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

a) Mô tả ứng dụng

Định nghĩa các animation fade in/out, rotate, zoom in/out, move, blink, slide up, bounce, combine… bằng xml từ các animation cơ bản của Android gồm: ScaleAnimation, TranslateAnimation, RotateAnimation, AlphaAnimation để tạo hiệu ứng hiển thị ImageView.

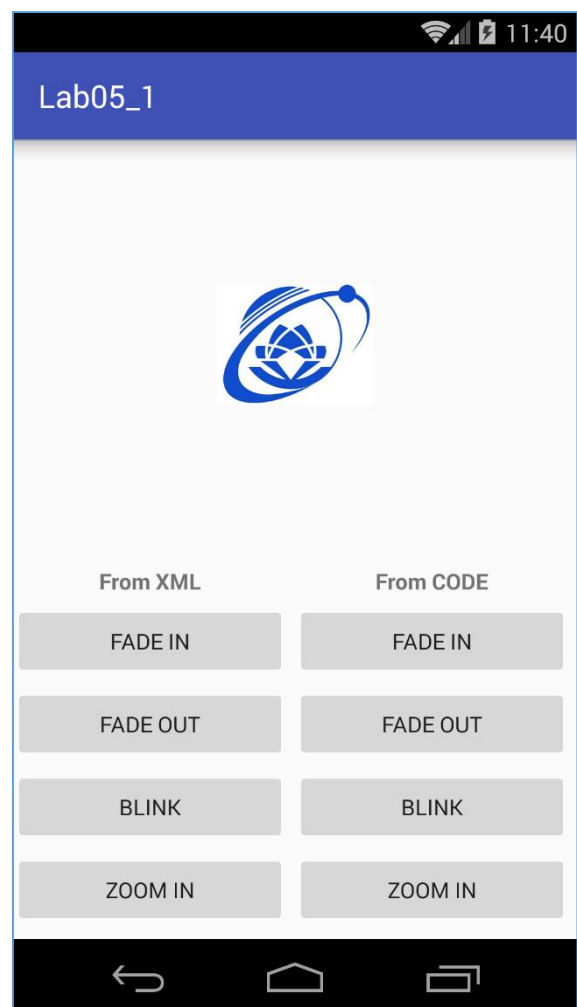### b) Các bước thực hiện

- Xây dựng các file dimens.xml

Name	Value
margin_base	5dp
margin_basex2	10dp
text_medium	16sp
image_base	100dp

- Xây dựng file strings.xml

Name	Value
from_xml	From XML
from_code	From CODE
fade_in	Fade In
fade_out	Fade Out
blink	Blink
zoom_in	Zoom In
zoom_out	Zoom Out
rotate	Rotate
move	Move
slide_up	Slide Up
bounce	Bounce
combine	Combine

- Xây dựng giao diện

```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"
```

```xml
        android:orientation="vertical"
        tools:context="uit.edu.vn.lab05_1.MainActivity">
    <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/uit_logo"/>
    </FrameLayout>
    <LinearLayout
        android:layout_marginTop="@dimen/margin_basex2"
        android:layout_width="match_parent"
        android:layout_height="wrap_content"
        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_marginRight="@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"
            android:layout_marginRight="@dimen/margin_base"/>
    </LinearLayout>
    <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">
            <LinearLayout
                android:layout_marginTop="@dimen/margin_base"
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                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_marginRight="@dimen/margin_base"/>
                <Button
                    android:id="@+id/btn_fade_in_code"
                    android:layout_width="0dp"
```

```xml
                            android:layout_height="wrap_content"
                            android:layout_weight="1"
                            android:text="@string/fade_in"
                            android:gravity="center"
                            android:layout_marginRight="@dimen/margin_base"/>
                    </LinearLayout>
                    <LinearLayout
                        android:layout_marginTop="@dimen/margin_base"
                        android:layout_width="match_parent"
                        android:layout_height="wrap_content"
                        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_marginRight="@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"
                            android:layout_marginRight="@dimen/margin_base"/>
                    </LinearLayout>
                    <LinearLayout
                        android:layout_marginTop="@dimen/margin_base"
                        android:layout_width="match_parent"
                        android:layout_height="wrap_content"
                        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_marginRight="@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"
                            android:layout_marginRight="@dimen/margin_base"/>
                    </LinearLayout>
                    <LinearLayout
                        android:layout_marginTop="@dimen/margin_base"
                        android:layout_width="match_parent"
                        android:layout_height="wrap_content"
                        android:orientation="horizontal">
                        <Button
                            android:id="@+id/btn_zoom_in_xml"
                            android:layout_width="0dp"
                            android:layout_height="wrap_content"
                            android:layout_weight="1"
```

3

```xml
                    android:text="@string/zoom_in"
                    android:gravity="center"
                    android:layout_marginRight="@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"
                    android:layout_marginRight="@dimen/margin_base"/>
            </LinearLayout>
            <LinearLayout
                android:layout_marginTop="@dimen/margin_base"
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                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_marginRight="@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"
                    android:layout_marginRight="@dimen/margin_base"/>
            </LinearLayout>
            <LinearLayout
                android:layout_marginTop="@dimen/margin_base"
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
                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_marginRight="@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"
                    android:layout_marginRight="@dimen/margin_base"/>
            </LinearLayout>
            <LinearLayout
                android:layout_marginTop="@dimen/margin_base"
                android:layout_width="match_parent"
                android:layout_height="wrap_content"
```

```xml
            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_marginRight="@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"
                android:layout_marginRight="@dimen/margin_base"/>
        </LinearLayout>
        <LinearLayout
            android:layout_marginTop="@dimen/margin_base"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            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_marginRight="@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"
                android:layout_marginRight="@dimen/margin_base"/>
        </LinearLayout>
        <LinearLayout
            android:layout_marginTop="@dimen/margin_base"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            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_marginRight="@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"
```

```xml
                android:layout_marginRight="@dimen/margin_base"/>
        </LinearLayout>
        <LinearLayout
            android:layout_marginTop="@dimen/margin_base"
            android:layout_width="match_parent"
            android:layout_height="wrap_content"
            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_marginRight="@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"
                android:layout_marginRight="@dimen/margin_base"/>
        </LinearLayout>
    </LinearLayout>
</ScrollView>

</LinearLayout>
```

- Định nghĩa animation Fade In trong file xml như sau

  - Tạo folder **anim** trong folder **res**

  - Tạo file **anim_fade_in.xml** trong folder **anim** với nội dung như sau

```xml
<?xml version="1.0" encoding="utf-8"?>
<set xmlns:android="http://schemas.android.com/apk/res/android"
    android:fillAfter="true" >

    <alpha
        android:duration="1000"
        android:fromAlpha="0.0"
        android:toAlpha="1.0" />

</set>
```

- Khai báo biến và xây dựng các hàm findViewsbyIds và InitVariables

```java
private Button btnFadeInXml, btnFadeInCode, btnFadeOutXml, btnFadeOutCode,
btnBlinkXml,
        btnBlinkCode, btnZoomInXml, btnZoomInCode, btnZoomOutXml,
btnZoomOutCode, btnRotateXml,
        btnRotateCode, btnMoveXml, btnMoveCode, btnSlideUpXml, btnSlideUpCode,
btnBounceXml,
        btnBounceCode, btnCombineXml, btnCombineCode;
```

```java
private ImageView ivUitLogo;
private Animation.AnimationListener animationListener;
```

```java
private void findViewsByIds() {
    ivUitLogo = (ImageView) findViewById(R.id.iv_uit_logo);
    btnFadeInXml = (Button) findViewById(R.id.btn_fade_in_xml);
    btnFadeInCode = (Button) findViewById(R.id.btn_fade_in_code);
    btnFadeOutXml = (Button) findViewById(R.id.btn_fade_out_xml);
    btnFadeOutCode = (Button) findViewById(R.id.btn_fade_out_code);
    btnBlinkXml = (Button) findViewById(R.id.btn_blink_xml);
    btnBlinkCode = (Button) findViewById(R.id.btn_blink_code);
    btnZoomInXml = (Button) findViewById(R.id.btn_zoom_in_xml);
    btnZoomInCode = (Button) findViewById(R.id.btn_zoom_in_code);
    btnZoomOutXml = (Button) findViewById(R.id.btn_zoom_out_xml);
    btnZoomOutCode = (Button) findViewById(R.id.btn_zoom_out_code);
    btnRotateXml = (Button) findViewById(R.id.btn_rotate_xml);
    btnRotateCode = (Button) findViewById(R.id.btn_rotate_code);
    btnMoveXml = (Button) findViewById(R.id.btn_move_xml);
    btnMoveCode = (Button) findViewById(R.id.btn_move_code);
    btnSlideUpXml = (Button) findViewById(R.id.btn_slide_up_xml);
    btnSlideUpCode = (Button) findViewById(R.id.btn_slide_up_code);
    btnBounceXml = (Button) findViewById(R.id.btn_bounce_xml);
    btnBounceCode = (Button) findViewById(R.id.btn_bounce_code);
    btnCombineXml = (Button) findViewById(R.id.btn_combine_xml);
    btnCombineCode = (Button) findViewById(R.id.btn_combine_code);
}
```

```java
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) {

        }
    };
}
```

- Override hàm onCreate để load và start Animation khi user nhấn vào button tương ứng:

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```java
@Override
protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);

    findViewsByIds();
    initVariables();

    // HandleClickAnimationXML
    // load the animation
    final Animation animation = AnimationUtils.loadAnimation(MainActivity.this,
            R.anim.anim_fade_in);

    // set animation listener
    animation.setAnimationListener(animationListener);

    // Handle onclickListenner to start animation
    btnFadeInXml.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
            ivUitLogo.startAnimation(animation);
        }
    });
}
```

Yêu cầu: Hiện tại, animation Fade In đã được gắn cho ivUitLogo khi user nhấn btnFadeInXml. Sinh viên chỉnh sửa, bổ sung code để các animation hoạt động khi user nhấn vào các button (btn**Something**Xml) tương ứng.

Hướng dẫn: Sinh viên thực hiện các bước sau
- Định nghĩa các animation còn lại vào các file xml tương ứng

Tên file	Nội dung

anim_blink.xml	```xml
	<?xml version="1.0" encoding="utf-8"?>
	<set
	xmlns:android="http://schemas.android.com/apk/res/android">
	    <alpha android:fromAlpha="0.0"
	        android:toAlpha="1.0"
	        android:duration="300"
	        android:repeatMode="reverse"
	        android:repeatCount="3"/>
	</set>```

anim_bounce.xml	```xml
	<?xml version="1.0" encoding="utf-8"?>
	<set
	xmlns:android="http://schemas.android.com/apk/res/android"
	    android:fillAfter="true"
	
	android:interpolator="@android:anim/bounce_interpolator">
	    <scale
	        android:duration="500"
	        android:fromXScale="1.0"
	        android:fromYScale="0.0"
	        android:toXScale="1.0"
	        android:toYScale="1.0" />
	
	</set>```

anim_fade_out.xml	```xml
	<?xml version="1.0" encoding="utf-8"?>
	<set
	xmlns:android="http://schemas.android.com/apk/res/android"
	    android:fillAfter="true" >
	    <alpha
	        android:duration="1000"
	        android:fromAlpha="1.0"
	        android:toAlpha="0.0" />
	</set>
	``

anim_move.xml	```xml
	<?xml version="1.0" encoding="utf-8"?>
	<set
	
	xmlns:android="http://schemas.android.com/apk/res/android"
	
	android:interpolator="@android:anim/linear_interpolator"
	    android:fillAfter="true">
	
	    <translate
	        android:fromXDelta="0%p"
	        android:toXDelta="75%p"
	        android:duration="800" />
	</set>
	``

anim_rotate.xml	```xml
	<?xml version="1.0" encoding="utf-8"?>
	<set
	xmlns:android="http://schemas.android.com/apk/res/android">
	    <rotate android:fromDegrees="0"
	        android:toDegrees="360"
	        android:pivotX="50%"
	        android:pivotY="50%"
	        android:duration="600"
	        android:repeatMode="restart"
	        android:repeatCount="2"
	
	android:interpolator="@android:anim/cycle_interpolator"/>
	</set>
	``

anim_slide_up.xml	```xml
	<?xml version="1.0" encoding="utf-8"?>
	<set
	xmlns:android="http://schemas.android.com/apk/res/android"
	    android:fillAfter="true" >
	
	    <scale
	        android:duration="500"
	        android:fromXScale="1.0"
	        android:fromYScale="1.0"
	        android:toXScale="1.0"
	        android:toYScale="0.0" />
	
	</set>
	``

anim_zoom_in.xml	```xml
	<?xml version="1.0" encoding="utf-8"?>
	<set
	xmlns:android="http://schemas.android.com/apk/res/android"
	    android:fillAfter="true" >
	
	    <scale
	
	xmlns:android="http://schemas.android.com/apk/res/android"
	        android:duration="1000"
	``

	``xml
	        android:fromXScale="1"
	        android:fromYScale="1"
	        android:pivotX="50%"
	        android:pivotY="50%"
	        android:toXScale="3"
	        android:toYScale="3" >
	    </scale>
	</set>
	``

anim_zoom_out.xml	```xml
	<?xml version="1.0" encoding="utf-8"?>
	<set
	xmlns:android="http://schemas.android.com/apk/res/android"
	    android:fillAfter="true" >
	
	    <scale
	
	xmlns:android="http://schemas.android.com/apk/res/android"
	        android:duration="1000"
	        android:fromXScale="1.0"
	        android:fromYScale="1.0"
	        android:pivotX="50%"
	        android:pivotY="50%"
	        android:toXScale="0.5"
	        android:toYScale="0.5" >
	    </scale>
	</set>
	``

anim_combine.xml	```xml
	<?xml version="1.0" encoding="utf-8"?>
	<set
	xmlns:android="http://schemas.android.com/apk/res/android"
	    android:fillAfter="true"
	
	android:interpolator="@android:anim/linear_interpolator" >
	
	    <scale
	
	xmlns:android="http://schemas.android.com/apk/res/android"
	        android:duration="4000"
	        android:fromXScale="1"
	        android:fromYScale="1"
	        android:pivotX="50%"
	        android:pivotY="50%"
	        android:toXScale="3"
	        android:toYScale="3" >
	    </scale>
	
	    <!-- Rotate 180 degrees -->
	    <rotate
	        android:duration="500"
	        android:fromDegrees="0"
	        android:pivotX="50%"
	        android:pivotY="50%"
	        android:repeatCount="2"
	        android:repeatMode="restart"
	        android:toDegrees="360" />
	
	</set>
	``

- Chuyển nội dung đoạn code **load animation từ xml và bắt sự kiện onClick cho button** (trong hàm onCreate ở trên) vào 1 hàm mới:

```
private void handleClickAnimationXml(Button btn, int animId)
{
        // Sinh viên tự sửa lại code cho phù hợp
}
```

Trong đó: btn sẽ được truyền vào là một Button và animId là id của file Xml tương ứng với animation cần set cho button đó.

- Cuối cùng, lần lượt gọi hàm `handleClickAnimationXml` trong hàm `onCreate()` như sau:

```
@Override
protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);

    findViewsByIds();
    initVariables();

    // HandleClickAnimationXML
    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(btnSlideUpXml, R.anim.anim_slide_up);
    handleClickAnimationXml(btnBounceXml, R.anim.anim_bounce);
    handleClickAnimationXml(btnCombineXml, R.anim.anim_combine);
```

2. Bài tập 2: Sử dụng Animation từ code

Sinh viên tiếp tục sử dụng nội dung thực hành ở Bài tập 1 để thực hiện tiếp Bài tập 2.

- Xây dựng hàm `handleClickAnimationCode`

```
private void handleClickAnimationCode(Button btn, final Animation animation) {

    // Handle onclickListenner to start animation
    btn.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View v) {
```

```
            ivUitLogo.startAnimation(animation);
        }
    });

}
```

- Xây dựng hàm khởi tạo Fade In animation từ AlphaAnimation

```
private Animation initFadeInAnimation()
{
    AlphaAnimation animation = new AlphaAnimation(0f, 1f);
    animation.setDuration(3000);
    animation.setFillAfter(true);
    animation.setAnimationListener(animationListener);
    return animation;
}
```

- Gọi hàm xử lý sự kiện click button tương ứng trong hàm onCreate()

```
@Override
protected void onCreate(Bundle savedInstanceState) {
    super.onCreate(savedInstanceState);
    setContentView(R.layout.activity_main);

    findViewsByIds();
    initVariables();

    // HandleClickAnimationXML
    handleClickAnimationXml(btnFadeInXml, R.anim.anim_fade_out);
    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(btnSlideUpXml, R.anim.anim_slide_up);
    handleClickAnimationXml(btnBounceXml, R.anim.anim_bounce);
    handleClickAnimationXml(btnCombineXml, R.anim.anim_combine);

    // HandleClickAnimationCode
    handleClickAnimationCode(btnFadeInCode, initFadeInAnimation());
}
```

Yêu cầu: sinh viên tự xây dựng các hàm khởi tạo Fade Out, Blink và gắn sự kiện click cho các button btnFadeOutCode, btnBlinkCode.

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

Các bước thực hiện:

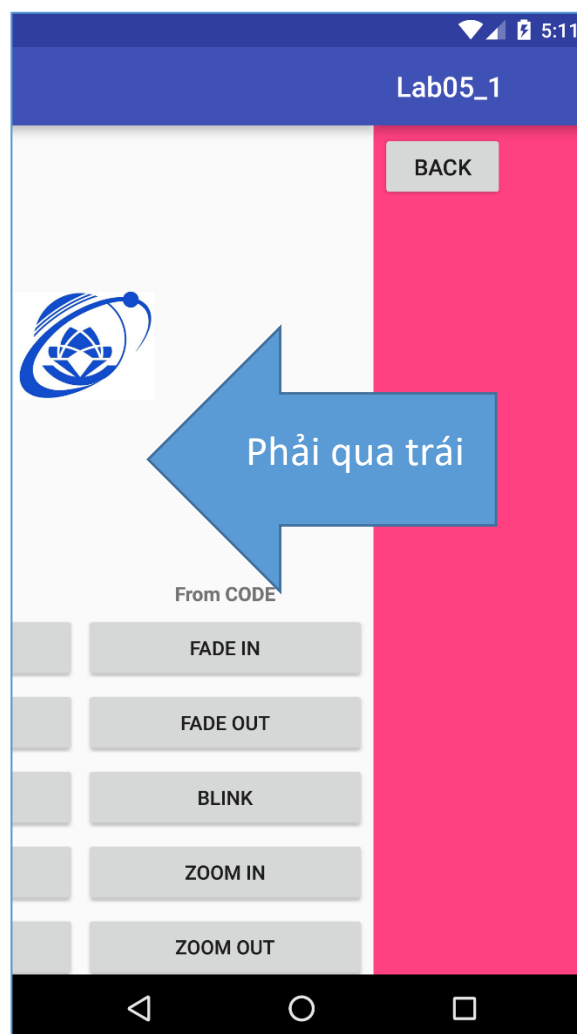- Tạo một activity mới với giao diện như hình:

Khi user nhấn Back, ứng dụng sẽ finish activity hiện tại (new activity) để trở về MainActivity.

- Bắt sự kiện click ivUitLogo để start activity mới và set animation (fade in/out) khi chuyển đổi giữa 2 activity

```
// Start new activity when user clicks ivUitLogo
ivUitLogo.setOnClickListener(new View.OnClickListener() {
    @Override
    public void onClick(View v) {
        Intent iNewActivity=new Intent(MainActivity.this, Main2Activity.class);
        startActivity(iNewActivity);

        overridePendingTransition(R.anim.anim_fade_in,R.anim.anim_fade_out);
    }
});
```

Yêu cầu: sinh viên đổi animation chuyển giữa 2 activity thành dạng new activity đẩy MainActivity từ phải qua trái như hình minh họa

I.   THAM KHẢO THÊM (Tự xem thêm)

1.   Google Cloud Message

- https://duythanhcse.wordpress.com/2014/10/30/bai-50-cach-su-dung-google-cloud-message-trong-android/
- https://techmaster.vn/posts/33846/google-cloud-messaging-gui-push-notifications

2.   Google Maps APIs

- https://duythanhcse.wordpress.com/2014/12/20/bai-53-google-maps-android-api-phan-1/
- https://duythanhcse.wordpress.com/2014/12/21/bai-54-google-maps-android-api-phan-2/
- http://t3h.vn/lap-trinh-di-dong/tin-tuc/Kham-pha-lap-trinh-di-dong/Google-Maps-Android-API-phan-1-479

3.   Get Location

- https://developer.android.com/training/location/retrieve-current.html
- http://stackoverflow.com/questions/17591147/how-to-get-current-location-in-android

4.   Task thường gặp khi đi làm

Sử dụng **retrofit** gọi 1 API từ server. Sau đó, parse JSON (từ API trả về) thành list các java objects sử dụng **GSON**. Hiển thị list java object lên listview (có thể dùng **QuickAdapter** để custom). Mỗi item trong listview tương ứng một java object. Mỗi object có 1 url dẫn tới hình ảnh (icon) trên mạng. Dùng **Glide** để hiển thị hình ảnh (icon) đó cho từng object.