

Animation



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动画的意义





动画的意义

- ❑ 用户体验 (UX)
- ❑ 视觉反馈
- ❑ Informative, Focused, Expressive



View 相关动画

- ❑ View Animation: `android.view.animation`
- ❑ Property Animation: `android.animation`

示例 - PropertyAnimation, XML

```
// res/animator/fade.xml
<objectAnimator xmlns:android="http://schemas.android.com/apk/res/android"
    android:duration="1000"
    android:propertyName="alpha"
    android:valueTo="0.1f" />
```

```
// activity
Animator anim = AnimatorInflater.loadAnimator(activity, R.animator.fade);
anim.setTarget(v);
anim.start();
```



示例 - PropertyAnimation, Code

```
ObjectAnimator alphaAnimation = ObjectAnimator.ofFloat(alphaButton, View.ALPHA, 0);  
alphaAnimation.setRepeatCount(1);  
alphaAnimation.setRepeatMode(ValueAnimator.REVERSE);  
alphaAnimation.start();
```



示例 - More Property

```
// translationX, translationY
```

```
ObjectAnimator transAnim = ObjectAnimator.ofFloat(translateButton, "translationX", 800);
```

```
<objectAnimator xmlns:android="http://schemas.android.com/apk/res/android"  
    android:propertyName="translationX"  
    android:duration="300"  
    android:valueTo="800"/>
```


示例 - More Property

```
// rotation, rotationX, rotationY
```

```
ObjectAnimator rotateAnim = ObjectAnimator.ofFloat(rotateButton, "rotation", 360);
```

```
<objectAnimator xmlns:android="http://schemas.android.com/apk/res/android"  
    android:propertyName="rotation"  
    android:valueFrom="0"  
    android:duration="300"  
    android:valueTo="360"/>
```

示例 - More Property

```
// scaleX, scaleY
PropertyValuesHolder pvhX = PropertyValuesHolder.ofFloat(View.SCALE_X, 2);
PropertyValuesHolder pvhY = PropertyValuesHolder.ofFloat(View.SCALE_Y, 2);
ObjectAnimator scaleAnim = ObjectAnimator.ofPropertyValuesHolder(scaleButton, pvhX,
pvhY);
```

```
<set xmlns:android="http://schemas.android.com/apk/res/android">
  <objectAnimator
    android:propertyName="scaleX"
    android:duration="300"
    android:valueTo="2"/>
  <objectAnimator
    android:propertyName="scaleY"
    android:duration="300"
    android:valueTo="2"/>
</set>
```

示例- AnimatorSet

```
<set xmlns:android="http://schemas.android.com/apk/res/android"
    android:ordering="sequentially">
    <objectAnimator android:propertyName="alpha"
        android:valueTo="0"/>
    <objectAnimator android:propertyName="translationX"
        android:valueTo="800"/>
    <objectAnimator android:propertyName="rotation"
        android:valueFrom="0"
        android:valueTo="360"/>
    <set>
        <objectAnimator android:propertyName="scaleX"
            android:valueTo="2"/>
        <objectAnimator android:propertyName="scaleY"
            android:valueTo="2"/>
    </set>
</set>
```



示例- AnimatorSet

```
AnimatorSet setAnimation = new AnimatorSet();  
setAnimation.play(translateAnimation).after(alphaAnimation).before(rotateAnimation);  
setAnimation.play(rotateAnimation).before(scaleAnimation);
```

```
setAnimation.playSequentially(alphaAnimation, translateAnimation, rotateAnimation,  
scaleAnimation);
```

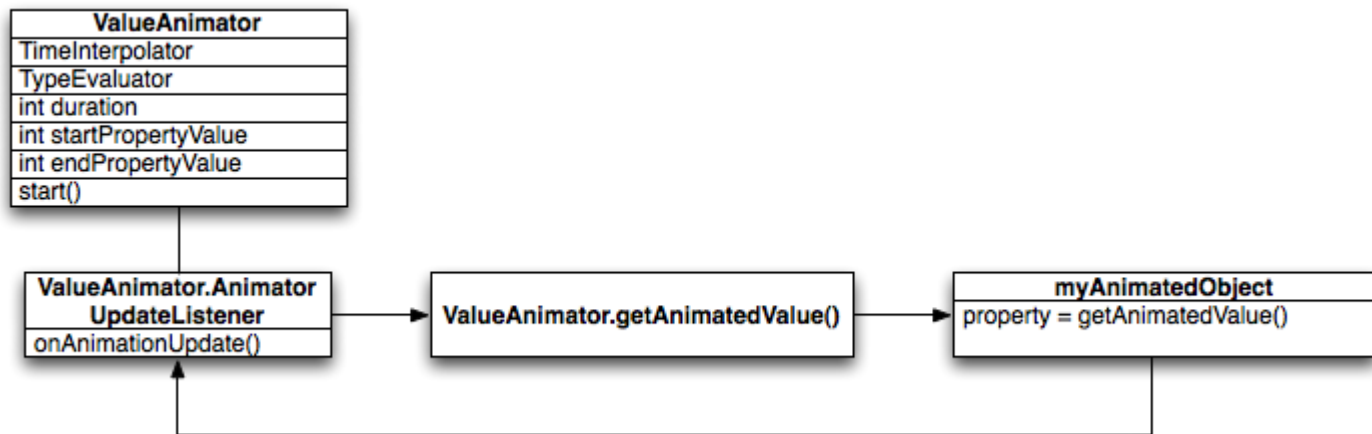
```
setAnimation.playTogether(alphaAnimation, translateAnimation, rotateAnimation,  
scaleAnimation);
```



基本的类

- ❑ Property
- ❑ ObjectAnimator
- ❑ AnimatorSet

背后 - ValueAnimator



背后 - ValueAnimator

```
ValueAnimator animation = ValueAnimator.ofFloat(0f, 100f);
animation.setDuration(1000);
animation.addListener(new ValueAnimator.AnimatorUpdateListener() {
    @Override
    public void onAnimationUpdate(ValueAnimator updatedAnimation) {
        float animatedValue = (float)updatedAnimation.getAnimatedValue();
        textView.setTranslationX(animatedValue);
    }
});
animation.start();
```



示例 - Crossfade

```
mLoadingView.animate()  
    .alpha(0f)  
    .setDuration(mShortAnimationDuration)  
    .setListener(new AnimatorListenerAdapter() {  
        @Override  
        public void onAnimationEnd(Animator animation) {  
            mLoadingView.setVisibility(View.GONE);  
        }  
    });
```




Demo - Move, Zoom



让 Drawable 动起来

- ❑ AnimationDrawable
- ❑ AnimatedVectorDrawable
- ❑ Lottie

Demo - AnimationDrawable

```
// res/drawable/rocket.xml
<animation-list xmlns:android="http://schemas.android.com/apk/res/android"
    android:oneshot="true">
    <item android:drawable="@drawable/rocket_thrust1" android:duration="200" />
    <item android:drawable="@drawable/rocket_thrust2" android:duration="200" />
    <item android:drawable="@drawable/rocket_thrust3" android:duration="200" />
</animation-list>
```

```
// activity
ImageView rocketImage = (ImageView) findViewById(R.id.rocket_image);
rocketImage.setBackgroundResource(R.drawable.rocket_thrust);
rocketAnimation = (AnimationDrawable) rocketImage.getBackground();
rocketAnimation.start();
```

Demo - Lottie

```
<com.airbnb.lottie.LottieAnimationView  
    android:id="@+id/animation_view"  
    android:layout_width="wrap_content"  
    android:layout_height="wrap_content"  
    app:lottie_rawRes="@raw/hello_world" // from res/raw  
    app:lottie_fileName="hello_world.json" // from assets/  
    app:lottie_loop="true"  
    app:lottie_autoPlay="true" />
```



THANKS

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