Nguyễn Trường Hưng – 1150070013 – TMĐT – Bài tập lý thuyết 5

**Bài tập 1: Sử dụng Animation từ file XML**

Bước 1: Xây dựng các file dimens.xml và strings.xml

* Trong thư mục app/res/value đã có sẵn file strings nên ta tạo thêm file dimens.xml

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Code:

*<!-- res/values/dimens.xml -->*<resources>  
 <dimen name="margin\_base">5dp</dimen>  
 <dimen name="margin\_basex2">10dp</dimen>  
 <dimen name="text\_medium">16sp</dimen>  
 <dimen name="image\_base">100dp</dimen>  
</resources>

*<!-- res/values/strings.xml -->*<resources>  
 <string name="from\_xml">From XML</string>  
 <string name="from\_code">From CODE</string>  
 <string name="fade\_in">Fade In</string>  
 <string name="fade\_out">Fade Out</string>  
 <string name="blink">Blink</string>  
 <string name="zoom\_in">Zoom In</string>  
 <string name="zoom\_out">Zoom Out</string>  
 <string name="rotate">Rotate</string>  
 <string name="move">Move</string>  
 <string name="slide\_up">Slide Up</string>  
 <string name="bounce">Bounce</string>  
 <string name="combine">Combine</string>  
</resources>

Bước 2: Thiết kế layout: LinearLayout + FrameLayout chứa ImageView (iv\_uit\_logo) và nhiều Button tương ứng (fade\_in\_xml, fade\_in\_code…).Tại file activity\_main.xml:

*<?*xml version="1.0" encoding="utf-8"*?>*<LinearLayout  
 xmlns:android="http://schemas.android.com/apk/res/android"  
 xmlns:tools="http://schemas.android.com/tools"  
 android:layout\_width="match\_parent"  
 android:layout\_height="match\_parent"  
 android:orientation="vertical"  
 android:padding="@dimen/margin\_basex2"  
 tools:context="your.package.MainActivity">  
  
 *<!-- Khu vực logo -->* <FrameLayout  
 android:layout\_width="match\_parent"  
 android:layout\_height="0dp"  
 android:layout\_weight="6">  
  
 <ImageView  
 android:id="@+id/iv\_uit\_logo"  
 android:layout\_width="@dimen/image\_base"  
 android:layout\_height="@dimen/image\_base"  
 android:layout\_gravity="center"  
 android:scaleType="fitCenter"  
 android:src="@drawable/dtm\_logo" />  
 </FrameLayout>  
  
 *<!-- Tiêu đề cột -->* <LinearLayout  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginTop="@dimen/margin\_basex2"  
 android:orientation="horizontal">  
  
 <TextView  
 android:layout\_width="0dp"  
 android:layout\_height="wrap\_content"  
 android:layout\_weight="1"  
 android:text="@string/from\_xml"  
 android:gravity="center"  
 android:textStyle="bold"  
 android:layout\_marginEnd="@dimen/margin\_base" />  
  
 <TextView  
 android:layout\_width="0dp"  
 android:layout\_height="wrap\_content"  
 android:layout\_weight="1"  
 android:text="@string/from\_code"  
 android:textStyle="bold"  
 android:gravity="center" />  
 </LinearLayout>  
  
 *<!-- Danh sách nút -->* <ScrollView  
 android:layout\_width="match\_parent"  
 android:layout\_height="0dp"  
 android:layout\_weight="5">  
  
 <LinearLayout  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:orientation="vertical">  
  
 *<!-- F A D E I N -->* <LinearLayout  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginTop="@dimen/margin\_base"  
 android:orientation="horizontal">  
  
 <Button  
 android:id="@+id/btn\_fade\_in\_xml"  
 android:layout\_width="0dp"  
 android:layout\_height="wrap\_content"  
 android:layout\_weight="1"  
 android:text="@string/fade\_in"  
 android:gravity="center"  
 android:layout\_marginEnd="@dimen/margin\_base" />  
  
 <Button  
 android:id="@+id/btn\_fade\_in\_code"  
 android:layout\_width="0dp"  
 android:layout\_height="wrap\_content"  
 android:layout\_weight="1"  
 android:text="@string/fade\_in"  
 android:gravity="center" />  
 </LinearLayout>  
  
 *<!-- F A D E O U T -->* <LinearLayout  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginTop="@dimen/margin\_base"  
 android:orientation="horizontal">  
  
 <Button  
 android:id="@+id/btn\_fade\_out\_xml"  
 android:layout\_width="0dp"  
 android:layout\_height="wrap\_content"  
 android:layout\_weight="1"  
 android:text="@string/fade\_out"  
 android:gravity="center"  
 android:layout\_marginEnd="@dimen/margin\_base" />  
  
 <Button  
 android:id="@+id/btn\_fade\_out\_code"  
 android:layout\_width="0dp"  
 android:layout\_height="wrap\_content"  
 android:layout\_weight="1"  
 android:text="@string/fade\_out"  
 android:gravity="center" />  
 </LinearLayout>  
  
 *<!-- B L I N K -->* <LinearLayout  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginTop="@dimen/margin\_base"  
 android:orientation="horizontal">  
  
 <Button  
 android:id="@+id/btn\_blink\_xml"  
 android:layout\_width="0dp"  
 android:layout\_height="wrap\_content"  
 android:layout\_weight="1"  
 android:text="@string/blink"  
 android:gravity="center"  
 android:layout\_marginEnd="@dimen/margin\_base" />  
  
 <Button  
 android:id="@+id/btn\_blink\_code"  
 android:layout\_width="0dp"  
 android:layout\_height="wrap\_content"  
 android:layout\_weight="1"  
 android:text="@string/blink"  
 android:gravity="center" />  
 </LinearLayout>  
  
 *<!-- Z O O M I N -->* <LinearLayout  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginTop="@dimen/margin\_base"  
 android:orientation="horizontal">  
  
 <Button  
 android:id="@+id/btn\_zoom\_in\_xml"  
 android:layout\_width="0dp"  
 android:layout\_height="wrap\_content"  
 android:layout\_weight="1"  
 android:text="@string/zoom\_in"  
 android:gravity="center"  
 android:layout\_marginEnd="@dimen/margin\_base" />  
  
 <Button  
 android:id="@+id/btn\_zoom\_in\_code"  
 android:layout\_width="0dp"  
 android:layout\_height="wrap\_content"  
 android:layout\_weight="1"  
 android:text="@string/zoom\_in"  
 android:gravity="center" />  
 </LinearLayout>  
  
 *<!-- Z O O M O U T -->* <LinearLayout  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginTop="@dimen/margin\_base"  
 android:orientation="horizontal">  
  
 <Button  
 android:id="@+id/btn\_zoom\_out\_xml"  
 android:layout\_width="0dp"  
 android:layout\_height="wrap\_content"  
 android:layout\_weight="1"  
 android:text="@string/zoom\_out"  
 android:gravity="center"  
 android:layout\_marginEnd="@dimen/margin\_base" />  
  
 <Button  
 android:id="@+id/btn\_zoom\_out\_code"  
 android:layout\_width="0dp"  
 android:layout\_height="wrap\_content"  
 android:layout\_weight="1"  
 android:text="@string/zoom\_out"  
 android:gravity="center" />  
 </LinearLayout>  
  
 *<!-- R O T A T E -->* <LinearLayout  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginTop="@dimen/margin\_base"  
 android:orientation="horizontal">  
  
 <Button  
 android:id="@+id/btn\_rotate\_xml"  
 android:layout\_width="0dp"  
 android:layout\_height="wrap\_content"  
 android:layout\_weight="1"  
 android:text="@string/rotate"  
 android:gravity="center"  
 android:layout\_marginEnd="@dimen/margin\_base" />  
  
 <Button  
 android:id="@+id/btn\_rotate\_code"  
 android:layout\_width="0dp"  
 android:layout\_height="wrap\_content"  
 android:layout\_weight="1"  
 android:text="@string/rotate"  
 android:gravity="center" />  
 </LinearLayout>  
  
 *<!-- M O V E -->* <LinearLayout  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginTop="@dimen/margin\_base"  
 android:orientation="horizontal">  
  
 <Button  
 android:id="@+id/btn\_move\_xml"  
 android:layout\_width="0dp"  
 android:layout\_height="wrap\_content"  
 android:layout\_weight="1"  
 android:text="@string/move"  
 android:gravity="center"  
 android:layout\_marginEnd="@dimen/margin\_base" />  
  
 <Button  
 android:id="@+id/btn\_move\_code"  
 android:layout\_width="0dp"  
 android:layout\_height="wrap\_content"  
 android:layout\_weight="1"  
 android:text="@string/move"  
 android:gravity="center" />  
 </LinearLayout>  
  
 *<!-- S L I D E U P -->* <LinearLayout  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginTop="@dimen/margin\_base"  
 android:orientation="horizontal">  
  
 <Button  
 android:id="@+id/btn\_slide\_up\_xml"  
 android:layout\_width="0dp"  
 android:layout\_height="wrap\_content"  
 android:layout\_weight="1"  
 android:text="@string/slide\_up"  
 android:gravity="center"  
 android:layout\_marginEnd="@dimen/margin\_base" />  
  
 <Button  
 android:id="@+id/btn\_slide\_up\_code"  
 android:layout\_width="0dp"  
 android:layout\_height="wrap\_content"  
 android:layout\_weight="1"  
 android:text="@string/slide\_up"  
 android:gravity="center" />  
 </LinearLayout>  
  
 *<!-- B O U N C E -->* <LinearLayout  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginTop="@dimen/margin\_base"  
 android:orientation="horizontal">  
  
 <Button  
 android:id="@+id/btn\_bounce\_xml"  
 android:layout\_width="0dp"  
 android:layout\_height="wrap\_content"  
 android:layout\_weight="1"  
 android:text="@string/bounce"  
 android:gravity="center"  
 android:layout\_marginEnd="@dimen/margin\_base" />  
  
 <Button  
 android:id="@+id/btn\_bounce\_code"  
 android:layout\_width="0dp"  
 android:layout\_height="wrap\_content"  
 android:layout\_weight="1"  
 android:text="@string/bounce"  
 android:gravity="center" />  
 </LinearLayout>  
  
 *<!-- C O M B I N E -->* <LinearLayout  
 android:layout\_width="match\_parent"  
 android:layout\_height="wrap\_content"  
 android:layout\_marginTop="@dimen/margin\_base"  
 android:orientation="horizontal">  
  
 <Button  
 android:id="@+id/btn\_combine\_xml"  
 android:layout\_width="0dp"  
 android:layout\_height="wrap\_content"  
 android:layout\_weight="1"  
 android:text="@string/combine"  
 android:gravity="center"  
 android:layout\_marginEnd="@dimen/margin\_base" />  
  
 <Button  
 android:id="@+id/btn\_combine\_code"  
 android:layout\_width="0dp"  
 android:layout\_height="wrap\_content"  
 android:layout\_weight="1"  
 android:text="@string/combine"  
 android:gravity="center" />  
 </LinearLayout>  
  
 </LinearLayout>  
 </ScrollView>  
</LinearLayout>

Bước 3: Tạo thư mục res/anim/ và định nghĩa file XML cho mỗi animation:

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Bước 4: Khai báo Khai báo Button, ImageView, Tạo hàm handleClickAnimationXml(Button btn, int animId) để load và gắn sự kiện start animation.

package com.example.nguyentruonghung\_1150070013\_lab6;  
  
  
import android.os.Bundle;  
import android.view.animation.AlphaAnimation;  
import android.view.animation.Animation;  
import android.view.animation.AnimationSet;  
import android.view.animation.AnimationUtils;  
import android.view.animation.RotateAnimation;  
import android.view.animation.ScaleAnimation;  
import android.view.animation.TranslateAnimation;  
import android.widget.Button;  
import android.widget.ImageView;  
import android.widget.Toast;  
  
import androidx.appcompat.app.AppCompatActivity;  
  
public class MainActivity extends AppCompatActivity {  
  
 private Button btnFadeInXml, btnFadeInCode, btnFadeOutXml, btnFadeOutCode,  
 btnBlinkXml, btnBlinkCode, btnZoomInXml, btnZoomInCode, btnZoomOutXml, btnZoomOutCode,  
 btnRotateXml, btnRotateCode, btnMoveXml, btnMoveCode, btnSlideUpXml, btnSlideUpCode,  
 btnBounceXml, btnBounceCode, btnCombineXml, btnCombineCode;  
  
 private ImageView ivUitLogo;  
 private Animation.AnimationListener animationListener;  
  
 @Override  
 protected void onCreate(Bundle savedInstanceState) {  
 super.onCreate(savedInstanceState);  
 setContentView(R.layout.*activity\_main*);  
  
 findViewsByIds();  
 initVariables();  
  
 *// ===== XML animations =====* handleClickAnimationXml(btnFadeInXml, R.anim.*anim\_fade\_in*);  
 handleClickAnimationXml(btnFadeOutXml, R.anim.*anim\_fade\_out*);  
 handleClickAnimationXml(btnBlinkXml, R.anim.*anim\_blink*);  
 handleClickAnimationXml(btnZoomInXml, R.anim.*anim\_zoom\_in*);  
 handleClickAnimationXml(btnZoomOutXml, R.anim.*anim\_zoom\_out*);  
 handleClickAnimationXml(btnRotateXml, R.anim.*anim\_rotate*);  
 handleClickAnimationXml(btnMoveXml, R.anim.*anim\_move*);  
 handleClickAnimationXml(btnBounceXml, R.anim.*anim\_bounce*);  
 handleClickAnimationXml(btnSlideUpXml, R.anim.*anim\_slide\_up*);  
 handleClickAnimationXml(btnCombineXml, R.anim.*anim\_combine*);  
  
 *// ===== CODE animations =====* handleClickAnimationCode(btnFadeInCode, buildFadeIn());  
 handleClickAnimationCode(btnFadeOutCode, buildFadeOut());  
 handleClickAnimationCode(btnBlinkCode, buildBlink());  
 handleClickAnimationCode(btnZoomInCode, buildZoomIn());  
 handleClickAnimationCode(btnZoomOutCode, buildZoomOut());  
 handleClickAnimationCode(btnRotateCode, buildRotate());  
 handleClickAnimationCode(btnMoveCode, buildMove());  
 handleClickAnimationCode(btnBounceCode, buildBounce());  
 handleClickAnimationCode(btnSlideUpCode, buildSlideUp());  
 handleClickAnimationCode(btnCombineCode, buildCombine());  
 }  
  
 private void findViewsByIds() {  
 ivUitLogo = findViewById(R.id.*iv\_uit\_logo*);  
  
 btnFadeInXml = findViewById(R.id.*btn\_fade\_in\_xml*);  
 btnFadeInCode = findViewById(R.id.*btn\_fade\_in\_code*);  
  
 btnFadeOutXml = findViewById(R.id.*btn\_fade\_out\_xml*);  
 btnFadeOutCode = findViewById(R.id.*btn\_fade\_out\_code*);  
  
 btnBlinkXml = findViewById(R.id.*btn\_blink\_xml*);  
 btnBlinkCode = findViewById(R.id.*btn\_blink\_code*);  
  
 btnZoomInXml = findViewById(R.id.*btn\_zoom\_in\_xml*);  
 btnZoomInCode = findViewById(R.id.*btn\_zoom\_in\_code*);  
  
 btnZoomOutXml = findViewById(R.id.*btn\_zoom\_out\_xml*);  
 btnZoomOutCode = findViewById(R.id.*btn\_zoom\_out\_code*);  
  
 btnRotateXml = findViewById(R.id.*btn\_rotate\_xml*);  
 btnRotateCode = findViewById(R.id.*btn\_rotate\_code*);  
  
 btnMoveXml = findViewById(R.id.*btn\_move\_xml*);  
 btnMoveCode = findViewById(R.id.*btn\_move\_code*);  
  
 btnSlideUpXml = findViewById(R.id.*btn\_slide\_up\_xml*);  
 btnSlideUpCode = findViewById(R.id.*btn\_slide\_up\_code*);  
  
 btnBounceXml = findViewById(R.id.*btn\_bounce\_xml*);  
 btnBounceCode = findViewById(R.id.*btn\_bounce\_code*);  
  
 btnCombineXml = findViewById(R.id.*btn\_combine\_xml*);  
 btnCombineCode = findViewById(R.id.*btn\_combine\_code*);  
 }  
  
 private void initVariables() {  
 animationListener = new Animation.AnimationListener() {  
 @Override public void onAnimationStart(Animation animation) { }  
 @Override public void onAnimationEnd(Animation animation) {  
 Toast.*makeText*(getApplicationContext(), "Animation Stopped", Toast.*LENGTH\_SHORT*).show();  
 }  
 @Override public void onAnimationRepeat(Animation animation) { }  
 };  
 }  
  
 *// ==== Dùng file XML trong res/anim ====* private void handleClickAnimationXml(Button btn, int animId) {  
 btn.setOnClickListener(v -> {  
 Animation a = AnimationUtils.*loadAnimation*(this, animId);  
 a.setAnimationListener(animationListener);  
 ivUitLogo.startAnimation(a);  
 });  
 }  
  
 *// ==== Dùng animation tạo từ code ====* private void handleClickAnimationCode(Button btn, final Animation animation) {  
 btn.setOnClickListener(v -> {  
 *// Bảo đảm mỗi lần click đều chạy lại mượt* animation.reset();  
 animation.setAnimationListener(animationListener);  
 ivUitLogo.startAnimation(animation);  
 });  
 }  
  
 *// ========= Builders cho animation CODE =========* private Animation buildFadeIn() {  
 AlphaAnimation a = new AlphaAnimation(0f, 1f);  
 a.setDuration(1000);  
 return a;  
 }  
  
 private Animation buildFadeOut() {  
 AlphaAnimation a = new AlphaAnimation(1f, 0f);  
 a.setDuration(1000);  
 return a;  
 }  
  
 private Animation buildBlink() {  
 AlphaAnimation a = new AlphaAnimation(0f, 1f);  
 a.setDuration(300);  
 a.setRepeatMode(Animation.*REVERSE*);  
 a.setRepeatCount(3);  
 return a;  
 }  
  
 private Animation buildZoomIn() {  
 ScaleAnimation s = new ScaleAnimation(  
 1f, 3f, 1f, 3f,  
 Animation.*RELATIVE\_TO\_SELF*, 0.5f,  
 Animation.*RELATIVE\_TO\_SELF*, 0.5f  
 );  
 s.setDuration(1000);  
 s.setFillAfter(true);  
 return s;  
 }  
  
 private Animation buildZoomOut() {  
 ScaleAnimation s = new ScaleAnimation(  
 1f, 0.5f, 1f, 0.5f,  
 Animation.*RELATIVE\_TO\_SELF*, 0.5f,  
 Animation.*RELATIVE\_TO\_SELF*, 0.5f  
 );  
 s.setDuration(1000);  
 s.setFillAfter(true);  
 return s;  
 }  
  
 private Animation buildRotate() {  
 RotateAnimation r = new RotateAnimation(  
 0f, 360f,  
 Animation.*RELATIVE\_TO\_SELF*, 0.5f,  
 Animation.*RELATIVE\_TO\_SELF*, 0.5f  
 );  
 r.setDuration(600);  
 r.setRepeatMode(Animation.*RESTART*);  
 r.setRepeatCount(2);  
 return r;  
 }  
  
 private Animation buildMove() {  
 TranslateAnimation t = new TranslateAnimation(  
 Animation.*RELATIVE\_TO\_PARENT*, 0f,  
 Animation.*RELATIVE\_TO\_PARENT*, 0.75f,  
 Animation.*RELATIVE\_TO\_SELF*, 0f,  
 Animation.*RELATIVE\_TO\_SELF*, 0f  
 );  
 t.setDuration(800);  
 t.setFillAfter(true);  
 return t;  
 }  
  
 private Animation buildBounce() {  
 *// Mô phỏng "nảy" bằng scale Y từ 0 -> 1* ScaleAnimation s = new ScaleAnimation(  
 1f, 1f, 0f, 1f,  
 Animation.*RELATIVE\_TO\_SELF*, 0.5f,  
 Animation.*RELATIVE\_TO\_SELF*, 0.5f  
 );  
 s.setDuration(500);  
 s.setFillAfter(true);  
 return s;  
 }  
  
 private Animation buildSlideUp() {  
 *// Co theo trục Y (1 -> 0) để tạo cảm giác slide up* ScaleAnimation s = new ScaleAnimation(  
 1f, 1f, 1f, 0f,  
 Animation.*RELATIVE\_TO\_SELF*, 0.5f,  
 Animation.*RELATIVE\_TO\_SELF*, 0.5f  
 );  
 s.setDuration(500);  
 s.setFillAfter(true);  
 return s;  
 }  
  
 private Animation buildCombine() {  
 AnimationSet set = new AnimationSet(true);  
 set.addAnimation(buildZoomIn());  
 set.addAnimation(buildRotate());  
 return set;  
 }  
}

kết quả: Khi ấn vào các nút, hiệu ứng sẽ xuất hiện:

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Bài 2: **Sử dụng Animation từ code**

Bước 1: Tạo hàm xử lý click chạy animation

Gắn animation cho 1 button, chèn đoạn code này vào file MainActivity.Java trước đó:

private void handleClickAnimationCode(Button btn, final Animation animation) {  
 btn.setOnClickListener(v -> {  
 ivUitLogo.clearAnimation(); animation.reset();  
 animation.setAnimationListener(animationListener);  
 ivUitLogo.startAnimation(animation);  
 });  
}

Bước 2: Viết hàm khởi tạo Fade In bằng AlphaAnimation, tiếp tục chèn đoạn code sau trong file MainActivity.Java

private Animation buildFadeIn() {  
 AlphaAnimation a = new AlphaAnimation(0f, 1f);  
 a.setDuration(1000);  
 return a;  
}

Bước 3: Gọi hàm trong onCreate() cho button Fade In (code)

handleClickAnimationCode(btnFadeInCode, buildFadeIn());  
 handleClickAnimationCode(btnFadeOutCode, buildFadeOut());  
 handleClickAnimationCode(btnBlinkCode, buildBlink());  
 handleClickAnimationCode(btnZoomInCode, buildZoomIn());  
 handleClickAnimationCode(btnZoomOutCode, buildZoomOut());  
 handleClickAnimationCode(btnRotateCode, buildRotate());  
 handleClickAnimationCode(btnMoveCode, buildMove());  
 handleClickAnimationCode(btnSlideUpCode, buildSlideUp());  
 handleClickAnimationCode(btnBounceCode, buildBounce());  
 handleClickAnimationCode(btnCombineCode, buildCombine());  
}

Bước 4: Xây dựng các hàm cho tất cả hiệu ứng còn lại

private Animation buildFadeIn() {  
 AlphaAnimation a = new AlphaAnimation(0f, 1f);  
 a.setDuration(1000);  
 return a;  
 }  
  
 *// Fade Out* private Animation buildFadeOut() {  
 AlphaAnimation a = new AlphaAnimation(1f, 0f);  
 a.setDuration(1000);  
 return a;  
 }  
  
 *// Blink (nháy)* private Animation buildBlink() {  
 AlphaAnimation a = new AlphaAnimation(0f, 1f);  
 a.setDuration(300);  
 a.setRepeatMode(Animation.*REVERSE*);  
 a.setRepeatCount(3);  
 return a;  
 }  
  
 *// Zoom In* private Animation buildZoomIn() {  
 ScaleAnimation s = new ScaleAnimation(  
 1f, 3f, 1f, 3f,  
 Animation.*RELATIVE\_TO\_SELF*, 0.5f,  
 Animation.*RELATIVE\_TO\_SELF*, 0.5f);  
 s.setDuration(1000);  
 s.setFillAfter(true);  
 return s;  
 }  
  
 *// Zoom Out* private Animation buildZoomOut() {  
 ScaleAnimation s = new ScaleAnimation(  
 1f, 0.5f, 1f, 0.5f,  
 Animation.*RELATIVE\_TO\_SELF*, 0.5f,  
 Animation.*RELATIVE\_TO\_SELF*, 0.5f);  
 s.setDuration(1000);  
 s.setFillAfter(true);  
 return s;  
 }  
  
 *// Rotate* private Animation buildRotate() {  
 RotateAnimation r = new RotateAnimation(  
 0f, 360f,  
 Animation.*RELATIVE\_TO\_SELF*, 0.5f,  
 Animation.*RELATIVE\_TO\_SELF*, 0.5f);  
 r.setDuration(600);  
 r.setRepeatMode(Animation.*RESTART*);  
 r.setRepeatCount(2);  
 return r;  
 }  
  
 *// Move (dịch sang phải 75% chiều rộng parent)* private Animation buildMove() {  
 TranslateAnimation t = new TranslateAnimation(  
 Animation.*RELATIVE\_TO\_PARENT*, 0f,  
 Animation.*RELATIVE\_TO\_PARENT*, 0.75f,  
 Animation.*RELATIVE\_TO\_SELF*, 0f,  
 Animation.*RELATIVE\_TO\_SELF*, 0f);  
 t.setDuration(800);  
 t.setFillAfter(true);  
 return t;  
 }  
  
 *// Slide Up (co trục Y: 1 -> 0)* private Animation buildSlideUp() {  
 ScaleAnimation s = new ScaleAnimation(  
 1f, 1f, 1f, 0f,  
 Animation.*RELATIVE\_TO\_SELF*, 0.5f,  
 Animation.*RELATIVE\_TO\_SELF*, 0.5f);  
 s.setDuration(500);  
 s.setFillAfter(true);  
 return s;  
 }  
  
 *// Bounce (nảy theo trục Y)* private Animation buildBounce() {  
 ScaleAnimation s = new ScaleAnimation(  
 1f, 1f, 0f, 1f,  
 Animation.*RELATIVE\_TO\_SELF*, 0.5f,  
 Animation.*RELATIVE\_TO\_SELF*, 0.5f);  
 s.setDuration(500);  
 s.setFillAfter(true);  
 return s;  
 }  
  
 *// Combine (Zoom In + Rotate)* private Animation buildCombine() {  
 AnimationSet set = new AnimationSet(true);  
 set.addAnimation(buildZoomIn());  
 set.addAnimation(buildRotate());  
 return set;  
 }  
}

Bước 5: Gắn sự kiện click cho tất cả nút “From CODE” trong onCreate()

handleClickAnimationCode(btnFadeInCode, buildFadeIn());  
 handleClickAnimationCode(btnFadeOutCode, buildFadeOut());  
 handleClickAnimationCode(btnBlinkCode, buildBlink());  
 handleClickAnimationCode(btnZoomInCode, buildZoomIn());  
 handleClickAnimationCode(btnZoomOutCode, buildZoomOut());  
 handleClickAnimationCode(btnRotateCode, buildRotate());  
 handleClickAnimationCode(btnMoveCode, buildMove());  
 handleClickAnimationCode(btnSlideUpCode, buildSlideUp());  
 handleClickAnimationCode(btnBounceCode, buildBounce());  
 handleClickAnimationCode(btnCombineCode, buildCombine());  
}

Kết quả:

A screenshot of a phone

AI-generated content may be incorrect.

**Bài 3: Tạo animation khi start Activity mới**

Tiếp tục giữ nguyên layout và các file xml của bài 1

Tạo thêm các slide theo yêu cầu “đẩy MainActivity từ phải sang trái

A screenshot of a computer

AI-generated content may be incorrect.