Android Animation Techniques

# Introduction:

In the Android framework there are several animation techniques which can be used for both 2D as well as 3D graphics. The choice on which technique to use greatly depends on what we are trying to achieve since all of them have their pros and cons.

There are three main systems used in Android to create animation:

* Property Animation
* View Animation
* Drawable Animation

Along with the animation techniques there are frameworks which allow us to create 2D and 3D graphics in order to be used for our animations. The most common method is using Canvas and Drawables, which is powerful enough for most animation needs; there is also an alternative of using the OPEN GL ES framework which allows us to create more sophisticated and powerful graphics.

# Property Animation:

Property Animation focuses on the object properties in order to animate it. That can involve changing its X and Y coordinates in order to move it around the screen, altering its size properties or addition rotation. All of this is performed based on the duration of the animation; we can choose what kind of movement we want, over a specific timeframe. Longer duration or smaller change in properties will result in a slower animation, where as shorter animation duration or bigger change in properties over a timeframe will result in a quicker animation.

The animation interpolation can be linear meaning the movement will be the same within the duration of an animation (for example; change X coordinate from 0 to 50 over 50ms, 10ms being in increase of X coordinate by 10) resulting in a smooth consistent animation, or non-linear meaning the animation will change speed as the change in properties will not be constant within a time frame. We can even make the animation stop and resume after a given timeframe. It’s very similar to a technique of using key frames, which is commonly used in film editing and animation.

# View Animation:

# Drawable Animation:

# 2D and 3D Graphics:

## Canvas & Drawable:

## OpenGL ES:

# Sources:

<https://www.codeproject.com/Articles/825700/Beginners-Guide-to-Android-Animation-Graphics#opengles>

<https://developer.android.com/guide/topics/graphics/overview.html>

<https://developer.android.com/guide/topics/graphics/prop-animation.html>

<https://developer.android.com/guide/topics/graphics/view-animation.html>

<https://developer.android.com/guide/topics/graphics/drawable-animation.html>

<https://android-developers.googleblog.com/2011/05/introducing-viewpropertyanimator.html>