPassword*);  
  
 findViewById(R.id.*btnLogin*).setOnClickListener(v -> showCustomToast());  
 }  
  
 private void showCustomToast() {  
 String email = edtEmail.getText().toString().trim();  
 String pass = edtPassword.getText().toString().trim();  
  
 if (email.isEmpty() || pass.isEmpty()) {  
 Toast.*makeText*(this, "Vui lòng nhập đầy đủ thông tin!", Toast.*LENGTH\_SHORT*).show();  
 return;  
 }  
  
 View layout = LayoutInflater.*from*(this).inflate(R.layout.*toast\_custom*, null);  
 TextView text = layout.findViewById(R.id.*txtMessage*);  
 text.setText("Đăng nhập thành công!\nEmail: " + email + "\nMật khẩu: " + pass);  
  
 Toast toast = new Toast(getApplicationContext());  
 toast.setGravity(Gravity.*BOTTOM*, 0, 150);  
 toast.setDuration(Toast.*LENGTH\_SHORT*);  
 toast.setView(layout);  
 toast.show();  
  
 new android.os.Handler().postDelayed(() -> {  
 Intent intent = new Intent(LoginActivity.this, MainActivity.class);  
 startActivity(intent);  
 finish();  
 }, 1500);  
 }  
}

****

* 1. Tạo 1 ứng dụng English Learning

package com.example.lab4advancedui;  
  
import android.content.Intent;  
import android.os.Bundle;  
import android.view.LayoutInflater;  
import android.view.View;  
import android.widget.ImageView;  
import android.widget.LinearLayout;  
import android.widget.TextView;  
import android.widget.Toast;  
import androidx.appcompat.app.AppCompatActivity;  
  
public class EnglishLearningActivity extends AppCompatActivity {  
  
 private static final int[] *ID\_DRAWABLES* = {  
 R.drawable.*ic\_mess*, R.drawable.*ic\_flight*, R.drawable.*ic\_hospital*,  
 R.drawable.*ic\_hotel*, R.drawable.*ic\_restaurant*, R.drawable.*ic\_cocail*,  
 R.drawable.*ic\_store*, R.drawable.*ic\_at\_work*, R.drawable.*ic\_time*,  
 R.drawable.*ic\_education*, R.drawable.*ic\_movie* };  
  
 private static final int[] *ID\_TEXTS* = {  
 R.string.*txt\_mess*, R.string.*txt\_flight*, R.string.*txt\_hospital*,  
 R.string.*txt\_hotel*, R.string.*txt\_restaurant*, R.string.*txt\_bar*,  
 R.string.*txt\_store*, R.string.*txt\_work*, R.string.*txt\_time*,  
 R.string.*txt\_education*, R.string.*txt\_movie* };  
  
 private static final String[][] *VOCABULARY* = {  
 {"hello", "thanks", "goodbye", "please"},  
 {"airport", "passport", "luggage", "flight"},  
 {"doctor", "medicine", "nurse", "hospital"},  
 {"room", "key", "check-in", "reception"},  
 {"menu", "order", "bill", "table"},  
 {"drink", "wine", "cheers", "cocktail"},  
 {"shop", "price", "buy", "discount"},  
 {"office", "boss", "meeting", "report"},  
 {"hour", "minute", "day", "night"},  
 {"student", "teacher", "class", "lesson"},  
 {"movie", "actor", "ticket", "popcorn"}  
 };  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_english\_learning*);  
  
 LinearLayout lnMain = findViewById(R.id.*ln\_main*);  
 LayoutInflater inflater = LayoutInflater.*from*(this);  
  
 for (int i = 0; i < *ID\_DRAWABLES*.length; i++) {  
 View item = inflater.inflate(R.layout.*item\_topic*, lnMain, false);  
 ImageView iv = item.findViewById(R.id.*iv\_topic*);  
 TextView tv = item.findViewById(R.id.*tv\_topic*);  
 iv.setImageResource(*ID\_DRAWABLES*[i]);  
 tv.setText(*ID\_TEXTS*[i]);  
  
 int index = i;  
 item.setOnClickListener(v -> {  
 Intent intent = new Intent(this, VocabularyActivity.class);  
 intent.putExtra("topic", getString(*ID\_TEXTS*[index]));  
 intent.putExtra("words", *VOCABULARY*[index]);  
 startActivity(intent);  
 });  
  
  
 lnMain.addView(item);  
 }  
  
 findViewById(R.id.*btnBack*).setOnClickListener(v -> finish());  
 }  
}

package com.example.lab4advancedui;  
  
import android.os.Bundle;  
import android.widget.ArrayAdapter;  
import android.widget.ListView;  
import android.widget.TextView;  
import androidx.appcompat.app.AppCompatActivity;  
  
public class VocabularyActivity extends AppCompatActivity {  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_vocabulary*);  
  
 TextView tvTitle = findViewById(R.id.*tvTitle*);  
 ListView lvVocab = findViewById(R.id.*lvVocab*);  
  
 String topic = getIntent().getStringExtra("topic");  
 String[] words = getIntent().getStringArrayExtra("words");  
  
 tvTitle.setText("📘 " + topic);  
 ArrayAdapter<String> adapter = new ArrayAdapter<>(this, android.R.layout.*simple\_list\_item\_1*, words);  
 lvVocab.setAdapter(adapter);  
 }  
}

**A screenshot of a phone

AI-generated content may be incorrect.**

* 1. Tạo 1 ứng dụng Emoij

package com.example.lab4advancedui;  
  
import android.os.Bundle;  
import android.widget.Button;  
import android.widget.ImageView;  
import android.widget.Toast;  
  
import androidx.appcompat.app.AppCompatActivity;  
import androidx.fragment.app.FragmentTransaction;  
  
import java.util.Random;  
  
public class FaceEmojiActivity extends AppCompatActivity {  
  
 // Danh sách emoji (đồng bộ với layout bạn gửi)  
 private final int[] emojiDrawables = {  
 R.drawable.*ic\_at\_work*, R.drawable.*ic\_education*, R.drawable.*ic\_hospital*,  
 R.drawable.*ic\_hotel*, R.drawable.*ic\_cocail*, R.drawable.*ic\_flight*,  
 R.drawable.*ic\_mess*, R.drawable.*ic\_movie*, R.drawable.*ic\_store*,  
 R.drawable.*ic\_restaurant*, R.drawable.*ic\_time* };  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_face\_emoji*);  
  
 // Gắn FragmentFaceEmoji vào FrameLayout  
 FragmentTransaction ft = getSupportFragmentManager().beginTransaction();  
 ft.replace(R.id.*frg\_face\_emoji*, new FragmentFaceEmoji());  
 ft.commit();  
  
 // Xử lý nút Random  
 Button btnRandom = findViewById(R.id.*btnRandom*);  
 btnRandom.setOnClickListener(v -> showRandomEmoji());  
 }  
  
 private void showRandomEmoji() {  
 Random random = new Random();  
 int randomId = emojiDrawables[random.nextInt(emojiDrawables.length)];  
 Toast toast = new Toast(this);  
 ImageView iv = new ImageView(this);  
 iv.setImageResource(randomId);  
 toast.setView(iv);  
 toast.setDuration(Toast.*LENGTH\_SHORT*);  
 toast.show();  
 }  
}

package com.example.lab4advancedui;  
  
import android.content.Context;  
import android.graphics.drawable.Drawable;  
import android.os.Bundle;  
import android.view.LayoutInflater;  
import android.view.View;  
import android.view.ViewGroup;  
import android.widget.ImageView;  
import android.widget.Toast;  
import androidx.fragment.app.Fragment;  
  
public class FragmentFaceEmoji extends Fragment implements View.OnClickListener {  
  
 // Đồng bộ 11 ID  
 private static final int[] *ids* = {  
 R.id.*iv\_face1*, R.id.*iv\_face2*, R.id.*iv\_face3*,  
 R.id.*iv\_face4*, R.id.*iv\_face5*, R.id.*iv\_face6*,  
 R.id.*iv\_face7*, R.id.*iv\_face8*, R.id.*iv\_face9*,  
 R.id.*iv\_face10*, R.id.*iv\_face11* };  
  
 private Context mContext;  
  
 @Override  
 public View onCreateView(LayoutInflater inflater, ViewGroup container,  
 Bundle savedInstanceState) {  
 View root = inflater.inflate(R.layout.*fragment\_face\_emoji*, container, false);  
 initViews(root);  
 return root;  
 }  
  
 @Override  
 public void onAttach(Context context) {  
 super.onAttach(context);  
 mContext = context;  
 }  
  
 private void initViews(View root) {  
 for (int id : *ids*) {  
 root.findViewById(id).setOnClickListener(this);  
 }  
 }  
  
 @Override  
 public void onClick(View v) {  
 ImageView iv = (ImageView) v;  
 showToast(iv.getDrawable());  
 }  
  
 private void showToast(Drawable drawable) {  
 Toast toast = new Toast(mContext);  
 ImageView iv = new ImageView(mContext);  
 iv.setImageDrawable(drawable);  
 toast.setView(iv);  
 toast.setDuration(Toast.*LENGTH\_SHORT*);  
 toast.show();  
 }  
}

**A screen shot of a cell phone

AI-generated content may be incorrect. A screen shot of a phone

AI-generated content may be incorrect.**

## BÀI 5

* 1. Tạo 1 ứng dụng Animation

package com.example.lab5;  
  
import android.os.Bundle;  
import android.view.View;  
import android.view.animation.Animation;  
import android.view.animation.AnimationUtils;  
import android.widget.ImageView;  
  
import androidx.appcompat.app.AppCompatActivity;  
  
import java.util.Random;  
  
public class AnimationActivity extends AppCompatActivity implements View.OnClickListener {  
  
 private ImageView ivAnimal;  
 private final int[] animList = {  
 R.anim.*alpha*,  
 R.anim.*scale*,  
 R.anim.*translate*,  
 R.anim.*rotate* };  
 private final Random random = new Random();  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_animation*);  
  
 ivAnimal = findViewById(R.id.*iv\_animal*);  
  
 findViewById(R.id.*btn\_alpha*).setOnClickListener(this);  
 findViewById(R.id.*btn\_scale*).setOnClickListener(this);  
 findViewById(R.id.*btn\_trans*).setOnClickListener(this);  
 findViewById(R.id.*btn\_rotate*).setOnClickListener(this);  
 findViewById(R.id.*btn\_random*).setOnClickListener(this);  
 }  
  
 @Override  
 public void onClick(View v) {  
 int id = v.getId();  
 Animation anim = null;  
  
 if (id == R.id.*btn\_alpha*) {  
 anim = AnimationUtils.*loadAnimation*(this, R.anim.*alpha*);  
 } else if (id == R.id.*btn\_scale*) {  
 anim = AnimationUtils.*loadAnimation*(this, R.anim.*scale*);  
 } else if (id == R.id.*btn\_trans*) {  
 anim = AnimationUtils.*loadAnimation*(this, R.anim.*translate*);  
 } else if (id == R.id.*btn\_rotate*) {  
 anim = AnimationUtils.*loadAnimation*(this, R.anim.*rotate*);  
 } else if (id == R.id.*btn\_random*) {  
 int randomAnim = animList[random.nextInt(animList.length)];  
 anim = AnimationUtils.*loadAnimation*(this, randomAnim);  
 }  
  
 if (anim != null) {  
 ivAnimal.startAnimation(anim);  
 }  
 }  
}

**A screenshot of a phone

AI-generated content may be incorrect. A screenshot of a phone

AI-generated content may be incorrect.**

* 1. Tạo 1 ứng dụng Quick Call

package com.example.lab5;  
  
import android.Manifest;  
import android.content.Intent;  
import android.content.pm.PackageManager;  
import android.net.Uri;  
import android.os.Bundle;  
import android.view.View;  
import android.view.animation.AnimationUtils;  
import android.widget.FrameLayout;  
import android.widget.Toast;  
  
import androidx.appcompat.app.AppCompatActivity;  
  
public class QuickCallActivity extends AppCompatActivity implements View.OnClickListener {  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_quick\_call*);  
 initView();  
 }  
  
 private void initView() {  
 findViewById(R.id.*fr\_mom*).setOnClickListener(this);  
 findViewById(R.id.*fr\_dad*).setOnClickListener(this);  
 findViewById(R.id.*fr\_crush*).setOnClickListener(this);  
 findViewById(R.id.*fr\_best\_friend*).setOnClickListener(this);  
 findViewById(R.id.*iv\_dialer*).setOnClickListener(this);  
 }  
  
 @Override  
 public void onClick(View v) {  
 v.startAnimation(AnimationUtils.*loadAnimation*(this,  
 androidx.appcompat.R.anim.*abc\_popup\_enter*));  
  
 if (v instanceof FrameLayout) {  
 processCall((String) v.getTag());  
 } else if (v.getId() == R.id.*iv\_dialer*) {  
 gotoDialPad();  
 }  
 }  
  
 private void gotoDialPad() {  
 Intent intent = new Intent(Intent.*ACTION\_DIAL*);  
 startActivity(intent);  
 }  
  
 private void processCall(String phone) {  
 if (checkSelfPermission(Manifest.permission.*CALL\_PHONE*)  
 != PackageManager.*PERMISSION\_GRANTED*) {  
 requestPermissions(new String[]{Manifest.permission.*CALL\_PHONE*}, 101);  
 Toast.*makeText*(this, "Hãy cấp quyền rồi thử lại!", Toast.*LENGTH\_SHORT*).show();  
 return;  
 }  
  
 Intent intent = new Intent(Intent.*ACTION\_CALL*);  
 intent.setData(Uri.*parse*("tel:" + phone));  
 startActivity(intent);  
 }  
}

**A screen shot of a phone

AI-generated content may be incorrect. A screen shot of a phone

AI-generated content may be incorrect.**

# LAB 3 BUỔI THỰC HÀNH 3

## BÀI 6

* 1. Tạo ứng dụng đổi tiền tệ

package com.example.lab6;  
  
import androidx.appcompat.app.AppCompatActivity;  
import android.os.Bundle;  
import android.widget.\*;  
  
import java.text.DecimalFormat;  
import java.util.ArrayList;  
  
public class CurrencyActivity extends AppCompatActivity {  
  
 Spinner spFrom, spTo;  
 EditText edtAmount;  
 Button btnConvert, btnClear;  
 TextView tvResult, tvHistory;  
 ImageView imgFrom, imgTo;  
  
 ArrayList<String> historyList = new ArrayList<>();  
  
 String[] units = {"USD","EUR","GBP","AUD","CAD","ZAR","NZD","JPY","INR","VND"};  
 int[] flags = {  
 R.drawable.*us*, R.drawable.*eu*, R.drawable.*gb*, R.drawable.*au*,  
 R.drawable.*ca*, R.drawable.*za*, R.drawable.*zu*, R.drawable.*jb*,  
 R.drawable.*id*, R.drawable.*vn* };  
  
 double[][] rate = {  
 {1,0.92,0.78,1.48,1.38,18.2,1.64,150,83,25000},  
 {1.09,1,0.85,1.61,1.50,19.7,1.78,163,90,27000},  
 {1.28,1.18,1,1.89,1.76,23.1,2.09,192,106,32000},  
 {0.67,0.62,0.53,1,0.93,12.2,1.10,101,56,17000},  
 {0.72,0.67,0.57,1.08,1,13.1,1.18,110,61,18500},  
 {0.055,0.051,0.043,0.082,0.076,1,0.090,8.50,4.70,1400},  
 {0.61,0.56,0.48,0.91,0.85,11.1,1,96,53,16000},  
 {0.0067,0.0061,0.0052,0.0099,0.0091,0.118,0.010,1,0.55,170},  
 {0.012,0.011,0.0094,0.018,0.016,0.21,0.019,1.80,1,3100},  
 {0.000040,0.000037,0.000031,0.000058,0.000054,0.00071,0.000063,0.0059,0.00032,1}  
 };  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_currency*);  
  
 spFrom = findViewById(R.id.*spFrom*);  
 spTo = findViewById(R.id.*spTo*);  
 edtAmount = findViewById(R.id.*edtAmount*);  
 btnConvert = findViewById(R.id.*btnConvert*);  
 btnClear = findViewById(R.id.*btnClear*);  
 tvResult = findViewById(R.id.*tvResult*);  
 tvHistory = findViewById(R.id.*tvHistory*);  
 imgFrom = findViewById(R.id.*imgFrom*);  
 imgTo = findViewById(R.id.*imgTo*);  
  
 ArrayAdapter<String> adapter =  
 new ArrayAdapter<>(this, android.R.layout.*simple\_spinner\_item*, units);  
 adapter.setDropDownViewResource(android.R.layout.*simple\_spinner\_dropdown\_item*);  
  
 spFrom.setAdapter(adapter);  
 spTo.setAdapter(adapter);  
  
 spFrom.setOnItemSelectedListener(new AdapterView.OnItemSelectedListener() {  
 @Override public void onItemSelected(AdapterView<?> parent, android.view.View view, int position, long id) {  
 imgFrom.setImageResource(flags[position]);  
 }  
 @Override public void onNothingSelected(AdapterView<?> parent) {}  
 });  
  
 spTo.setOnItemSelectedListener(new AdapterView.OnItemSelectedListener() {  
 @Override public void onItemSelected(AdapterView<?> parent, android.view.View view, int position, long id) {  
 imgTo.setImageResource(flags[position]);  
 }  
 @Override public void onNothingSelected(AdapterView<?> parent) {}  
 });  
  
 btnConvert.setOnClickListener(v -> {  
 try {  
 double amount = Double.*parseDouble*(edtAmount.getText().toString());  
 int from = spFrom.getSelectedItemPosition();  
 int to = spTo.getSelectedItemPosition();  
  
 double result = amount \* rate[from][to];  
  
 DecimalFormat df = new DecimalFormat("#,###");  
  
 String resultText = df.format(result) + " " + units[to];  
 tvResult.setText(resultText);  
  
  
 String historyItem =  
 df.format(amount) + " " + units[from] + " → " + resultText;  
  
 historyList.add(historyItem);  
  
 StringBuilder sb = new StringBuilder("Lịch sử đổi tiền:\n");  
 for (String item : historyList) {  
 sb.append("• ").append(item).append("\n");  
 }  
  
 tvHistory.setText(sb.toString());  
  
 } catch (Exception e) {  
 tvResult.setText("Vui lòng nhập số!");  
 }  
 });  
  
  
 btnClear.setOnClickListener(v -> {  
 edtAmount.setText("");  
 tvResult.setText("Kết quả sẽ hiển thị ở đây");  
  
 spFrom.setSelection(0);  
 spTo.setSelection(0);  
  
 historyList.clear();  
 tvHistory.setText("Lịch sử đổi tiền:");  
 });  
 }  
}

<?xml version="1.0" encoding="utf-8"?>  
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 android:orientation="vertical"  
 android:padding="20dp"  
 android:gravity="center\_horizontal"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent">  
  
 <EditText  
 android:id="@+id/edtAmount"  
 android:hint="Nhập số tiền"  
 android:inputType="numberDecimal"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"/>  
  
 <!-- FROM -->  
 <LinearLayout  
 android:orientation="horizontal"  
 android:gravity="center\_vertical"  
 android:layout\_marginTop="20dp"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content">  
  
 <Spinner  
 android:id="@+id/spFrom"  
 android:layout\_width="0dp"  
 android:layout\_weight="1"  
 android:layout\_height="wrap\_content"/>  
  
 <ImageView  
 android:id="@+id/imgFrom"  
 android:layout\_width="60dp"  
 android:layout\_height="40dp"  
 android:layout\_marginStart="10dp"/>  
 </LinearLayout>  
  
 <!-- TO -->  
 <LinearLayout  
 android:orientation="horizontal"  
 android:gravity="center\_vertical"  
 android:layout\_marginTop="20dp"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content">  
  
 <Spinner  
 android:id="@+id/spTo"  
 android:layout\_width="0dp"  
 android:layout\_weight="1"  
 android:layout\_height="wrap\_content"/>  
  
 <ImageView  
 android:id="@+id/imgTo"  
 android:layout\_width="60dp"  
 android:layout\_height="40dp"  
 android:layout\_marginStart="10dp"/>  
 </LinearLayout>  
  
 <!-- BUTTON ROW -->  
 <LinearLayout  
 android:orientation="horizontal"  
 android:layout\_marginTop="25dp"  
 android:gravity="center"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content">  
  
 <Button  
 android:id="@+id/btnConvert"  
 android:text="Đổi tiền"  
 android:layout\_width="0dp"  
 android:layout\_weight="1"  
 android:layout\_height="wrap\_content"/>  
  
 <Button  
 android:id="@+id/btnClear"  
 android:text="Xóa"  
 android:layout\_marginStart="10dp"  
 android:layout\_width="0dp"  
 android:layout\_weight="1"  
 android:layout\_height="wrap\_content"/>  
 </LinearLayout>  
  
 <!-- RESULT -->  
 <LinearLayout  
 android:orientation="vertical"  
 android:background="#EEEEEE"  
 android:padding="15dp"  
 android:layout\_marginTop="25dp"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:gravity="center\_horizontal">  
  
 <TextView  
 android:id="@+id/tvResult"  
 android:text="Kết quả sẽ hiển thị ở đây"  
 android:textSize="18sp"  
 android:textStyle="bold"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"/>  
 </LinearLayout>  
  
 <ScrollView  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginTop="20dp">  
  
 <TextView  
 android:id="@+id/tvHistory"  
 android:text="Lịch sử đổi tiền tệ:"  
 android:textSize="16sp"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"/>  
 </ScrollView>  
  
</LinearLayout>

**A screenshot of a cell phone

AI-generated content may be incorrect.**

* 1. Tạo ứng dụng đổi đơn vị

package com.example.lab6;  
  
import androidx.appcompat.app.AppCompatActivity;  
import android.os.Bundle;  
import android.widget.\*;  
  
import java.util.ArrayList;  
  
public class LengthActivity extends AppCompatActivity {  
  
 Spinner spFromLen, spToLen;  
 EditText edtValue;  
 Button btnConvertLen, btnClearLen;  
  
 TextView tvTitleResult, tvInputValue, tvOutputValue, tvHistoryLen;  
  
 ArrayList<String> historyListLen = new ArrayList<>();  
  
 String[] units = {"mm", "cm", "m", "km", "inch", "foot", "yard", "mile"};  
  
 double[][] rate = {  
 {1, 0.1, 0.001, 0.000001, 0.03937, 0.0032808, 0.0010936, 0.000000621},  
 {10, 1, 0.01, 0.00001, 0.3937, 0.032808, 0.010936, 0.00000621},  
 {1000, 100, 1, 0.001, 39.37, 3.2808, 1.0936, 0.000621},  
 {1e6, 1e5, 1000, 1, 39370, 3280.8, 1093.6, 0.621},  
 {25.4, 2.54, 0.0254, 0.0000254,1, 0.08333, 0.027777, 0.00001578},  
 {304.8, 30.48, 0.3048, 0.0003048,12, 1, 0.33333, 0.000189},  
 {914.4, 91.44, 0.9144, 0.0009144,36, 3, 1, 0.000568},  
 {1.609e6,160934,1609.34,1.609, 63360, 5280, 1760, 1}  
 };  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_length*);  
  
 spFromLen = findViewById(R.id.*spFromLen*);  
 spToLen = findViewById(R.id.*spToLen*);  
 edtValue = findViewById(R.id.*edtValue*);  
 btnConvertLen = findViewById(R.id.*btnConvertLen*);  
 btnClearLen = findViewById(R.id.*btnClearLen*);  
  
 tvTitleResult = findViewById(R.id.*tvTitleResult*);  
 tvInputValue = findViewById(R.id.*tvInputValue*);  
 tvOutputValue = findViewById(R.id.*tvOutputValue*);  
 tvHistoryLen = findViewById(R.id.*tvHistoryLen*);  
  
 ArrayAdapter<String> adapter =  
 new ArrayAdapter<>(this, android.R.layout.*simple\_spinner\_item*, units);  
 adapter.setDropDownViewResource(android.R.layout.*simple\_spinner\_dropdown\_item*);  
  
 spFromLen.setAdapter(adapter);  
 spToLen.setAdapter(adapter);  
  
 btnConvertLen.setOnClickListener(v -> {  
 try {  
 // Hỗ trợ nhập dấu ',' và '.'  
 String rawInput = edtValue.getText().toString().replace(",", ".");  
 double value = Double.*parseDouble*(rawInput);  
  
 int from = spFromLen.getSelectedItemPosition();  
 int to = spToLen.getSelectedItemPosition();  
  
 double result = value \* rate[from][to];  
  
 tvInputValue.setText("Giá trị nhập: " + value + " " + units[from]);  
 tvOutputValue.setText("Sau khi đổi: " + String.*format*("%.6f", result) + " " + units[to]);  
  
 // ==== THÊM LỊCH SỬ ====  
 String historyItem = value + " " + units[from] + " → "  
 + String.*format*("%.6f", result) + " " + units[to];  
  
 historyListLen.add(historyItem);  
  
 StringBuilder sb = new StringBuilder("Lịch sử đổi đơn vị:\n");  
 for (String item : historyListLen) {  
 sb.append("• ").append(item).append("\n");  
 }  
  
 tvHistoryLen.setText(sb.toString());  
  
 } catch (Exception e) {  
 tvInputValue.setText("Lỗi nhập dữ liệu!");  
 tvOutputValue.setText("");  
 }  
 });  
  
 btnClearLen.setOnClickListener(v -> {  
 edtValue.setText("");  
 tvInputValue.setText("Giá trị nhập:");  
 tvOutputValue.setText("Sau khi đổi:");  
  
 spFromLen.setSelection(0);  
 spToLen.setSelection(0);  
  
 // Xóa lịch sử  
 historyListLen.clear();  
 tvHistoryLen.setText("Lịch sử đổi đơn vị:");  
 });  
  
 }  
}

<?xml version="1.0" encoding="utf-8"?>  
<LinearLayout xmlns:android="http://schemas.android.com/apk/res/android"  
 android:orientation="vertical"  
 android:padding="20dp"  
 android:gravity="center\_horizontal"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent">  
  
 <EditText  
 android:id="@+id/edtValue"  
 android:hint="Nhập độ dài"  
 android:inputType="numberDecimal"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"/>  
  
 <Spinner  
 android:id="@+id/spFromLen"  
 android:layout\_marginTop="20dp"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"/>  
  
 <Spinner  
 android:id="@+id/spToLen"  
 android:layout\_marginTop="20dp"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"/>  
  
 <!-- BUTTON ROW -->  
 <LinearLayout  
 android:orientation="horizontal"  
 android:layout\_marginTop="25dp"  
 android:gravity="center"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content">  
  
 <Button  
 android:id="@+id/btnConvertLen"  
 android:text="Đổi đơn vị"  
 android:layout\_width="0dp"  
 android:layout\_weight="1"  
 android:layout\_height="wrap\_content"/>  
  
 <Button  
 android:id="@+id/btnClearLen"  
 android:text="Xóa"  
 android:layout\_marginStart="10dp"  
 android:layout\_width="0dp"  
 android:layout\_weight="1"  
 android:layout\_height="wrap\_content"/>  
 </LinearLayout>  
  
 <LinearLayout  
 android:orientation="vertical"  
 android:background="#EEEEEE"  
 android:padding="15dp"  
 android:layout\_marginTop="25dp"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:gravity="center\_horizontal">  
  
 <TextView  
 android:id="@+id/tvTitleResult"  
 android:text="Kết quả:"  
 android:textSize="18sp"  
 android:textStyle="bold"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"/>  
  
 <TextView  
 android:id="@+id/tvInputValue"  
 android:text="Giá trị nhập:"  
 android:layout\_marginTop="10dp"  
 android:textSize="16sp"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"/>  
  
 <TextView  
 android:id="@+id/tvOutputValue"  
 android:text="Sau khi đổi:"  
 android:textSize="16sp"  
 android:layout\_width="wrap\_content"  
 android:layout\_height="wrap\_content"/>  
 </LinearLayout>  
  
 <ScrollView  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginTop="20dp">  
  
 <TextView  
 android:id="@+id/tvHistoryLen"  
 android:text="Lịch sử đổi đơn vị:"  
 android:textSize="16sp"  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"/>  
 </ScrollView>  
  
</LinearLayout>

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## BÀI 7

* 1. Sử dụng Custom Button

package com.example.lab7;  
  
import androidx.appcompat.app.AppCompatActivity;  
import android.os.Bundle;  
import android.view.animation.Animation;  
import android.view.animation.AnimationUtils;  
import android.widget.Button;  
import android.widget.ImageButton;  
  
public class Bai1Activity extends AppCompatActivity {  
  
 ImageButton emoji1, emoji2;  
 boolean isHappy1 = false;  
 boolean isHappy2 = false;  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_bai1*);  
  
 emoji1 = findViewById(R.id.*emoji1*);  
 emoji2 = findViewById(R.id.*emoji2*);  
  
 Animation bounce = AnimationUtils.*loadAnimation*(this, R.anim.*emoji\_bounce*);  
  
 emoji1.setOnClickListener(v -> {  
 v.startAnimation(bounce);  
 isHappy1 = !isHappy1;  
  
 if (isHappy1) {  
 emoji1.setImageResource(R.drawable.*ic\_emoji\_happy*);  
 } else {  
 emoji1.setImageResource(R.drawable.*ic\_emoji\_sad*);  
 }  
 });  
  
 emoji2.setOnClickListener(v -> {  
 v.startAnimation(bounce);  
 isHappy2 = !isHappy2;  
  
 if (isHappy2) {  
 emoji2.setImageResource(R.drawable.*ic\_emoji\_happy*);  
 } else {  
 emoji2.setImageResource(R.drawable.*ic\_emoji\_sad*);  
 }  
 });  
 }  
}

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* 1. Kết hợp thêm Custom Toast và Custom Dialog

package com.example.lab7;  
  
import androidx.appcompat.app.AppCompatActivity;  
import android.app.Dialog;  
import android.os.Bundle;  
import android.view.Gravity;  
import android.view.LayoutInflater;  
import android.view.View;  
import android.widget.Button;  
import android.widget.Toast;  
  
public class Bai2Activity extends AppCompatActivity {  
  
 Button btnToast, btnDialog;  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_bai2*);  
  
 btnToast = findViewById(R.id.*btnToast*);  
 btnDialog = findViewById(R.id.*btnDialog*);  
  
 btnToast.setOnClickListener(v -> showToast());  
 btnDialog.setOnClickListener(v -> showDialog());  
 }  
  
 private void showToast() {  
 View layout = LayoutInflater.*from*(this).inflate(R.layout.*custom\_toast*, null);  
  
 Toast toast = new Toast(this);  
 toast.setView(layout);  
 toast.setGravity(Gravity.*CENTER*, 0, 0); // giữa màn hình giống video  
 toast.setDuration(Toast.*LENGTH\_SHORT*);  
 toast.show();  
 }  
  
 private void showDialog() {  
 Dialog dialog = new Dialog(this);  
 dialog.setContentView(R.layout.*custom\_dialog*);  
  
 Button btnCancel = dialog.findViewById(R.id.*btnCancel*);  
 Button btnOK = dialog.findViewById(R.id.*btnOK*);  
  
 btnCancel.setOnClickListener(v -> dialog.dismiss());  
 btnOK.setOnClickListener(v -> dialog.dismiss());  
  
 dialog.show();  
 }  
}

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* 1. Viết chương trình cho phép chọn màu RGB và màu CMY

package com.example.lab7;  
  
import androidx.appcompat.app.AppCompatActivity;  
import android.graphics.Color;  
import android.os.Bundle;  
import android.widget.SeekBar;  
import android.view.View;  
  
public class Bai3Activity extends AppCompatActivity {  
  
 SeekBar seekR, seekG, seekB;  
 View viewColor;  
 int r = 0, g = 0, b = 0;  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_bai3*);  
  
 seekR = findViewById(R.id.*seekR*);  
 seekG = findViewById(R.id.*seekG*);  
 seekB = findViewById(R.id.*seekB*);  
 viewColor = findViewById(R.id.*colorPreview*);  
  
 SeekBar.OnSeekBarChangeListener listener = new SeekBar.OnSeekBarChangeListener() {  
 @Override public void onProgressChanged(SeekBar sb, int i, boolean b1) {  
 if (sb == seekR) r = i;  
 if (sb == seekG) g = i;  
 if (sb == seekB) b = i;  
 updateColor();  
 }  
 @Override public void onStartTrackingTouch(SeekBar seekBar) {}  
 @Override public void onStopTrackingTouch(SeekBar seekBar) {}  
 };  
  
 seekR.setOnSeekBarChangeListener(listener);  
 seekG.setOnSeekBarChangeListener(listener);  
 seekB.setOnSeekBarChangeListener(listener);  
 }  
  
 void updateColor() {  
 viewColor.setBackgroundColor(Color.*rgb*(r, g, b));  
 }  
}

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## BÀI 8

* 1. Xây dựng chương trình hiển thị và quản lý các món ǎn

package com.example.lab8;  
  
import android.os.Bundle;  
import android.widget.GridView;  
import androidx.appcompat.app.AppCompatActivity;  
import java.util.ArrayList;  
  
public class ActivityGridFood extends AppCompatActivity {  
  
 GridView gridFood;  
 ArrayList<Product> foods;  
 GridFoodAdapter adapter;  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_grid\_food*);  
  
 gridFood = findViewById(R.id.*gridFood*);  
  
 loadFoods();  
  
 adapter = new GridFoodAdapter(this, foods);  
 gridFood.setAdapter(adapter);  
 }  
  
 private void loadFoods() {  
 foods = new ArrayList<>();  
 foods.add(new Product(R.drawable.*banh\_mi*, "Bánh mì thịt", "Ngon – giòn – đậm vị", 15000));  
 foods.add(new Product(R.drawable.*banh\_u*, "Bánh ú", "Truyền thống – dẻo thơm", 12000));  
 foods.add(new Product(R.drawable.*hamburger*, "Hamburger bò", "Nhiều thịt – béo – thơm", 45000));  
 foods.add(new Product(R.drawable.*banh\_bao*, "Bánh bao trứng muối", "Mềm – thơm – đầy nhân", 18000));  
 foods.add(new Product(R.drawable.*banh\_gio*, "Bánh giò", "Nóng – mềm – thơm lá", 20000));  
 }  
  
}

package com.example.lab8;  
  
import android.os.Bundle;  
import android.view.View;  
import android.widget.AdapterView;  
import android.widget.ImageView;  
import android.widget.ListView;  
import android.widget.Toast;  
  
import androidx.appcompat.app.AppCompatActivity;  
  
import com.google.android.material.bottomsheet.BottomSheetDialog;  
import com.google.android.material.floatingactionbutton.FloatingActionButton;  
import com.google.android.material.textfield.TextInputEditText;  
  
import java.util.ArrayList;  
  
public class ActivityListFood extends AppCompatActivity {  
  
 ListView lvFood;  
 ArrayList<Product> foods;  
 MyListViewAdapter adapter;  
  
 FloatingActionButton fabAdd;  
  
 int selectedImage = 0;  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_list\_food*);  
  
 lvFood = findViewById(R.id.*lvFood*);  
 fabAdd = findViewById(R.id.*fabAdd*);  
  
 loadFoods();  
  
 adapter = new MyListViewAdapter(this, foods);  
 lvFood.setAdapter(adapter);  
  
 // Nhấn giữ để sửa/xóa  
 lvFood.setOnItemLongClickListener((parent, view, position, id) -> {  
 showOptions(position);  
 return true;  
 });  
  
 // FAB thêm món  
 fabAdd.setOnClickListener(v -> showAddBottomSheet());  
 }  
  
 private void loadFoods() {  
 foods = new ArrayList<>();  
 foods.add(new Product(R.drawable.*banh\_mi*, "Bánh mì thịt", "Ngon – giòn – đậm vị", 15000));  
 foods.add(new Product(R.drawable.*banh\_u*, "Bánh ú", "Truyền thống – dẻo thơm", 12000));  
 foods.add(new Product(R.drawable.*hamburger*, "Hamburger bò", "Nhiều thịt – béo – thơm", 45000));  
 foods.add(new Product(R.drawable.*banh\_bao*, "Bánh bao trứng muối", "Mềm – thơm – đầy nhân", 18000));  
 foods.add(new Product(R.drawable.*banh\_gio*, "Bánh giò", "Nóng – mềm – thơm lá", 20000));  
 }  
  
 private void showOptions(int index) {  
  
 String[] options = {"Thêm món mới", "Sửa món", "Xóa món"};  
  
 new android.app.AlertDialog.Builder(this)  
 .setTitle("Tùy chọn")  
 .setItems(options, (dialog, which) -> {  
  
 if (which == 0) {  
 showAddBottomSheet();  
  
 } else if (which == 1) {  
 showEditBottomSheet(index);  
  
 } else if (which == 2) {  
 foods.remove(index);  
 adapter.notifyDataSetChanged();  
 Toast.*makeText*(this, "Đã xóa món", Toast.*LENGTH\_SHORT*).show();  
 }  
  
 })  
 .show();  
 }  
  
  
 private void showAddBottomSheet() {  
  
 selectedImage = R.drawable.*banh\_mi*; // luôn có ảnh mặc định  
  
 View view = getLayoutInflater().inflate(R.layout.*bottom\_add\_food*, null);  
  
 ImageView imgPreview = view.findViewById(R.id.*imgPreviewAdd*);  
 TextInputEditText edtTitle = view.findViewById(R.id.*edtTitleAdd*);  
 TextInputEditText edtDesc = view.findViewById(R.id.*edtDescAdd*);  
 TextInputEditText edtPrice = view.findViewById(R.id.*edtPriceAdd*);  
  
 View btnChangeImg = view.findViewById(R.id.*btnChangeImgAdd*);  
 View btnCancel = view.findViewById(R.id.*btnCancelAdd*);  
 View btnSave = view.findViewById(R.id.*btnSaveAdd*);  
  
 BottomSheetDialog dialog = new BottomSheetDialog(this);  
 dialog.setContentView(view);  
  
 // Set ảnh mặc định  
 imgPreview.setImageResource(selectedImage);  
  
 // Animation  
 if (dialog.getWindow() != null) {  
 dialog.getWindow().getAttributes().windowAnimations = R.style.*BottomSheetAnimation*;  
 }  
  
 // Chọn ảnh  
 btnChangeImg.setOnClickListener(v -> {  
 showChooseImageDialog(imgPreview);  
 });  
  
 // Lưu món mới  
 btnSave.setOnClickListener(v -> {  
  
 String name = edtTitle.getText().toString().trim();  
 String desc = edtDesc.getText().toString().trim();  
 String priceStr = edtPrice.getText().toString().trim();  
  
 // ======= NGĂN CRASH =======  
 if (name.isEmpty()) {  
 edtTitle.setError("Không được để trống");  
 return;  
 }  
  
 if (priceStr.isEmpty()) {  
 edtPrice.setError("Nhập giá");  
 return;  
 }  
  
 int price;  
 try {  
 price = Integer.*parseInt*(priceStr);  
 } catch (Exception e) {  
 edtPrice.setError("Giá phải là số");  
 return;  
 }  
  
  
 foods.add(new Product(selectedImage, name, desc, price));  
 adapter.notifyDataSetChanged();  
 dialog.dismiss();  
 });  
  
 btnCancel.setOnClickListener(v -> dialog.dismiss());  
  
 dialog.show();  
 }  
  
  
  
 private void showEditBottomSheet(int index) {  
  
 Product p = foods.get(index);  
 selectedImage = p.image;  
  
 View view = getLayoutInflater().inflate(R.layout.bottom\_edit\_food, null);  
  
 ImageView imgPreview = view.findViewById(R.id.imgPreview);  
 TextInputEditText edtTitle = view.findViewById(R.id.edtTitle);  
 TextInputEditText edtDesc = view.findViewById(R.id.edtDesc);  
 TextInputEditText edtPrice = view.findViewById(R.id.edtPrice);  
  
 View btnChangeImg = view.findViewById(R.id.btnChangeImg);  
 View btnCancel = view.findViewById(R.id.btnCancel);  
 View btnSave = view.findViewById(R.id.btnSave);  
  
 imgPreview.setImageResource(p.image);  
 edtTitle.setText(p.title);  
 edtDesc.setText(p.content);  
 edtPrice.setText(String.valueOf(p.price));  
  
 BottomSheetDialog dialog = new BottomSheetDialog(this);  
 dialog.setContentView(view);  
  
 // Animation  
 if (dialog.getWindow() != null) {  
 dialog.getWindow().getAttributes().windowAnimations = R.style.BottomSheetAnimation;  
 }  
  
 // Đổi ảnh  
 btnChangeImg.setOnClickListener(v -> {  
 showChooseImageDialog(imgPreview);  
 });  
  
 // LƯU  
 btnSave.setOnClickListener(v -> {  
 p.image = selectedImage;  
 p.title = edtTitle.getText().toString();  
 p.content = edtDesc.getText().toString();  
 p.price = Integer.parseInt(edtPrice.getText().toString());  
  
 adapter.notifyDataSetChanged();  
 dialog.dismiss();  
 });  
  
 btnCancel.setOnClickListener(v -> dialog.dismiss());  
  
 dialog.show();  
 }  
  
 private void showChooseImageDialog(ImageView target) {  
  
 View view = getLayoutInflater().inflate(R.layout.dialog\_choose\_image, null);  
  
 int[] ids = {R.id.img1, R.id.img2, R.id.img3, R.id.img4, R.id.img5};  
 int[] images = {  
 R.drawable.banh\_mi,  
 R.drawable.banh\_u,  
 R.drawable.hamburger,  
 R.drawable.banh\_bao,  
 R.drawable.banh\_gio  
 };  
  
 android.app.AlertDialog dialog =  
 new android.app.AlertDialog.Builder(this)  
 .setView(view)  
 .create();  
  
 for (int i = 0; i < ids.length; i++) {  
 int finalI = i;  
 view.findViewById(ids[i]).setOnClickListener(v -> {  
 selectedImage = images[finalI];  
 target.setImageResource(selectedImage);  
 dialog.dismiss();  
 });  
 }  
  
 dialog.show();  
 }  
}

package com.example.lab8;  
  
import android.content.Context;  
import android.view.\*;  
import android.widget.\*;  
  
import java.util.ArrayList;  
  
public class GridFoodAdapter extends BaseAdapter {  
  
 Context context;  
 ArrayList<Product> list;  
 LayoutInflater inflater;  
  
 public GridFoodAdapter(Context context, ArrayList<Product> list) {  
 this.context = context;  
 this.list = list;  
 inflater = LayoutInflater.from(context);  
 }  
  
 @Override public int getCount() { return list.size(); }  
 @Override public Object getItem(int i) { return list.get(i); }  
 @Override public long getItemId(int i) { return i; }  
  
 @Override  
 public View getView(int pos, View convertView, ViewGroup parent) {  
  
 convertView = inflater.inflate(R.layout.row\_grid\_food, null);  
  
 ImageView img = convertView.findViewById(R.id.imgFoodGrid);  
 TextView title = convertView.findViewById(R.id.txtFoodGrid);  
  
 Product p = list.get(pos);  
  
 img.setImageResource(p.image);  
 title.setText(p.title);  
  
 return convertView;  
 }  
}

package com.example.lab8;  
  
import android.content.Context;  
import android.view.\*;  
import android.widget.\*;  
  
import java.util.ArrayList;  
  
public class MyListViewAdapter extends BaseAdapter {  
  
 Context context;  
 ArrayList<Product> list;  
 LayoutInflater inflater;  
  
 public MyListViewAdapter(Context context, ArrayList<Product> list) {  
 this.context = context;  
 this.list = list;  
 inflater = LayoutInflater.*from*(context);  
 }  
  
 @Override  
 public int getCount() {  
 return list.size();  
 }  
  
 @Override  
 public Object getItem(int i) {  
 return list.get(i);  
 }  
  
 @Override  
 public long getItemId(int i) {  
 return i;  
 }  
  
 @Override  
 public View getView(int position, View convertView, ViewGroup parent) {  
  
 convertView = inflater.inflate(R.layout.*row\_food*, null);  
  
 ImageView img = convertView.findViewById(R.id.*imgFood*);  
 TextView title = convertView.findViewById(R.id.*txtFoodTitle*);  
 TextView content = convertView.findViewById(R.id.*txtFoodContent*);  
 TextView price = convertView.findViewById(R.id.*txtFoodPrice*);  
  
 Product p = list.get(position);  
  
 img.setImageResource(p.image);  
 title.setText(p.title);  
 content.setText(p.content);  
 price.setText(p.price + " đ");  
  
 return convertView;  
 }  
}

package com.example.lab8;  
  
public class Product {  
  
 public int image;  
 public String title;  
 public String content;  
 public int price;  
  
 public Product(int image, String title, String content, int price) {  
 this.image = image;  
 this.title = title;  
 this.content = content;  
 this.price = price;  
 }  
}

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# LAB 4 BUỔI THỰC HÀNH 4

## BÀI 9

* 1. Tạo ứng dụng biểu đồ

package com.example.lab9;  
  
import androidx.appcompat.app.AppCompatActivity;  
import android.os.Bundle;  
import android.widget.Button;  
  
public class CanvasActivity extends AppCompatActivity {  
  
 MyCanvas canvas;  
 Button btnDraw;  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.activity\_canvas);  
  
 canvas = findViewById(R.id.myCanvas);  
 btnDraw = findViewById(R.id.btnDraw);  
  
 btnDraw.setOnClickListener(v -> {  
 // CHUYỂN MODE: 1 → 2 → 3 → 1  
 if (canvas.chartType == MyCanvas.*TYPE\_BAR*)  
 canvas.chartType = MyCanvas.*TYPE\_ENERGY*;  
 else if (canvas.chartType == MyCanvas.*TYPE\_ENERGY*)  
 canvas.chartType = MyCanvas.*TYPE\_PIE*;  
 else  
 canvas.chartType = MyCanvas.*TYPE\_BAR*;  
  
 canvas.invalidate(); // Vẽ lại  
 });  
 }  
}

package com.example.lab9;  
  
import android.content.Context;  
import android.graphics.Canvas;  
import android.graphics.Color;  
import android.graphics.Paint;  
import android.util.AttributeSet;  
import android.view.View;  
  
public class MyCanvas extends View {  
  
 public static final int *TYPE\_BAR* = 1;  
 public static final int *TYPE\_ENERGY* = 2;  
 public static final int *TYPE\_PIE* = 3;  
  
 public int chartType = *TYPE\_BAR*;  
  
 int[] values = {40, 80, 120, 60, 150};  
 int[] colors = {Color.*MAGENTA*, Color.*BLUE*, Color.*GREEN*, Color.*CYAN*, Color.*YELLOW*};  
  
 Paint paint = new Paint();  
  
 // 🔥 FIX CRASH: BẮT BUỘC PHẢI CÓ 2 CONSTRUCTOR NÀY  
 public MyCanvas(Context context) {  
 super(context);  
 }  
  
 public MyCanvas(Context context, AttributeSet attrs) {  
 super(context, attrs);  
 }  
  
 @Override  
 protected void onDraw(Canvas canvas) {  
 super.onDraw(canvas);  
  
 switch (chartType) {  
 case *TYPE\_BAR*:  
 drawBarChart(canvas);  
 break;  
 case *TYPE\_ENERGY*:  
 drawEnergyChart(canvas);  
 break;  
 case *TYPE\_PIE*:  
 drawPieChart(canvas);  
 break;  
 }  
 }  
  
 private void drawBarChart(Canvas canvas) {  
 int width = getWidth();  
 int height = getHeight();  
  
 int barWidth = width / (values.length \* 2);  
  
 for (int i = 0; i < values.length; i++) {  
 paint.setColor(colors[i]);  
  
 int left = (i \* 2 + 1) \* barWidth;  
 int top = height - values[i] \* 3;  
 int right = left + barWidth;  
 int bottom = height - 20;  
  
 canvas.drawRect(left, top, right, bottom, paint);  
 }  
 }  
  
 private void drawEnergyChart(Canvas canvas) {  
 int width = getWidth();  
 int height = getHeight();  
  
 canvas.drawColor(Color.*BLACK*);  
  
 paint.setTextSize(80);  
 paint.setColor(Color.*CYAN*);  
 canvas.drawText("250W", 20, 100, paint);  
  
 paint.setTextSize(40);  
 canvas.drawText("USE TODAY: 0.5 kWh", 20, 150, paint);  
  
 int[] data = {6, 8, 7, 3, 2, 1, 3};  
 int barW = width / (data.length \* 2);  
  
 for (int i = 0; i < data.length; i++) {  
 paint.setColor(Color.*CYAN*);  
 int left = (i \* 2 + 1) \* barW;  
 int top = height - data[i] \* 50 - 20;  
 int right = left + barW;  
 int bottom = height - 20;  
  
 canvas.drawRect(left, top, right, bottom, paint);  
  
 paint.setColor(Color.*WHITE*);  
 paint.setTextSize(35);  
 canvas.drawText(String.*valueOf*(data[i]), left + 10, top - 10, paint);  
 }  
 }  
  
 private void drawPieChart(Canvas canvas) {  
 int width = getWidth();  
 int height = getHeight();  
  
 int radius = Math.*min*(width, height) / 3;  
  
 int[] data = {30, 20, 25, 15, 10};  
 int[] pieColors = {Color.*BLUE*, Color.*RED*, Color.*GREEN*, Color.*YELLOW*, Color.*MAGENTA*};  
  
 float total = 0;  
 for (int v : data) total += v;  
  
 float startAngle = 0;  
  
 for (int i = 0; i < data.length; i++) {  
 paint.setColor(pieColors[i]);  
  
 float sweep = (data[i] / total) \* 360;  
  
 canvas.drawArc(  
 width / 2 - radius,  
 height / 2 - radius,  
 width / 2 + radius,  
 height / 2 + radius,  
 startAngle,  
 sweep,  
 true,  
 paint  
 );  
 startAngle += sweep;  
 }  
 }  
}

**A screen shot of a phone

AI-generated content may be incorrect. A black cell phone with a black screen

AI-generated content may be incorrect.**

**A screen shot of a cell phone

AI-generated content may be incorrect.**

* 1. Tạo ứng dụng cuộc đua kì thú

package com.example.lab9;  
  
import androidx.appcompat.app.AppCompatActivity;  
import android.os.Bundle;  
import android.os.Handler;  
import android.widget.Button;  
import android.widget.ImageView;  
  
import java.util.Random;  
  
public class RaceActivity extends AppCompatActivity {  
  
 ImageView runner1, runner2;  
 Button btnStart;  
 Handler handler = new Handler();  
 Random rd = new Random();  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_race*);  
  
 runner1 = findViewById(R.id.*runner1*);  
 runner2 = findViewById(R.id.*runner2*);  
 btnStart = findViewById(R.id.*btnStart*);  
  
 btnStart.setOnClickListener(v -> startRace());  
 }  
  
 private void startRace() {  
 runner1.setX(0);  
 runner2.setX(0);  
  
 new Thread(() -> {  
 while (runner1.getX() < 800 && runner2.getX() < 800) {  
  
 handler.post(() -> {  
 runner1.setX(runner1.getX() + rd.nextInt(20));  
 runner2.setX(runner2.getX() + rd.nextInt(20));  
 });  
  
 try {  
 Thread.*sleep*(50);  
 } catch (Exception e) {}  
 }  
 }).start();  
 }  
}

**A screen shot of a phone

AI-generated content may be incorrect. A screenshot of a phone

AI-generated content may be incorrect.**

## BÀI 10+11

* 1. Tạo ứng dụng truyện ngụ ngôn

package com.example.lab10.adapter;  
  
import android.content.Context;  
import android.graphics.drawable.Drawable;  
import android.view.LayoutInflater;  
import android.view.View;  
import android.view.ViewGroup;  
import android.widget.ImageView;  
import android.widget.TextView;  
  
import androidx.annotation.NonNull;  
import androidx.recyclerview.widget.RecyclerView;  
  
import com.example.lab10.R;  
import com.example.lab10.model.Story;  
  
import java.io.InputStream;  
import java.util.ArrayList;  
  
public class StoryAdapter extends RecyclerView.Adapter<StoryAdapter.StoryVH> {  
  
 Context context;  
 ArrayList<Story> list;  
 OnStoryClick callback;  
  
 public interface OnStoryClick {  
 void onClick(Story s);  
 }  
  
 public StoryAdapter(Context context, ArrayList<Story> list, OnStoryClick callback) {  
 this.context = context;  
 this.list = list;  
 this.callback = callback;  
 }  
  
 @NonNull  
 @Override  
 public StoryVH onCreateViewHolder(@NonNull ViewGroup parent, int viewType) {  
 View v = LayoutInflater.*from*(context)  
 .inflate(R.layout.item\_story, parent, false);  
 return new StoryVH(v);  
 }  
  
 @Override  
 public void onBindViewHolder(@NonNull StoryVH holder, int position) {  
 Story s = list.get(position);  
  
 holder.title.setText(s.title);  
  
 try {  
 InputStream is = context.getAssets().open(s.photo);  
 Drawable d = Drawable.*createFromStream*(is, null);  
 holder.photo.setImageDrawable(d);  
 } catch (Exception ignored) {}  
  
 holder.itemView.setOnClickListener(v -> callback.onClick(s));  
 }  
  
 @Override  
 public int getItemCount() {  
 return list.size();  
 }  
  
 class StoryVH extends RecyclerView.ViewHolder {  
 ImageView photo;  
 TextView title;  
  
 public StoryVH(@NonNull View v) {  
 super(v);  
 photo = v.findViewById(R.id.storyImg);  
 title = v.findViewById(R.id.storyTitle);  
 }  
 }  
}

package com.example.lab10.adapter;  
  
import android.content.Context;  
import android.view.LayoutInflater;  
import android.view.View;  
import android.view.ViewGroup;  
import android.widget.TextView;  
  
import androidx.annotation.NonNull;  
import androidx.recyclerview.widget.RecyclerView;  
  
import com.example.lab10.R;  
import com.example.lab10.model.Topic;  
  
import java.util.ArrayList;  
  
public class TopicAdapter extends RecyclerView.Adapter<TopicAdapter.TopicVH> {  
  
 Context context;  
 ArrayList<Topic> list;  
 OnTopicClick callback;  
  
 public interface OnTopicClick {  
 void onClick(Topic t);  
 }  
  
 public TopicAdapter(Context context, ArrayList<Topic> list, OnTopicClick callback) {  
 this.context = context;  
 this.list = list;  
 this.callback = callback;  
 }  
  
 @NonNull  
 @Override  
 public TopicVH onCreateViewHolder(@NonNull ViewGroup parent, int viewType) {  
 View v = LayoutInflater.*from*(context)  
 .inflate(R.layout.*item\_topic*, parent, false);  
 return new TopicVH(v);  
 }  
  
 @Override  
 public void onBindViewHolder(@NonNull TopicVH holder, int position) {  
 Topic t = list.get(position);  
 holder.title.setText(t.title);  
 holder.des.setText(t.description);  
  
 holder.itemView.setOnClickListener(v -> callback.onClick(t));  
 }  
  
 @Override  
 public int getItemCount() {  
 return list.size();  
 }  
  
 class TopicVH extends RecyclerView.ViewHolder {  
 TextView title, des;  
  
 public TopicVH(@NonNull View v) {  
 super(v);  
 title = v.findViewById(R.id.*topicTitle*);  
 des = v.findViewById(R.id.*topicDes*);  
 }  
 }  
}

package com.example.lab10.Fragments;  
  
import android.os.Bundle;  
import android.os.Handler;  
  
import androidx.annotation.NonNull;  
import androidx.annotation.Nullable;  
import androidx.fragment.app.Fragment;  
  
import android.view.LayoutInflater;  
import android.view.View;  
import android.view.ViewGroup;  
  
import com.example.lab10.R;  
import com.example.lab10.TruyenNguNgonActivity;  
  
public class M000SplashFrg extends Fragment {  
  
 Handler handler = new Handler();  
  
 @Nullable  
 @Override  
 public View onCreateView(@NonNull LayoutInflater inflater, @Nullable ViewGroup container, @Nullable Bundle savedInstanceState) {  
 return inflater.inflate(R.layout.*frg\_splash*, container, false);  
 }  
  
 @Override  
 public void onResume() {  
 super.onResume();  
 handler.postDelayed(() -> {  
 ((TruyenNguNgonActivity) getActivity()).openTopicScreen();  
 }, 1000);  
 }  
}

package com.example.lab10.Fragments;  
  
import android.os.Bundle;  
import android.view.LayoutInflater;  
import android.view.View;  
import android.view.ViewGroup;  
  
import androidx.annotation.NonNull;  
import androidx.annotation.Nullable;  
import androidx.fragment.app.Fragment;  
import androidx.recyclerview.widget.LinearLayoutManager;  
import androidx.recyclerview.widget.RecyclerView;  
  
import com.example.lab10.R;  
import com.example.lab10.TruyenNguNgonActivity;  
import com.example.lab10.adapter.TopicAdapter;  
import com.example.lab10.model.DataStore;  
  
public class M001TopicFrg extends Fragment {  
  
 private RecyclerView rv;  
  
 @Nullable  
 @Override  
 public View onCreateView(@NonNull LayoutInflater inflater,  
 @Nullable ViewGroup container,  
 @Nullable Bundle savedInstanceState) {  
 return inflater.inflate(R.layout.*frg\_topic*, container, false);  
 }  
  
 @Override  
 public void onViewCreated(@NonNull View view,  
 @Nullable Bundle savedInstanceState) {  
  
 rv = view.findViewById(R.id.rvTopic);  
  
 rv.setLayoutManager(new LinearLayoutManager(requireContext()));  
  
 TopicAdapter adapter = new TopicAdapter(  
 requireContext(),  
 DataStore.getTopics(),  
 topic -> {  
 TruyenNguNgonActivity act = (TruyenNguNgonActivity) requireActivity();  
 act.openStoryScreen(topic.id);  
 }  
 );  
  
 rv.setAdapter(adapter);  
 }  
}

package com.example.lab10.Fragments;  
  
import android.os.Bundle;  
import android.view.LayoutInflater;  
import android.view.View;  
import android.view.ViewGroup;  
  
import androidx.annotation.NonNull;  
import androidx.annotation.Nullable;  
import androidx.fragment.app.Fragment;  
import androidx.recyclerview.widget.LinearLayoutManager;  
import androidx.recyclerview.widget.RecyclerView;  
  
import com.example.lab10.R;  
import com.example.lab10.TruyenNguNgonActivity;  
import com.example.lab10.adapter.StoryAdapter;  
import com.example.lab10.model.DataStore;  
  
public class M002StoryFrg extends Fragment {  
  
 private static final String *KEY\_ID* = "topic\_id";  
 String topicId;  
  
 RecyclerView rv;  
  
 public static M002StoryFrg newInstance(String id) {  
 M002StoryFrg f = new M002StoryFrg();  
 Bundle b = new Bundle();  
 b.putString(*KEY\_ID*, id);  
 f.setArguments(b);  
 return f;  
 }  
  
 @Nullable  
 @Override  
 public View onCreateView(@NonNull LayoutInflater inflater, @Nullable ViewGroup container, @Nullable Bundle savedInstanceState) {  
 return inflater.inflate(R.layout.*frg\_story*, container, false);  
 }  
  
 @Override  
 public void onViewCreated(@NonNull View view, @Nullable Bundle savedInstanceState) {  
 rv = view.findViewById(R.id.*rvStory*);  
  
 // 🔥 QUAN TRỌNG NHẤT: PHẢI CÓ LAYOUT MANAGER  
 rv.setLayoutManager(new LinearLayoutManager(getContext()));  
  
 topicId = getArguments().getString(*KEY\_ID*);  
  
 StoryAdapter adapter = new StoryAdapter(  
 getContext(),  
 DataStore.*getStories*(topicId),  
 s -> ((TruyenNguNgonActivity) getActivity()).openDetailScreen(s)  
 );  
  
 rv.setAdapter(adapter);  
 }  
  
}

package com.example.lab10.Fragments;  
  
import android.os.Bundle;  
import android.view.LayoutInflater;  
import android.view.View;  
import android.view.ViewGroup;  
  
import androidx.annotation.NonNull;  
import androidx.annotation.Nullable;  
import androidx.fragment.app.Fragment;  
import androidx.recyclerview.widget.LinearLayoutManager;  
import androidx.recyclerview.widget.RecyclerView;  
  
import com.example.lab10.R;  
import com.example.lab10.TruyenNguNgonActivity;  
import com.example.lab10.adapter.StoryAdapter;  
import com.example.lab10.model.DataStore;  
  
public class M002StoryFrg extends Fragment {  
  
 private static final String *KEY\_ID* = "topic\_id";  
 String topicId;  
  
 RecyclerView rv;  
  
 public static M002StoryFrg newInstance(String id) {  
 M002StoryFrg f = new M002StoryFrg();  
 Bundle b = new Bundle();  
 b.putString(*KEY\_ID*, id);  
 f.setArguments(b);  
 return f;  
 }  
  
 @Nullable  
 @Override  
 public View onCreateView(@NonNull LayoutInflater inflater, @Nullable ViewGroup container, @Nullable Bundle savedInstanceState) {  
 return inflater.inflate(R.layout.*frg\_story*, container, false);  
 }  
  
 @Override  
 public void onViewCreated(@NonNull View view, @Nullable Bundle savedInstanceState) {  
 rv = view.findViewById(R.id.*rvStory*);  
  
 // 🔥 QUAN TRỌNG NHẤT: PHẢI CÓ LAYOUT MANAGER  
 rv.setLayoutManager(new LinearLayoutManager(getContext()));  
  
 topicId = getArguments().getString(*KEY\_ID*);  
  
 StoryAdapter adapter = new StoryAdapter(  
 getContext(),  
 DataStore.*getStories*(topicId),  
 s -> ((TruyenNguNgonActivity) getActivity()).openDetailScreen(s)  
 );  
  
 rv.setAdapter(adapter);  
 }  
  
}

package com.example.lab10.model;  
  
import java.util.ArrayList;  
  
public class DataStore {  
  
 public static ArrayList<Topic> getTopics() {  
 ArrayList<Topic> list = new ArrayList<>();  
  
 list.add(new Topic("nhan\_thuc",  
 "Bài học nhận thức",  
 "3 truyện giúp ta hiểu đúng – nhìn đúng sự việc."));  
  
 list.add(new Topic("kien\_tri",  
 "Bài học kiên trì",  
 "3 truyện dạy nỗ lực, chăm chỉ và thái độ sống."));  
  
 return list;  
 }  
  
 public static ArrayList<Story> getStories(String topicId) {  
 ArrayList<Story> list = new ArrayList<>();  
  
 if (topicId.equals("nhan\_thuc")) {  
  
  
 list.add(new Story(  
 "thayboi",  
 "Thầy bói xem voi",  
 "photo/thayboixemvoi.jpg",  
 "story/story\_thayboixemvoi.txt"  
 ));  
  
 list.add(new Story(  
 "cao",  
 "Cáo và chùm nho",  
 "photo/caovachumnho.jpg",  
 "story/story\_caovachumnho.txt"  
 ));  
  
 list.add(new Story(  
 "qua",  
 "Con quạ thông minh",  
 "photo/conquathongminh.jpg",  
 "story/story\_conquathongminh.txt"  
 ));  
 }  
  
 if (topicId.equals("kien\_tri")) {  
  
 list.add(new Story(  
 "ruavatho",  
 "Rùa và thỏ",  
 "photo/ruavatho.jpg",  
 "story/story\_ruavatho.txt"  
 ));  
  
 list.add(new Story(  
 "chauchau",  
 "Châu chấu và kiến",  
 "photo/chauchauvakien.jpg",  
 "story/story\_chauchauvakien.txt"  
 ));  
  
 list.add(new Story(  
 "ruadaibang",  
 "Rùa và đại bàng",  
 "photo/ruavadaibang.jpg",  
 "story/story\_ruadaibang.txt"  
 ));  
  
 }  
  
 return list;  
 }  
}

package com.example.lab10.model;  
  
import java.io.Serializable;  
  
public class Story implements Serializable {  
 public String id;  
 public String title;  
 public String photo;  
 public String file;  
  
 public Story(String id, String title, String photo, String file) {  
 this.id = id;  
 this.title = title;  
 this.photo = photo;  
 this.file = file;  
 }  
}

package com.example.lab10.model;  
  
public class Topic {  
 public String id;  
 public String title;  
 public String description;  
  
 public Topic(String id, String title, String description) {  
 this.id = id;  
 this.title = title;  
 this.description = description;  
 }  
}

package com.example.lab10;  
  
import androidx.appcompat.app.AppCompatActivity;  
import androidx.fragment.app.Fragment;  
  
import android.os.Bundle;  
  
import com.example.lab10.Fragments.M000SplashFrg;  
import com.example.lab10.Fragments.M001TopicFrg;  
import com.example.lab10.Fragments.M002StoryFrg;  
import com.example.lab10.Fragments.M003DetailStoryFrg;  
import com.example.lab10.model.Story;  
  
public class TruyenNguNgonActivity extends AppCompatActivity {  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_story*);  
  
 openSplash();  
 }  
  
 public void openSplash() {  
 replace(new M000SplashFrg(), false);  
 }  
  
 public void openTopicScreen() {  
 replace(new M001TopicFrg(), false);  
 }  
  
 public void openStoryScreen(String id) {  
 replace(M002StoryFrg.*newInstance*(id), true);  
 }  
  
 public void openDetailScreen(Story s) {  
 replace(M003DetailStoryFrg.*newInstance*(s), true);  
 }  
  
 private void replace(Fragment f, boolean backStack) {  
 if (backStack)  
 getSupportFragmentManager().beginTransaction()  
 .replace(R.id.*frContainer*, f)  
 .addToBackStack(null)  
 .commit();  
 else  
 getSupportFragmentManager().beginTransaction()  
 .replace(R.id.*frContainer*, f)  
 .commit();  
 }  
}

**A screenshot of a phone

AI-generated content may be incorrect. A screenshot of a phone

AI-generated content may be incorrect.**

**A screenshot of a phone

AI-generated content may be incorrect.**

* 1. Tạo úng dụng truyện cung hoàng đạo

package com.example.lab10.adapter;  
  
import android.content.Context;  
import android.view.LayoutInflater;  
import android.view.View;  
import android.view.ViewGroup;  
import android.widget.ImageView;  
import android.widget.TextView;  
  
import androidx.annotation.NonNull;  
import androidx.recyclerview.widget.RecyclerView;  
  
import com.example.lab10.R;  
import com.example.lab10.model.Zodiac;  
  
import java.io.IOException;  
import java.io.InputStream;  
import java.util.ArrayList;  
  
public class ZodiacAdapter extends RecyclerView.Adapter<ZodiacAdapter.ZodiacVH> {  
  
 Context context;  
 ArrayList<Zodiac> list;  
 OnZodiacClick callback;  
  
 public interface OnZodiacClick {  
 void onClick(Zodiac z);  
 }  
  
 public ZodiacAdapter(Context context, ArrayList<Zodiac> list, OnZodiacClick callback) {  
 this.context = context;  
 this.list = list;  
 this.callback = callback;  
 }  
  
 @NonNull  
 @Override  
 public ZodiacVH onCreateViewHolder(@NonNull ViewGroup parent, int viewType) {  
 View v = LayoutInflater.from(context).inflate(R.layout.item\_zodiac, parent, false);  
 return new ZodiacVH(v);  
 }  
  
 @Override  
 public void onBindViewHolder(@NonNull ZodiacVH h, int i) {  
 Zodiac z = list.get(i);  
  
 h.txtName.setText(z.name);  
 h.txtDate.setText(z.date);  
  
 try {  
 InputStream is = context.getAssets().open(z.image);  
 h.img.setImageBitmap(android.graphics.BitmapFactory.decodeStream(is));  
 } catch (IOException e) {  
 e.printStackTrace();  
 }  
  
 h.itemView.setOnClickListener(v -> callback.onClick(z));  
 }  
  
 @Override  
 public int getItemCount() {  
 return list.size();  
 }  
  
 class ZodiacVH extends RecyclerView.ViewHolder {  
 ImageView img;  
 TextView txtName, txtDate;  
  
 public ZodiacVH(@NonNull View v) {  
 super(v);  
 img = v.findViewById(R.id.imgZodiac);  
 txtName = v.findViewById(R.id.txtName);  
 txtDate = v.findViewById(R.id.txtDate);  
 }  
 }  
}

package com.example.lab10.Fragments;  
  
import android.os.Bundle;  
import androidx.fragment.app.Fragment;  
  
import android.view.LayoutInflater;  
import android.view.View;  
import android.view.ViewGroup;  
import android.widget.ImageView;  
import android.widget.TextView;  
  
import com.example.lab10.R;  
  
import java.io.BufferedReader;  
import java.io.IOException;  
import java.io.InputStream;  
import java.io.InputStreamReader;  
  
public class ZodiacDetailFragment extends Fragment {  
  
 ImageView img;  
 TextView txtTitle, txtContent;  
  
 @Override  
 public View onCreateView(LayoutInflater inflater, ViewGroup container,  
 Bundle savedInstanceState) {  
  
 View v = inflater.inflate(R.layout.*frg\_zodiac\_detail*, container, false);  
  
 img = v.findViewById(R.id.*imgZodiacDetail*);  
 txtTitle = v.findViewById(R.id.*txtZodiacTitle*);  
 txtContent = v.findViewById(R.id.*txtContent*);  
  
 Bundle b = getArguments();  
  
 String name = b.getString("name");  
 String date = b.getString("date");  
 String image = b.getString("image");  
 String file = b.getString("file");  
  
 txtTitle.setText(name + " (" + date + ")");  
  
 try {  
 InputStream is = getContext().getAssets().open(image);  
 img.setImageBitmap(android.graphics.BitmapFactory.*decodeStream*(is));  
 } catch (Exception e) { }  
  
 txtContent.setText(loadText(file));  
  
 return v;  
 }  
  
 private String loadText(String filePath) {  
 try {  
 InputStream is = getContext().getAssets().open(filePath);  
 BufferedReader br = new BufferedReader(new InputStreamReader(is));  
 StringBuilder sb = new StringBuilder();  
 String line;  
  
 while ((line = br.readLine()) != null)  
 sb.append(line).append("\n");  
  
 return sb.toString();  
  
 } catch (IOException e) {  
 return "Không tải được nội dung!";  
 }  
 }  
}

package com.example.lab10.Fragments;  
  
import android.os.Bundle;  
import androidx.fragment.app.Fragment;  
import androidx.recyclerview.widget.LinearLayoutManager;  
import androidx.recyclerview.widget.RecyclerView;  
  
import android.view.LayoutInflater;  
import android.view.View;  
import android.view.ViewGroup;  
  
import com.example.lab10.R;  
import com.example.lab10.adapter.ZodiacAdapter;  
import com.example.lab10.model.Zodiac;  
import com.example.lab10.model.ZodiacData;  
  
import java.util.ArrayList;  
  
public class ZodiacListFragment extends Fragment {  
  
 RecyclerView rcv;  
  
 @Override  
 public View onCreateView(LayoutInflater inflater, ViewGroup container,  
 Bundle savedInstanceState) {  
 View v = inflater.inflate(R.layout.*frg\_zodiac\_list*, container, false);  
  
 rcv = v.findViewById(R.id.*rcvZodiac*);  
 rcv.setLayoutManager(new LinearLayoutManager(getContext()));  
  
 ArrayList<Zodiac> data = ZodiacData.*getAll*();  
  
 ZodiacAdapter adapter = new ZodiacAdapter(getContext(), data, z -> {  
 Bundle b = new Bundle();  
 b.putString("name", z.name);  
 b.putString("date", z.date);  
 b.putString("image", z.image);  
 b.putString("file", z.file);  
  
 ZodiacDetailFragment frg = new ZodiacDetailFragment();  
 frg.setArguments(b);  
  
 requireActivity().getSupportFragmentManager()  
 .beginTransaction()  
 .replace(R.id.*frameZodiac*, frg)  
 .addToBackStack(null)  
 .commit();  
 });  
  
 rcv.setAdapter(adapter);  
  
 return v;  
 }  
}

package com.example.lab10.model;  
  
public class Zodiac {  
 public String name;  
 public String date;  
 public String image;  
 public String file;  
  
 public Zodiac(String name, String date, String image, String file) {  
 this.name = name;  
 this.date = date;  
 this.image = image;  
 this.file = file;  
 }  
}

package com.example.lab10.model;  
  
import java.util.ArrayList;  
  
public class ZodiacData {  
  
 public static ArrayList<Zodiac> getAll() {  
 ArrayList<Zodiac> list = new ArrayList<>();  
  
 list.add(new Zodiac("Bạch Dương", "21/3 - 19/4", "photo/bachduong.jpg", "zodiac/bachduong.txt"));  
 list.add(new Zodiac("Kim Ngưu", "20/4 - 20/5", "photo/kimnguu.jpg", "zodiac/kimnguu.txt"));  
 list.add(new Zodiac("Song Tử", "21/5 - 20/6", "photo/songtu.jpg", "zodiac/songtu.txt"));  
 list.add(new Zodiac("Cự Giải", "21/6 - 22/7", "photo/cugiai.jpg", "zodiac/cugiai.txt"));  
 list.add(new Zodiac("Sư Tử", "23/7 - 22/8", "photo/sutu.jpg", "zodiac/sutu.txt"));  
 list.add(new Zodiac("Xử Nữ", "23/8 - 22/9", "photo/xunu.jpg", "zodiac/xunu.txt"));  
 list.add(new Zodiac("Thiên Bình", "23/9 - 22/10", "photo/thienbinh.jpg", "zodiac/thienbinh.txt"));  
 list.add(new Zodiac("Bọ Cạp", "23/10 - 21/11", "photo/bocap.jpg", "zodiac/bocap.txt"));  
 list.add(new Zodiac("Nhân Mã", "22/11 - 21/12", "photo/nhanma.jpg", "zodiac/nhanma.txt"));  
 list.add(new Zodiac("Ma Kết", "22/12 - 19/1", "photo/maket.jpg", "zodiac/maket.txt"));  
 list.add(new Zodiac("Bảo Bình", "20/1 - 18/2", "photo/baobinh.jpg", "zodiac/baobinh.txt"));  
 list.add(new Zodiac("Song Ngư", "19/2 - 20/3", "photo/songngu.jpg", "zodiac/songngu.txt"));  
  
 return list;  
 }  
}

package com.example.lab10;  
  
import androidx.appcompat.app.AppCompatActivity;  
import android.os.Bundle;  
  
import com.example.lab10.Fragments.ZodiacListFragment;  
  
public class ZodiacActivity extends AppCompatActivity {  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_zodiac*);  
  
 getSupportFragmentManager()  
 .beginTransaction()  
 .replace(R.id.*frameZodiac*, new ZodiacListFragment())  
 .commit();

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# LAB 5 BUỔI THỰC HÀNH 5

## BÀI 13+14

* 1. Xây dựng màn hình login lưu về SharedPreferences

package com.example.lab1314;  
  
import android.content.Context;  
import android.content.SharedPreferences;  
import android.os.Bundle;  
import android.view.LayoutInflater;  
import android.view.View;  
import android.view.ViewGroup;  
import android.view.animation.AnimationUtils;  
import android.widget.EditText;  
import android.widget.Toast;  
  
import androidx.fragment.app.Fragment;  
  
public class M000LoginFragment extends Fragment implements View.OnClickListener {  
  
 private EditText edtEmail, edtPass;  
 private Context mContext;  
  
 @Override  
 public View onCreateView(LayoutInflater inflater, ViewGroup container, Bundle savedInstanceState) {  
 View rootView = inflater.inflate(R.layout.m000\_frg\_login, container, false);  
 initView(rootView);  
 return rootView;  
 }  
  
 @Override  
 public void onAttach(Context context) {  
 super.onAttach(context);  
 mContext = context;  
 }  
  
 private void initView(View v) {  
 edtEmail = v.findViewById(R.id.edt\_email);  
 edtPass = v.findViewById(R.id.edt\_pass);  
  
 v.findViewById(R.id.tv\_login).setOnClickListener(this);  
 v.findViewById(R.id.tv\_register).setOnClickListener(this);  
 }  
  
 @Override  
 public void onClick(View v) {  
  
 v.startAnimation(AnimationUtils.*loadAnimation*(mContext, androidx.appcompat.R.anim.abc\_fade\_in));  
  
 if (v.getId() == R.id.tv\_login) {  
 login(edtEmail.getText().toString(), edtPass.getText().toString());  
 } else if (v.getId() == R.id.tv\_register) {  
 ((MainActivity) mContext).gotoRegisterScreen();  
 }  
 }  
  
 private void login(String mail, String pass) {  
  
 if (mail.isEmpty() || pass.isEmpty()) {  
 Toast.*makeText*(mContext, "Empty value", Toast.*LENGTH\_SHORT*).show();  
 return;  
 }  
  
 SharedPreferences pref = mContext.getSharedPreferences(MainActivity.*SAVE\_PREF*, Context.*MODE\_PRIVATE*);  
 String savedPass = pref.getString(mail, null);  
  
 if (savedPass == null) {  
 Toast.*makeText*(mContext, "Email is not existed!", Toast.*LENGTH\_SHORT*).show();  
 return;  
 }  
  
 if (!pass.equals(savedPass)) {  
 Toast.*makeText*(mContext, "Password is not correct!", Toast.*LENGTH\_SHORT*).show();  
 return;  
 }  
  
 Toast.*makeText*(mContext, "Login successfully!", Toast.*LENGTH\_SHORT*).show();  
 }  
}

package com.example.lab1314;  
  
import android.content.Context;  
import android.content.SharedPreferences;  
import android.os.Bundle;  
import android.view.LayoutInflater;  
import android.view.View;  
import android.view.ViewGroup;  
import android.view.animation.AnimationUtils;  
import android.widget.EditText;  
import android.widget.Toast;  
  
import androidx.fragment.app.Fragment;  
  
public class M001RegisterFragment extends Fragment implements View.OnClickListener {  
  
 private EditText edtEmail, edtPass, edtRepass;  
 private Context mContext;  
  
 @Override  
 public View onCreateView(LayoutInflater inflater, ViewGroup container, Bundle savedInstanceState) {  
 View rootView = inflater.inflate(R.layout.*m001\_frg\_register*, container, false);  
 initView(rootView);  
 return rootView;  
 }  
  
 @Override  
 public void onAttach(Context context) {  
 super.onAttach(context);  
 mContext = context;  
 }  
  
 private void initView(View v) {  
  
 edtEmail = v.findViewById(R.id.*edt\_email*);  
 edtPass = v.findViewById(R.id.*edt\_pass*);  
 edtRepass = v.findViewById(R.id.*edt\_re\_pass*);  
  
 v.findViewById(R.id.*tv\_register*).setOnClickListener(this);  
 v.findViewById(R.id.*iv\_back*).setOnClickListener(this);  
 }  
  
 @Override  
 public void onClick(View v) {  
  
 v.startAnimation(AnimationUtils.*loadAnimation*(mContext, androidx.appcompat.R.anim.abc\_fade\_in));  
  
 if (v.getId() == R.id.*iv\_back*) {  
 ((MainActivity) mContext).gotoLoginScreen();  
 } else if (v.getId() == R.id.*tv\_register*) {  
 register(edtEmail.getText().toString(), edtPass.getText().toString(), edtRepass.getText().toString());  
 }  
 }  
  
 private void register(String mail, String pass, String repass) {  
  
 if (mail.isEmpty() || pass.isEmpty() || repass.isEmpty()) {  
 Toast.*makeText*(mContext, "Empty value", Toast.*LENGTH\_SHORT*).show();  
 return;  
 }  
  
 if (!pass.equals(repass)) {  
 Toast.*makeText*(mContext, "Password is not match", Toast.*LENGTH\_SHORT*).show();  
 return;  
 }  
  
 SharedPreferences pref = mContext.getSharedPreferences(MainActivity.*SAVE\_PREF*, Context.*MODE\_PRIVATE*);  
 String savedPass = pref.getString(mail, null);  
  
 if (savedPass != null) {  
 Toast.*makeText*(mContext, "Email already exists!", Toast.*LENGTH\_SHORT*).show();  
 return;  
 }  
  
 pref.edit().putString(mail, pass).apply();  
 Toast.*makeText*(mContext, "Register successfully!", Toast.*LENGTH\_SHORT*).show();  
  
 ((MainActivity) mContext).gotoLoginScreen();  
 }  
}

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package com.example.lab1314;  
  
import androidx.appcompat.app.AppCompatActivity;  
import android.os.Bundle;  
  
public class MainActivity extends AppCompatActivity {  
 public static final String *SAVE\_PREF* = "save\_pref";  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
  
 gotoLoginScreen();  
 }  
  
 public void gotoLoginScreen() {  
 getSupportFragmentManager()  
 .beginTransaction()  
 .replace(R.id.*ln\_main*, new M000LoginFragment())  
 .commit();  
 }  
  
 public void gotoRegisterScreen() {  
 getSupportFragmentManager()  
 .beginTransaction()  
 .replace(R.id.*ln\_main*, new M001RegisterFragment())  
 .commit();  
 }  
}

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