

The background of the slide is a stylized landscape. It features a light blue sky with three white, fluffy clouds. In the top right corner, there is a bright yellow sun with a thick orange border. The ground is represented by green rolling hills. On the left hill, there is a single green tree with a brown trunk. On the right hill, there are two green trees with brown trunks. Small pink flowers are scattered across the green hills.

# Physics-Based Animation

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# Introduction

- Motion in nature is not linear
- Motion is affected by force
- Motion is affected by friction

# What About Animations So Far?

- We used animations so far whose speed did not change over time (linear motion)
- No physics involved



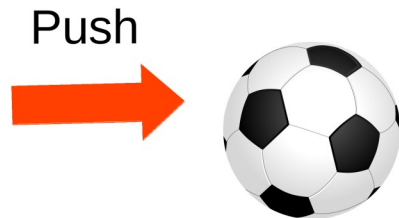
# Physics-Based APIs in Android

- Arrived in Nougat (v25.4.0)
- Classes:
  - FlingAnimation
  - SpringAnimation



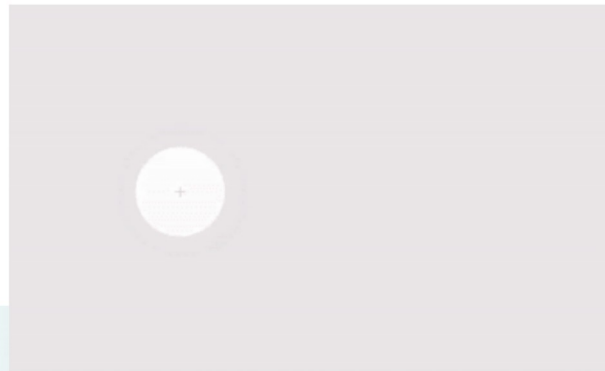
# FlingAnimation

- Moves a view whose speed decays in one direction
- Example: kicking a ball



# SpringAnimation

- View animated like a spring
- Has two properties:
  - Stiffness
    - Shows the spring's strength
  - Damping ratio
    - Gradual reduction in spring oscillation.



GIF source: Android Developer Website

The Complete Android Animations Course



# Gradle Dependency

- Add the following to build.gradle (app module)

```
implementation 'androidx.dynamicanimation:dynamicanimation:1.0.0'
```

