ОНЛАЙН-ОБРАЗОВАНИЕ

Меня хорошо видно && слышно?

Ставьте + , если все хорошо
Напишите в чат, если есть проблемы

Flutter Mobile Developer

Тема 12. Low-level animation. 3th-party animations. Подведение итогов — правильный выбор анимации.

Цель урока

- Продолжить работать над приложением (на этом этапе поработаем с кастомной отрисовкой прелоадера, используя CustomPaint & ClipPath. Потом покажем Flare или Lottie).

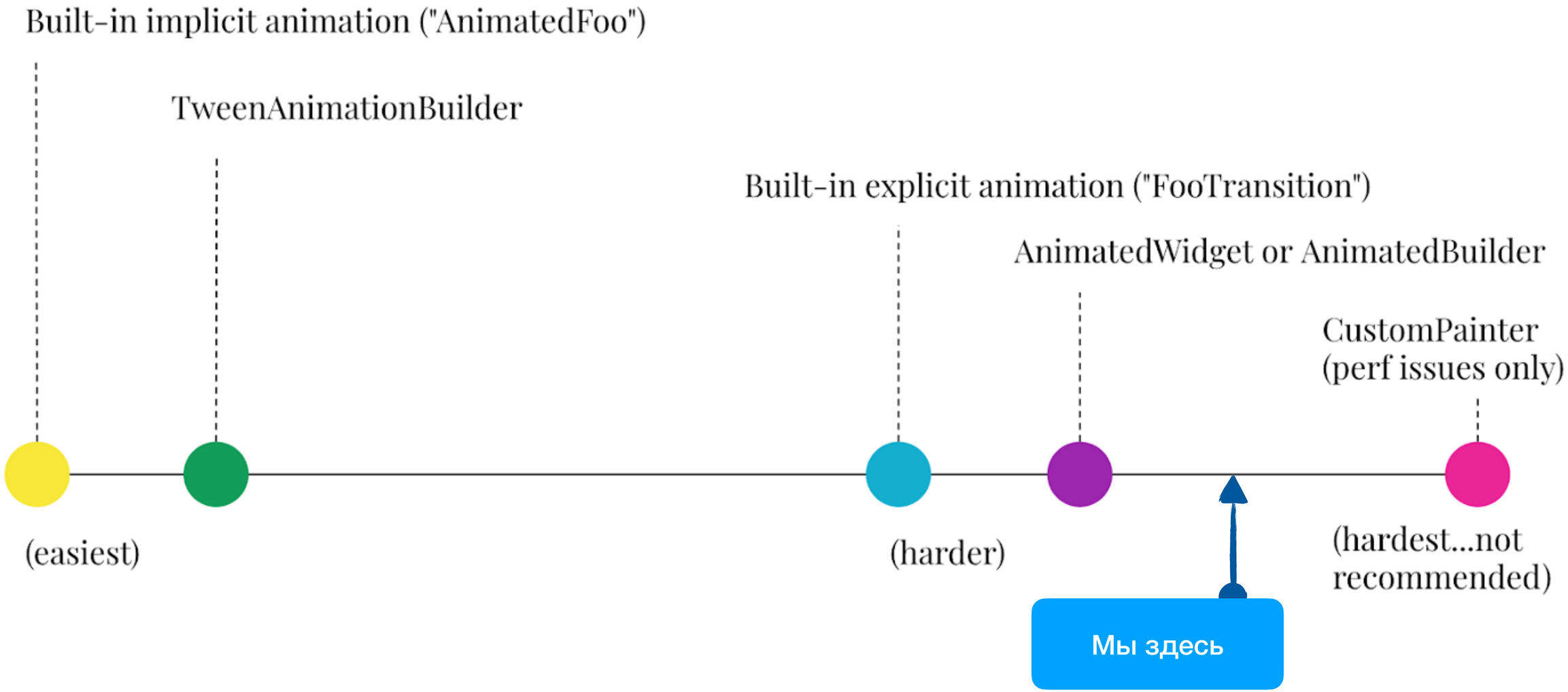
После занятия вы сможете:

- использовать сторонние библиотеки для анимации;
- делать сложные анимации с помощью CustomPainter.

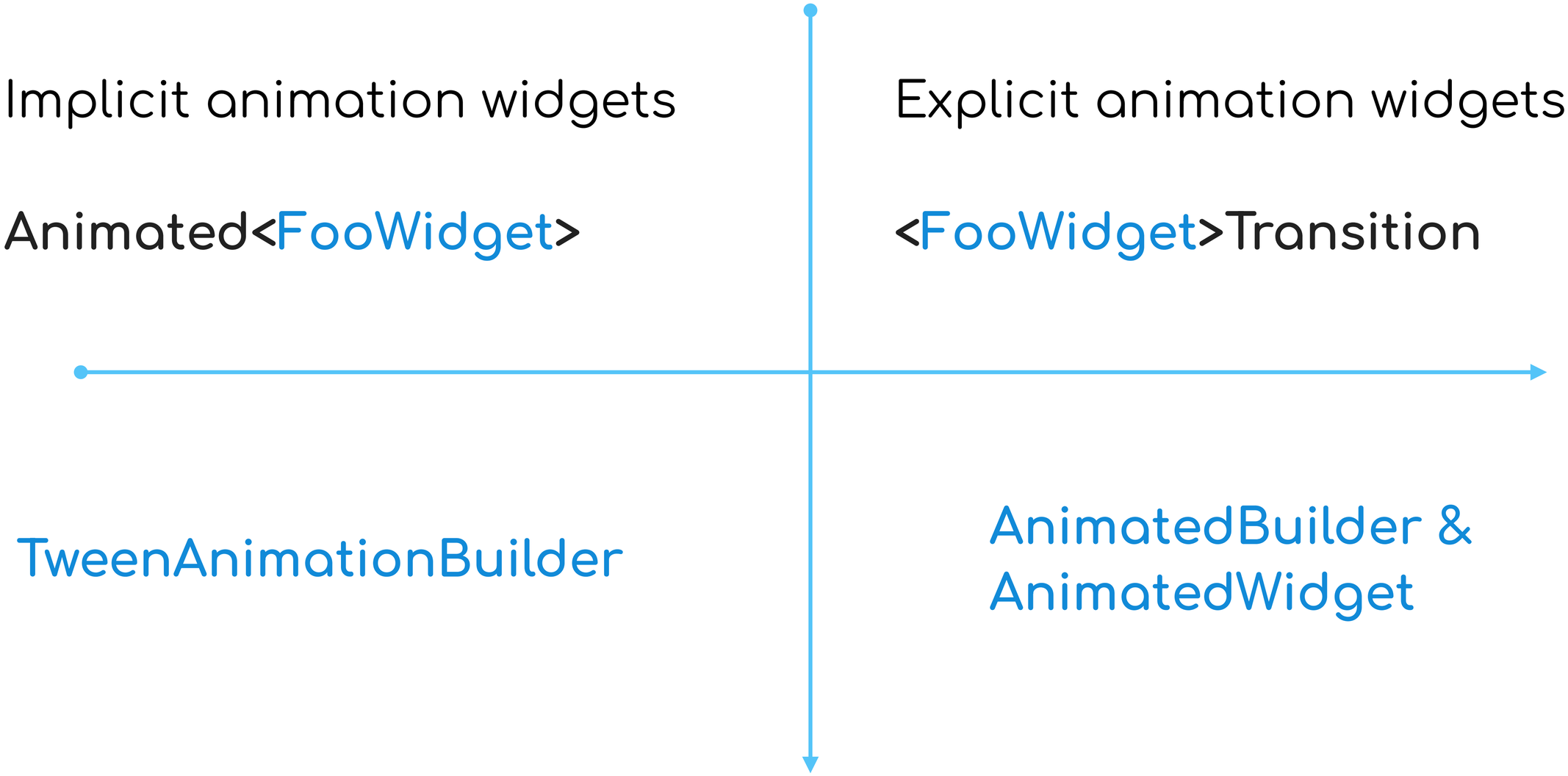
О чем будем говорить

- Custom Paint & Clip Path widgets
- Lottie Animations
- Rive.app (Flare)

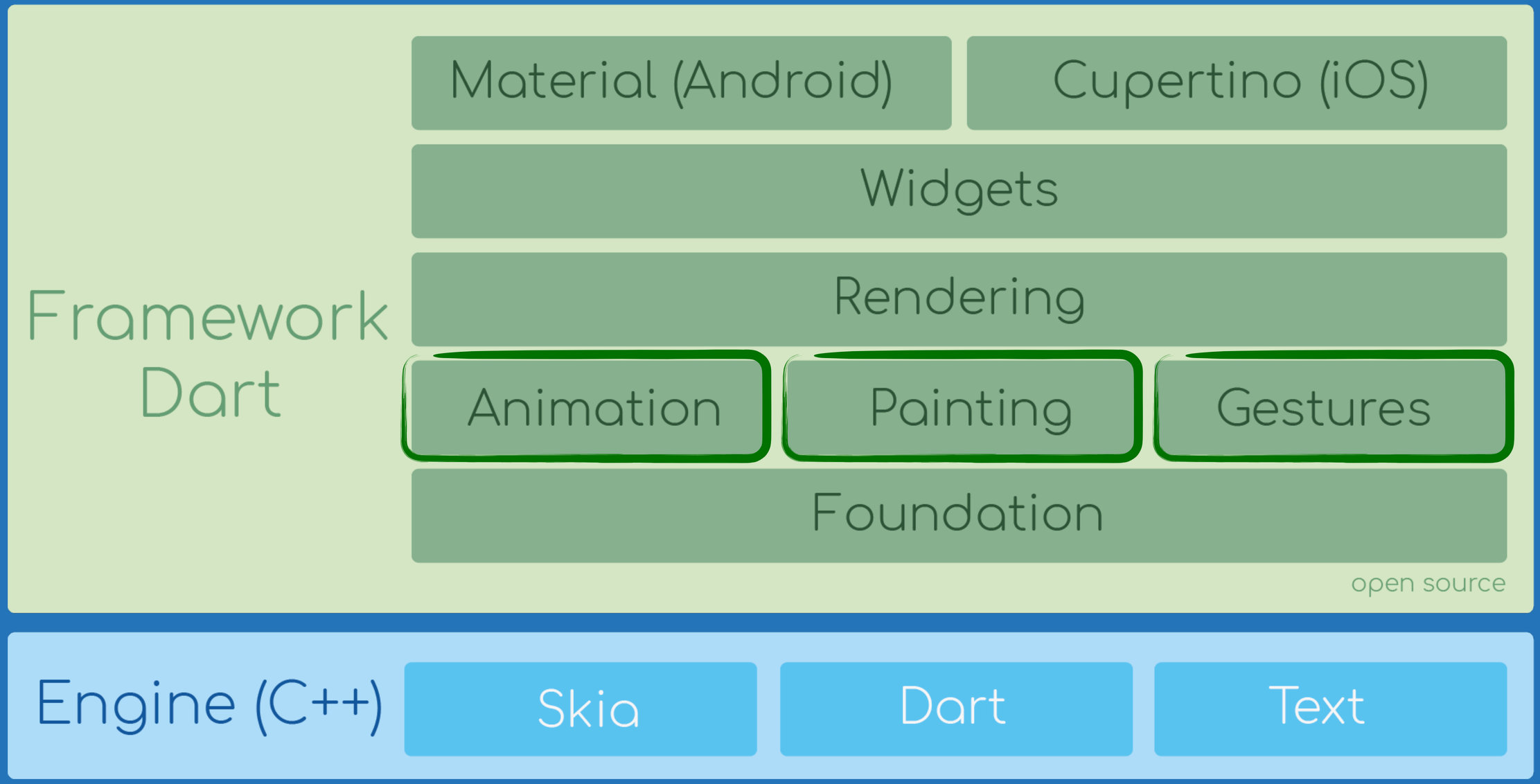
Implicit animation widgets



Explicit & Implicit animation widgets



Что есть для анимации во Flutter?



Explicit animation widgets - Custom Transition

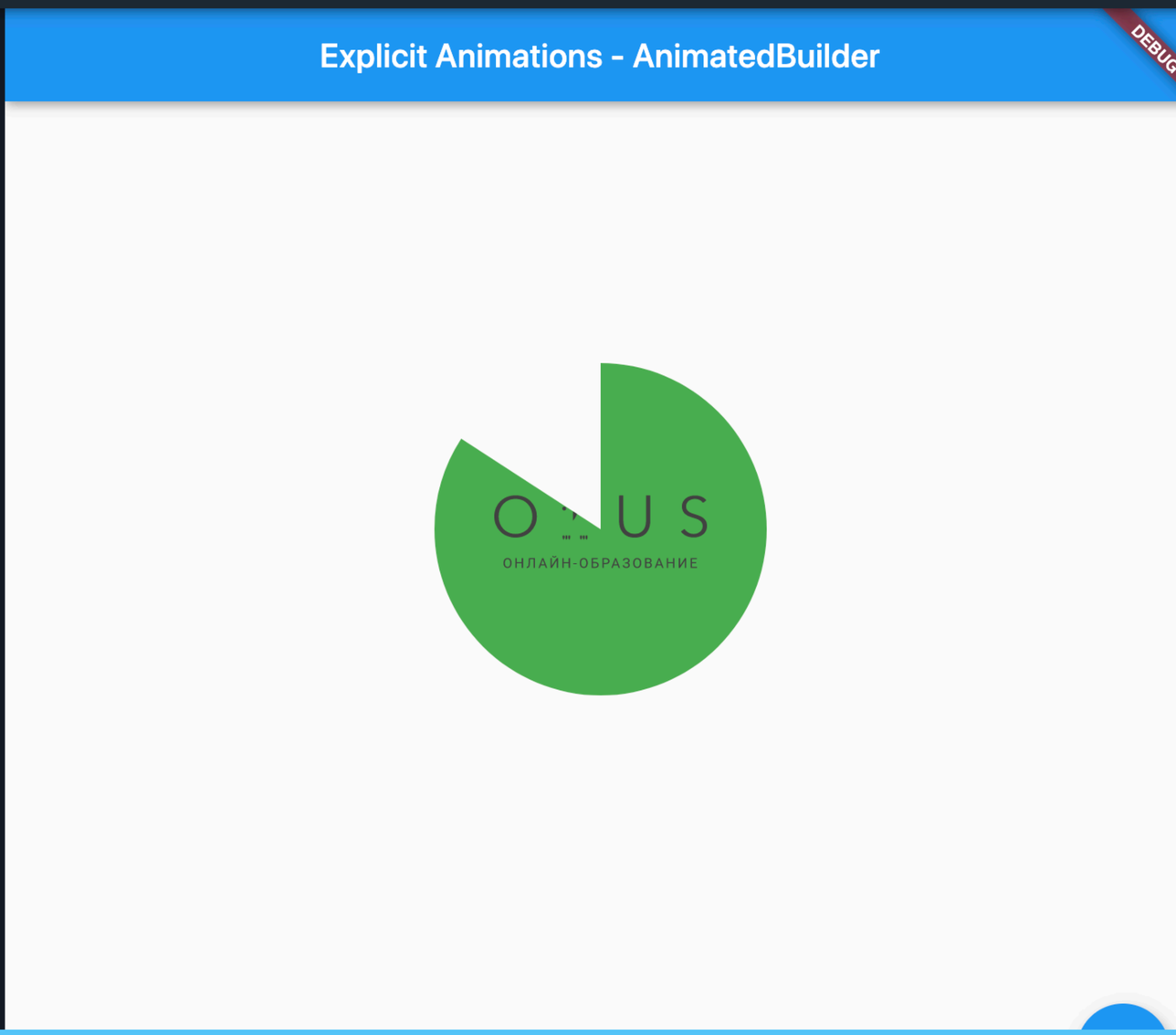
Animated Builder

http://bit.ly/AnimatedBuilder

DartPad | New Pad | Reset | Format | Install SDK | Explicit Animations - AnimatedBuilder | Samples

RUN

```dart
import 'package:flutter/material.dart';
import 'dart:math';

void main() => runApp(MyApp());

class MyApp extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    return MaterialApp(
      home: MyHomePage(),
    );
  }
}

const double _logoSize = 200.0;

class OtusLogo extends StatelessWidget {
  const OtusLogo();

  @override
  Widget build(BuildContext context) {
    return Container(
      child: Image.network('https://otus.ru/static/img/logo-2.8602b.svg'),
      width: _logoSize,
      height: _logoSize,
      color: Colors.green,
    );
  }
}

class MyHomePage extends StatefulWidget {
  @override
```



Explicit animation widgets - вспомним материалы прошлого вебинара

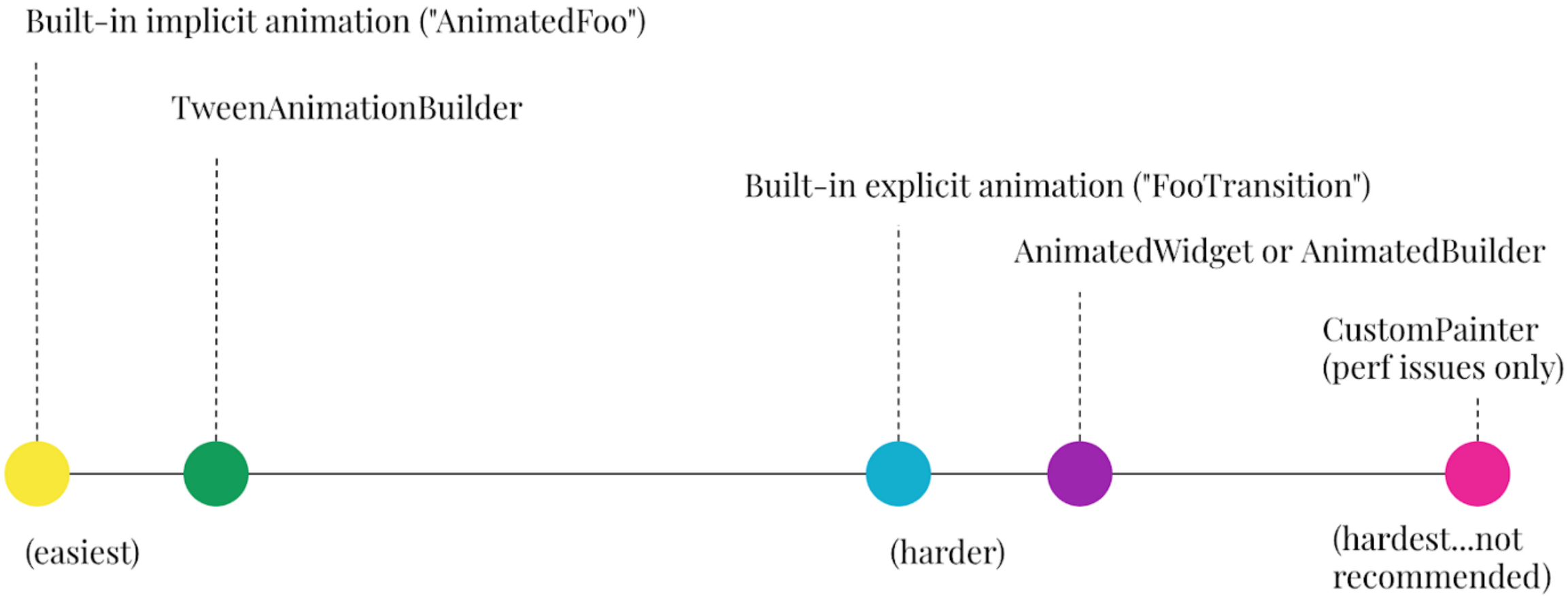
Explicit animation widgets

3 вопроса

- Будет ли моя анимация повторяться? Например, при выполнении какого-либо условия должна ли моя анимация выполнять один и тот же эффект?
- Есть ли прерывания в моей анимации?
- Зависит ли моя анимация от выполнения другой?

ответили Да? Ваш выбор - Explicit Animation

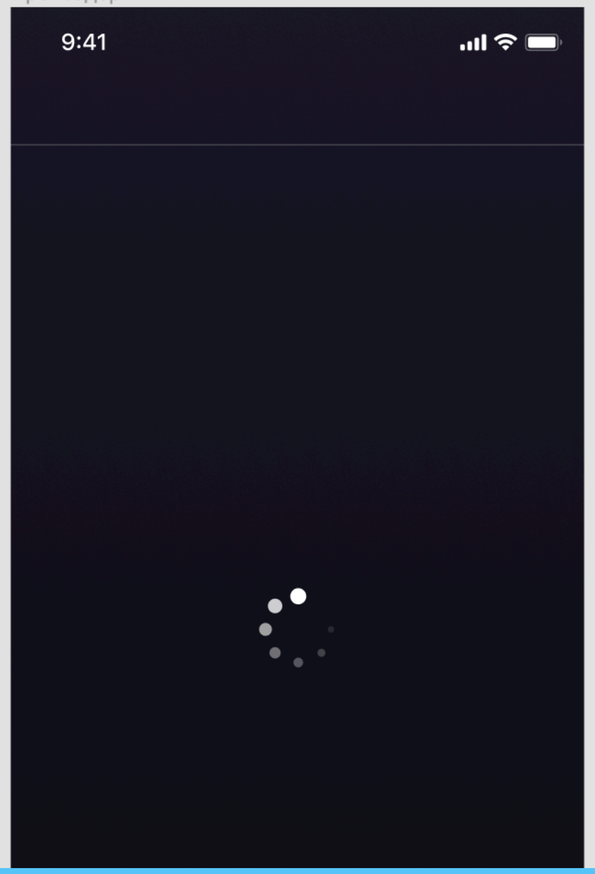
Итоги


Built-in implicit animation ("AnimatedFoo")
TweenAnimationBuilder
Built-in explicit animation ("FooTransition")
AnimatedWidget or AnimatedBuilder
CustomPainter
(perf issues only)
(easiest)
(harder)
(hardest...not
recommended)

Сегодня

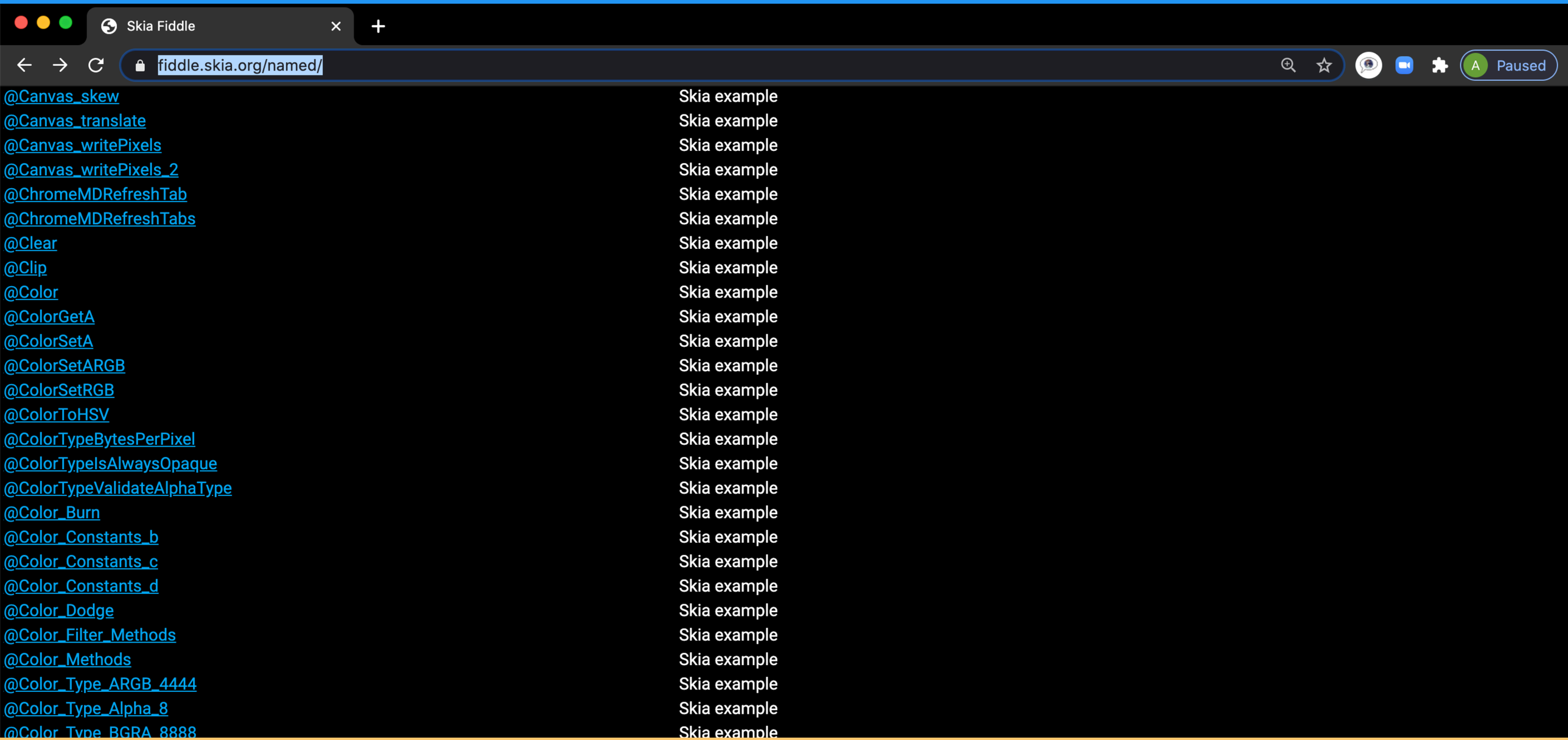
Прелоадер

Прелоадер



Skia

https://fiddle.skia.org/named/



Skia

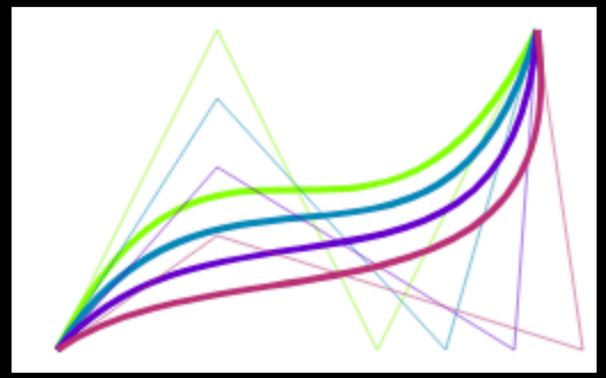
Skia Fiddle

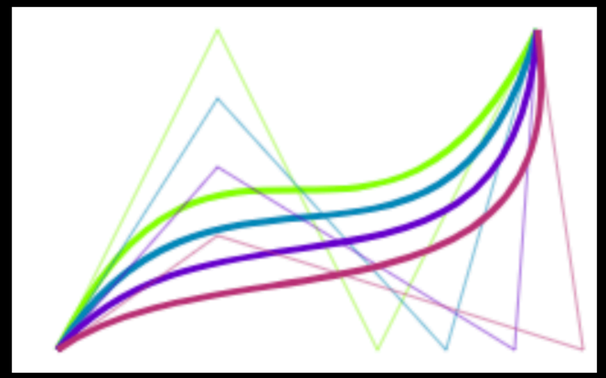
fiddle.skia.org/c/@Cubic

Paused

```
    SkPoint cubicPts[] = {{20, 150}, {90, 10}, {160, 150}, {230, 10}};
    SkColor colors[] = { 0xff88ff00, 0xff0088bb, 0xff6600cc, 0xffbb3377 };
    for (unsigned i = 0; i < SK_ARRAY_COUNT(colors); ++i) {
        paint.setColor(0x7fffffff & colors[i]);
        paint.setStrokeWidth(1);
        for (unsigned j = 0; j < 3; ++j) {
            canvas->drawLine(cubicPts[j], cubicPts[j + 1], paint);
        }
        SkPath path;
        path.moveTo(cubicPts[0]);
        path.cubicTo(cubicPts[1], cubicPts[2], cubicPts[3]);
        paint.setStrokeWidth(3);
        paint.setColor(colors[i]);
        canvas->drawPath(path, paint);
        cubicPts[1].fY += 30;
        cubicPts[2].fX += 30;
    }
}
```

Run File Bug Embed





PDF
SKP
Debug

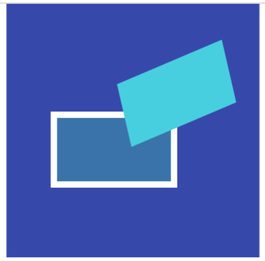
Custom Paint & Clip Path widgets

Canvas & Графические примитивы

```
final p = Paint()
  ..style = PaintingStyle.fill
  ..isAntiAlias = true
  ..strokeWidth = 4
  ..strokeCap = StrokeCap.round
  ..color = Colors.black;

canvas.scale(0.5, 0.5);
canvas.draw
Path
```

```
drawCircle(Offset c, double radius, Paint paint)  void
drawArc(Rect rect, double startAngle,…            vd
drawAtlas(Image atlas, List<RSTransfo…            vd
drawColor(Color color, BlendMode blen…            vd
drawDRRect(RRect outer, RRect inner, …            vd
drawImage(Image image, Offset offset,…            vd
drawImageNine(Image image, Rect cente…            vd
drawImageRect(Image image, Rect src, …            vd
drawLine(Offset p1, Offset p2, Paint …            vd
drawOval(Rect rect, Paint paint)                  vd
drawPaint(Paint paint)                            vd
Press ⏎ to insert, ⇥ to replace
```

ClipPath & Custom Painter



Transform

A widget that applies a transformation before painting its child.

Documentation

Opacity

A widget that makes its child partially transparent.

Documentation

DecoratedBox

A widget that paints a Decoration either before or after its child paints.

Documentation

ClipPath

A widget that clips its child using a path.

Documentation

ClipRect

A widget that clips its child using a rectangle.

Documentation

CustomPaint

A widget that provides a canvas on which to draw during the paint phase.

Documentation

FractionalTranslation

A widget that applies a translation expressed as a fraction of the box's size before painting its child.

Documentation

RotatedBox

A widget that rotates its child by a integral number of quarter turns.

Documentation

ClipOval

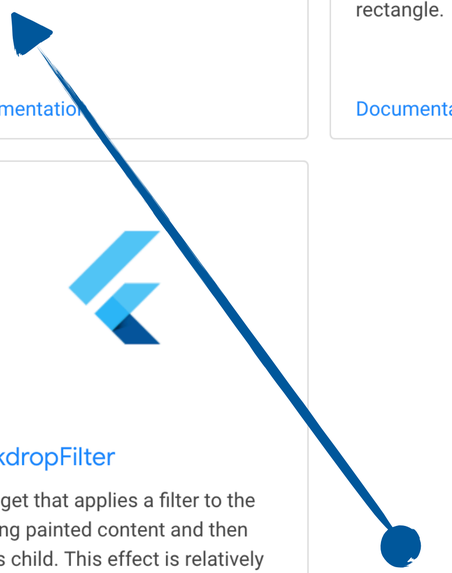
A widget that clips its child using an oval.

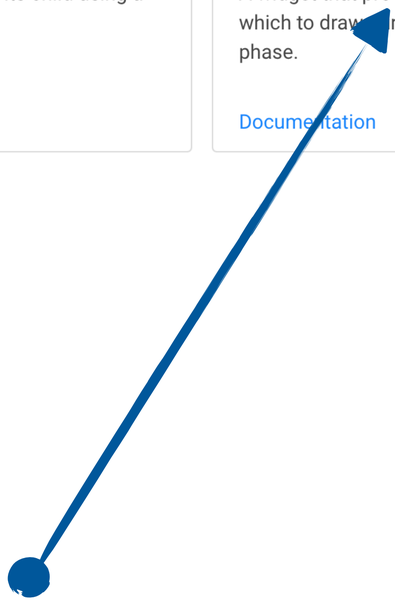
Documentation

BackdropFilter

A widget that applies a filter to the existing painted content and then paints child. This effect is relatively expensive, especially if the filter is non-local, such as a blur.

Documentation





Custom Painter - Demo

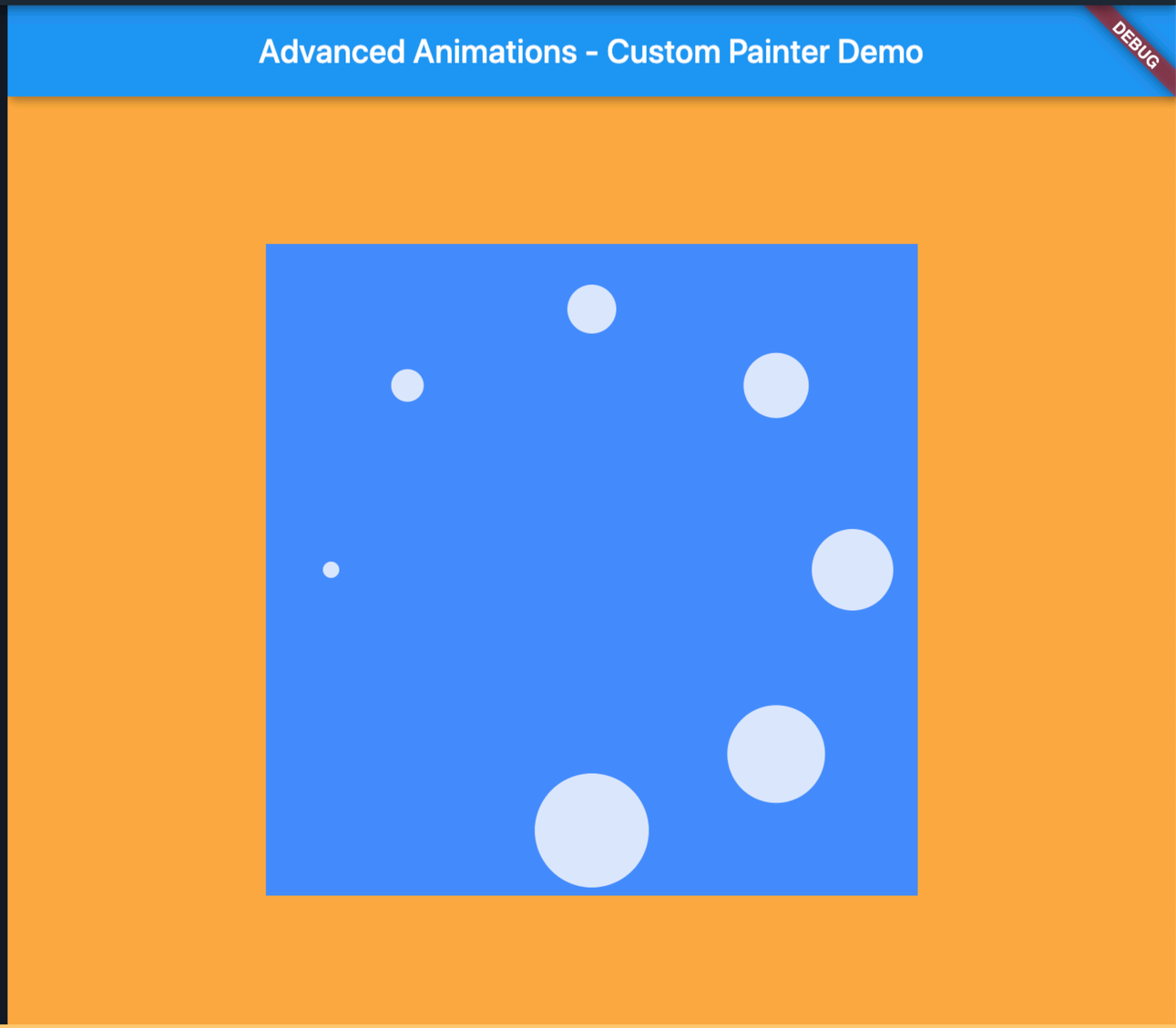
https://dartpad.dev/d9dda00b453afdcc31986235173b038f

DartPad | New Pad | Reset | Format | Install SDK | Advanced Animations - Custom Painter Demo | Samples

RUN

```
  @override
  void paint(Canvas canvas, Size size) {
    if (size.isEmpty) {
      return;
    }

    final maxPaintRadius = size.width / 10;
    final mainCircleRadius = size.width / 2 - maxPaintRadius;
    final center = Offset(size.width / 2, size.height / 2);
    final paint = Paint()..color = color.withAlpha(0xD0);

    final allSteps = _steps; // + _steps ~/ 4;

    for (int i = 0; i < allSteps; i++) {
      final currentAngle = _angleStep * (i + (_steps * rotation).toInt());

      final currentRadius = maxPaintRadius * (i / allSteps);
      final offset = Offset(center.dx + mainCircleRadius * cos(currentAngle),
          center.dy + mainCircleRadius * sin(currentAngle));
      canvas.drawCircle(offset, currentRadius, paint);
    }
  }

  @override
  bool shouldRepaint(covariant CustomPainter oldDelegate) => true;
}

class ProgressLoader extends StatefulWidget {
  final Color color;
```

Console Documentation



ClipPath - Demo

http://dartpad.dev/41a8ee9563dc605f1c1324207f96afbc

Lottie

https://lottiefiles.com/what-is-lottie
https://codepen.io/airnan/details/JmOqbN

What is a Lottie?

The official guide to Lottie

A Lottie is a JSON-based animation file format that enables designers to ship animations on any platform as easily as shipping static assets. They are small files that work on any device and can scale up or down without pixelation.

Plugin installation

Option 1 (Recommended):

Download it from from aescripts + aeplugins: http://aescripts.com/bodymovin/

Option 2:

Or get it from the adobe store https://creative.adobe.com/addons/products/12557 CC 2014 and up.

Other installation options:

Option 3:

- download the ZIP from the repo.
- Extract content and get the .zxp file from '/build/extension'
- Use the ZXP installer from aescripts.com.

Option 4:

- Close After Effects
- Extract the zipped file on `build/extension/bodymovin.zxp` to the adobe CEP folder:
  WINDOWS:
  `C:\Program Files (x86)\Common Files\Adobe\CEP\extensions or`

Lottie

https://lottiefiles.com/coronavirus-animations

Use these Lottie animations in your websites, apps, videos and social posts to highlight initiatives to help prevent the spread of Coronavirus. Let's beat this thing together.

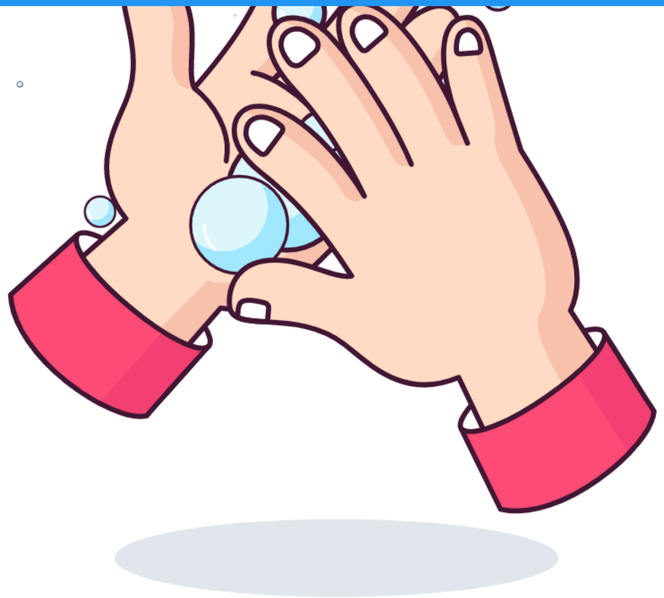
Available in: Lottie, MP4, GIF

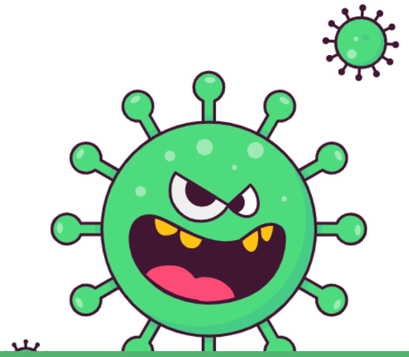
ILLUSTRATIONS BY

Vijay Verma

ANIMATED BY

Gabriela Schmitz





Lottie

https://lottiefiles.com/search?q=loader%20cat&category=animations

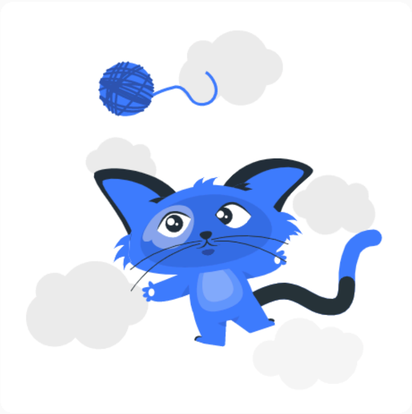
Search results for "loader cat"

Sort by

Animations | People

Type | Style | Color | Download AEP | clear filters

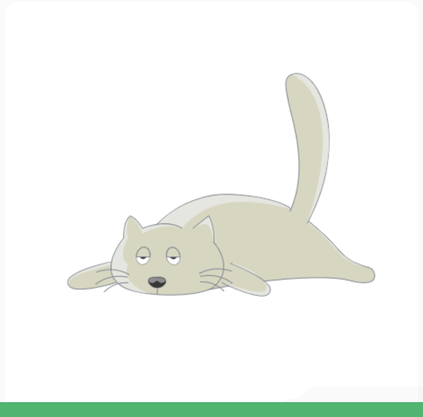
Diane Picchiottino 429

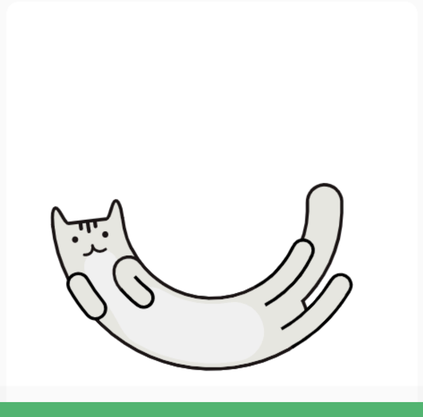


Jignesh Gajjar 25

Ranking Online 172

Naimur Rahman Durjoy 1





Lottie

lottie 0.7.0+1

Published Oct 23, 2020

FLUTTER | ANDROID | IOS | WEB

395

Readme | Changelog | Example | Installing | Versions | Scores

Lottie for Flutter

Lottie Flutter passing | pub v0.7.0

Lottie is a mobile library for Android and iOS that parses Adobe After Effects animations exported as json with Bodymovin and renders them natively on mobile!

This repository is a unofficial conversion of the Lottie-android library in pure Dart.

It works on Android, iOS, macOS, linux, windows and web.

Usage

Simple animation

395 LIKES | 110 PUB POINTS | 98% POPULARITY

Metadata

Render After Effects animations natively on Flutter. This package is a pure Dart implementation of a Lottie player.

Repository (GitHub)

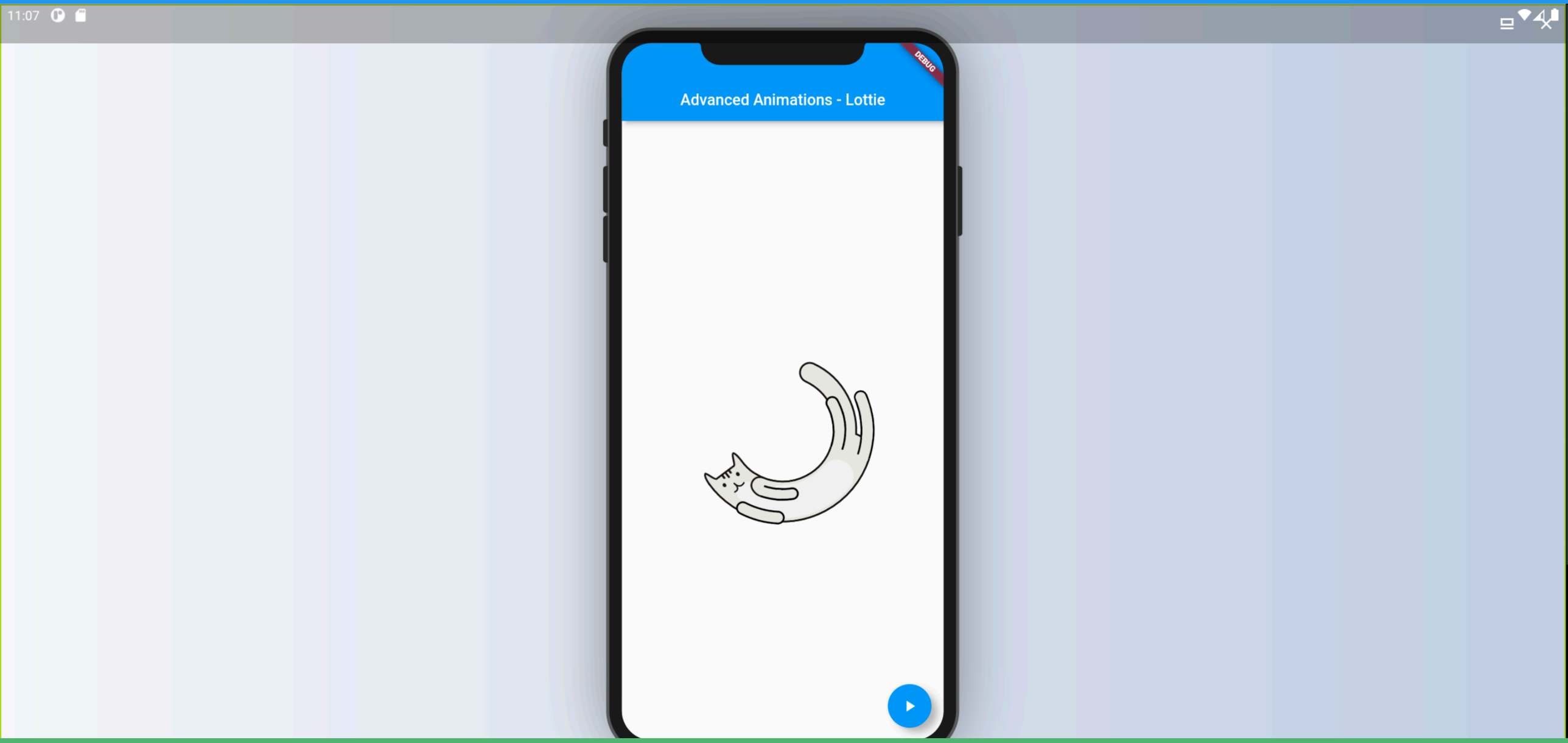
View/report issues

Documentation

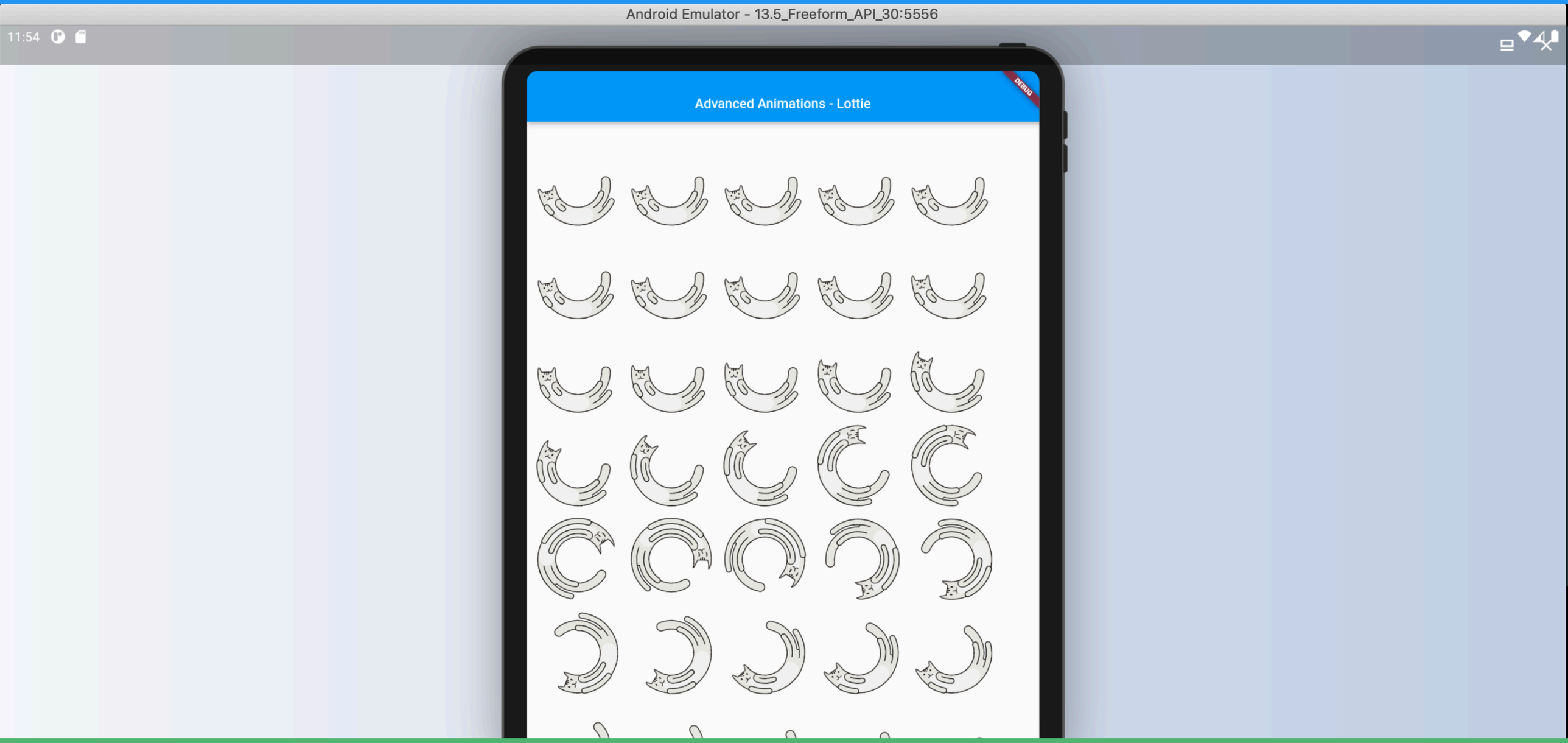
API reference

Uploader

Lottie - Demo



Lottie - Demo


Android Emulator - 13.5_Freeform_API_30:5556
11:54
Advanced Animations - Lottie
DEBUG

Lottie

https://airbnb.io/lottie/#/supported-features

search...

Home

Supported After Effects Features

Community Showcase

Android

Android - Jetpack Compose

iOS/MacOS

React Native

Web

Windows

After Effects

Contribute to Docs

Other Platforms

Supported Features

Shapes	Android	iOS	Windows	Web (SVG)	Web (Canvas)	Web (HTML)
Shape	👍	👍	👍	👍	👍	👍
Ellipse	👍	👍	👍	👍	👍	👍
Rectangle	👍	👍	👍	👍	👍	👍
Rounded Rectangle	👍	👍	👍	👍	👍	👍
Polystar	👍	👍	⛔	👍	👍	👍
Group	👍	👍	👍	👍	👍	👍
Repeater	👍	⛔	👍	👍	👍	👍
Trim Path (individually)	👍	👍	⛔	👍	👍	👍
Trim Path (simultaneously)	👍	👍	👍	👍	👍	👍
Fills	**Android**	**iOS**	**Windows**	**Web (SVG)**	**Web (Canvas)**	**Web (HTML)**
Color	👍	👍	👍	👍	👍	👍
Opacity	👍	👍	👍	👍	👍	👍
Fill Rule	👍	👍	👍	👍	👍	👍

Lottie

https://airbnb.io/lottie/#/supported-features

Creation Tools

Ae + LottieFiles

Ae + BODYMOVIN

Flow

Synfig Studio

Framer X

ProtoPie

HAIKU

Implementation

android

iOS

Windows

SKIA

React Native

NativeScript

Qt

ANGULAR

Vue.js

Flutter

Xamarin

Skia

SKIA GRAPHICS LIBRARY

Skia图形库

Project Roles

USER DOCUMENTATION

How to download Skia

How to build Skia

Skia Color Management

Issue Tracking

Privacy

Tips & FAQ

Samples and Tutorials

Using Skia's PDF Backend

Skia Viewer

Release Information

Milestone Release Notes

Milestone Schedule

Skottie - Lottie Animation Player

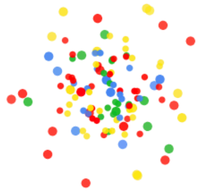
Skia now offers a performant, secure native player for JSON animations derived from the Bodymovin plugin for After Effects. It can be used on any platform where you are using Skia, including Android & iOS.

The player aims to build upon the Lottie player widely used for animations today, improving on the performance, feature set, and platform cohesiveness for our clients. We are big fans of the Bodymovin format and where possible, contributing advancements back to Bodymovin/Lottie.

Sample JSON animations

Here are some test samples rendering with Skia's animation player:





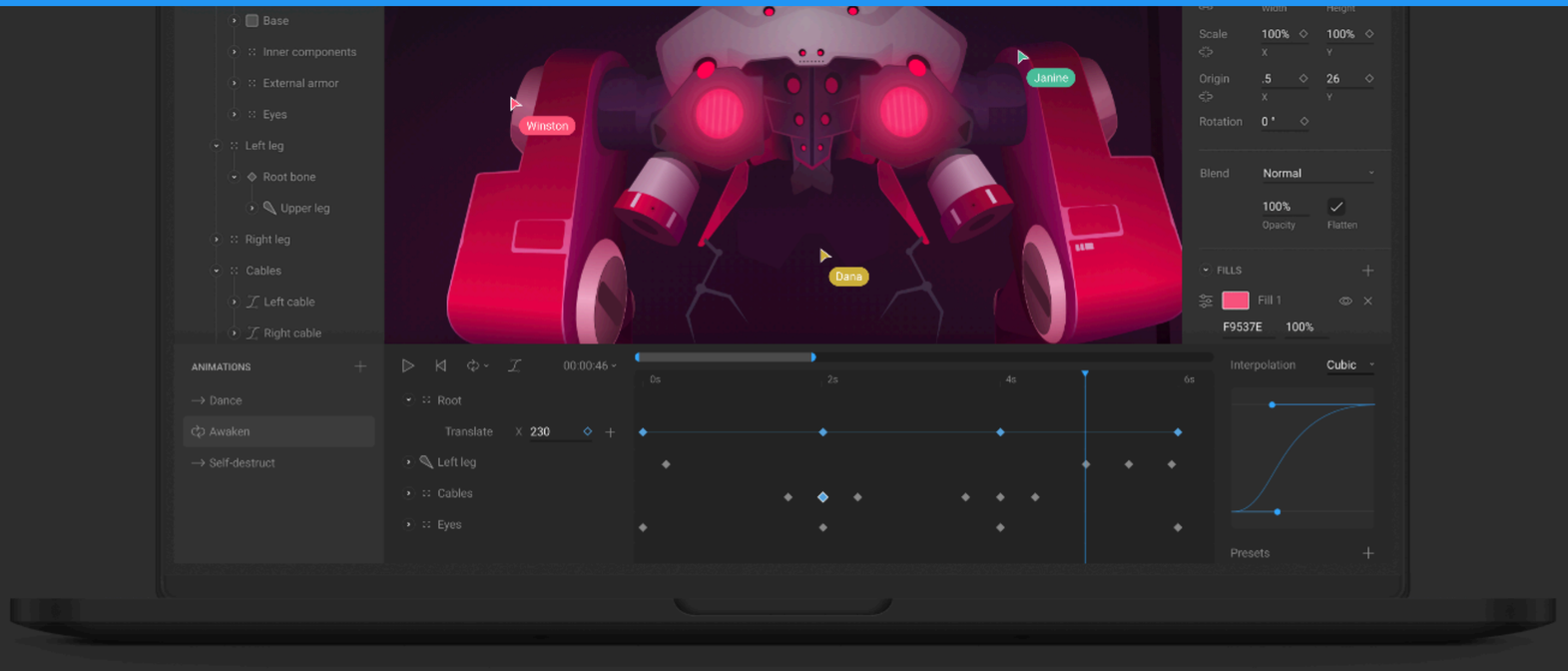


Lottie Animations


FLARE
RIVE

Rive.app (Flare)

http://rive.app



RIVE

Rive is a real-time interactive design tool that allows you to design, animate, and integrate your assets into any platform thanks to our open source runtimes.

Rive.app (Flare)

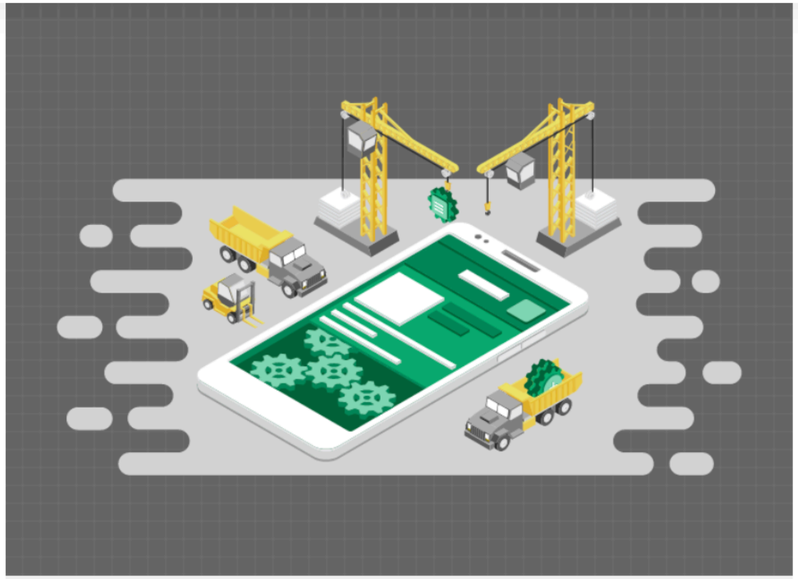
http://rive.app

rive.app/explore/popular/most-commented/all

Paused

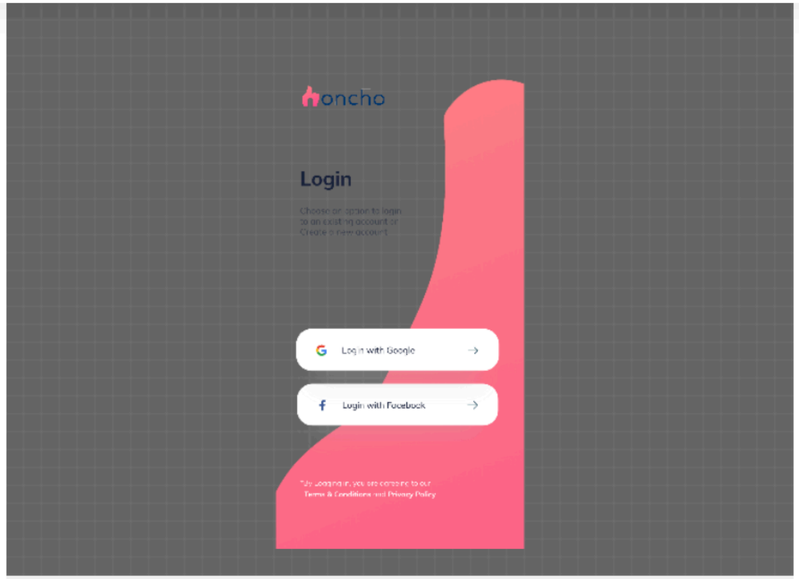
Popular Following New Fork

Most Commented All



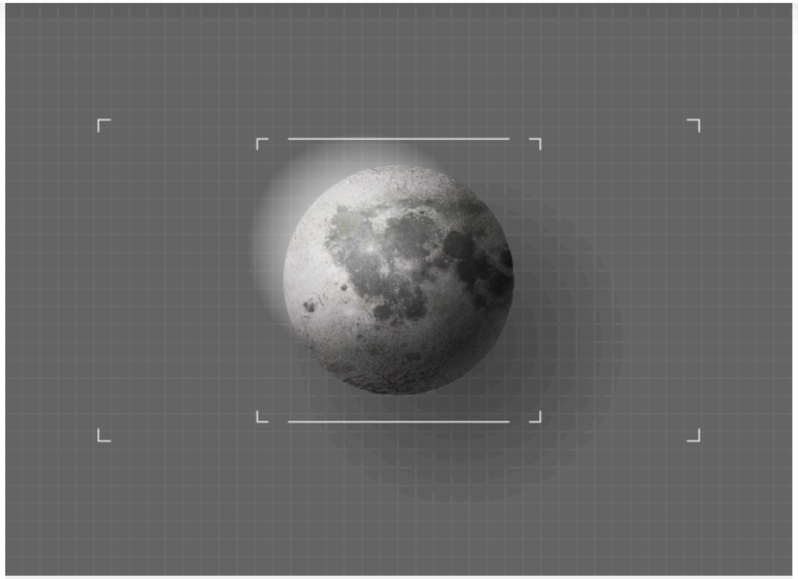
Under construction

Anastasia Chizhova 583 22 23104



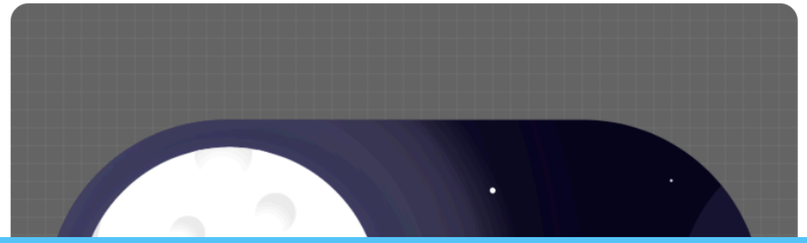
New File

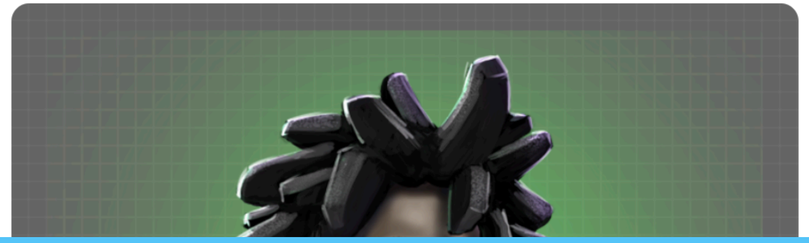
Saurav Pathak 379 18 20679

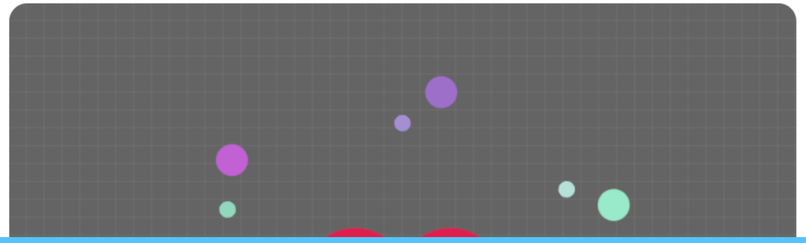


Moon Scan

Guido Rosso 164 15 6674







Rive documentation

https://help.rive.app/getting-started/welcome-to-rive

help.rive.app/editor/manipulating-shapes/bones

Rive Help Center

Introduction

GETTING STARTED

Welcome to Rive!

FAQ

Quick links

EDITOR

Fundamentals

Animate mode

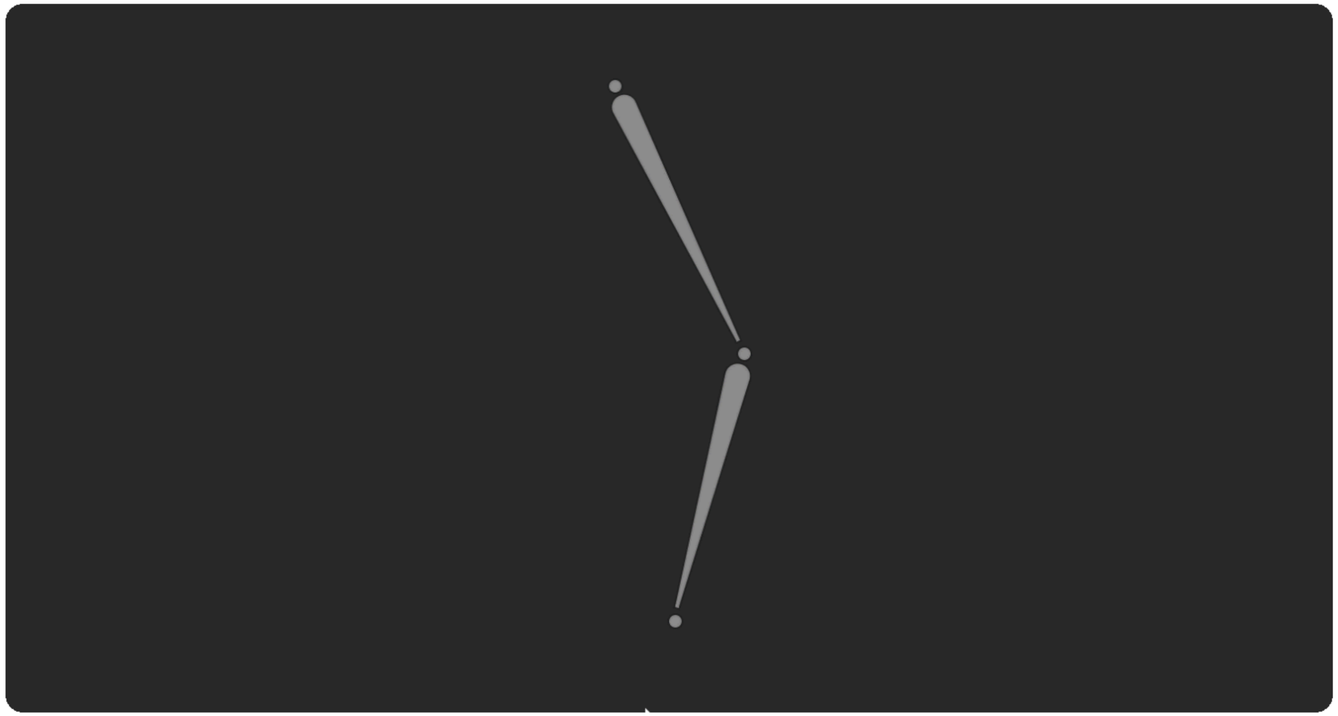
Manipulating shapes

Bones

Tips and best practices

Clipping

Trim Path



CONTENTS

Create bones

Joints

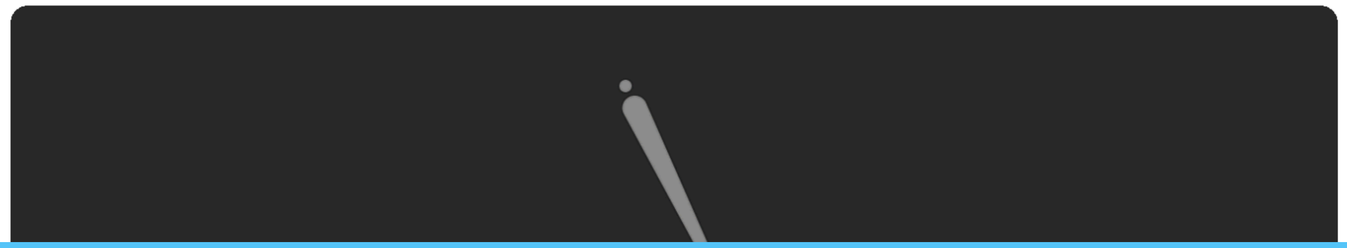
Root bones

Connecting bones to artwork

1. Hierarchical relationships

2. Binding

To continue the chain from a different bone, first, select the joint, then continue using the Bone tool.



Rive.app runtimes

http://rive.app

beta.rive.app

Rive 2 beta slots are currently available! Sign up to get started today.

Get started

Our current runtimes

Web | Flutter | C++ | iOS | Android

Pricing

Rive is free for individuals and supports paid plans for teams. Teams allow you to create a shared space where you and other team members can collaborate in real-time, no matter where you are. Read more about our fair billing policy here.

The History of Everything

2D, Inc **Education**

★★★★½ 1,316

3

This app is compatible with your device.

Add to Wishlist

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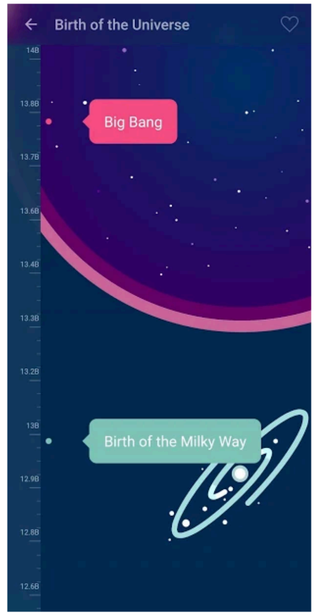
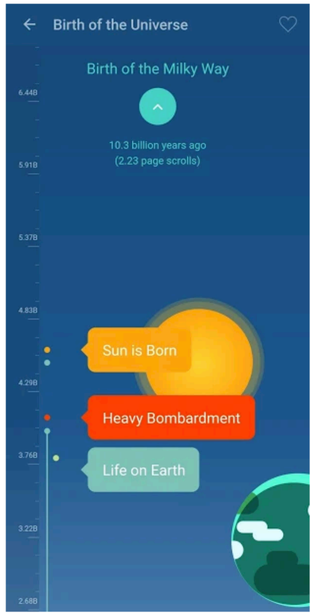
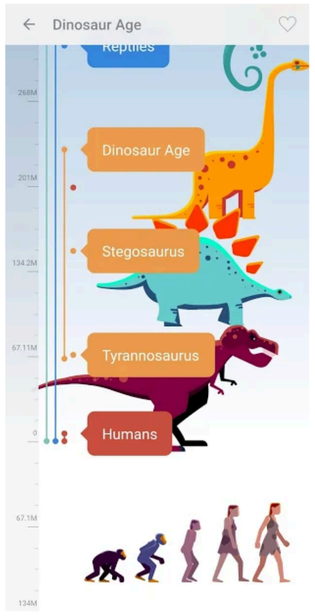
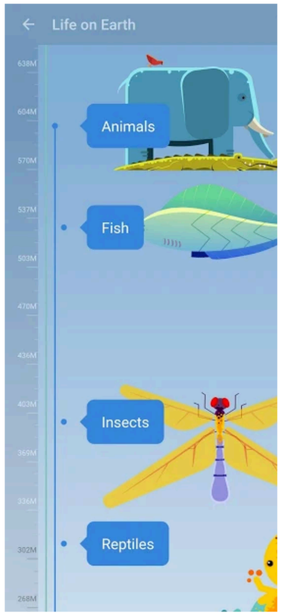








The History of Everything is a vertical timeline that allows you to navigate, explore, and compare events from the Big Bang to the birth of the Internet. Events are beautifully illustrated and animated.

Flutter Developer Quest

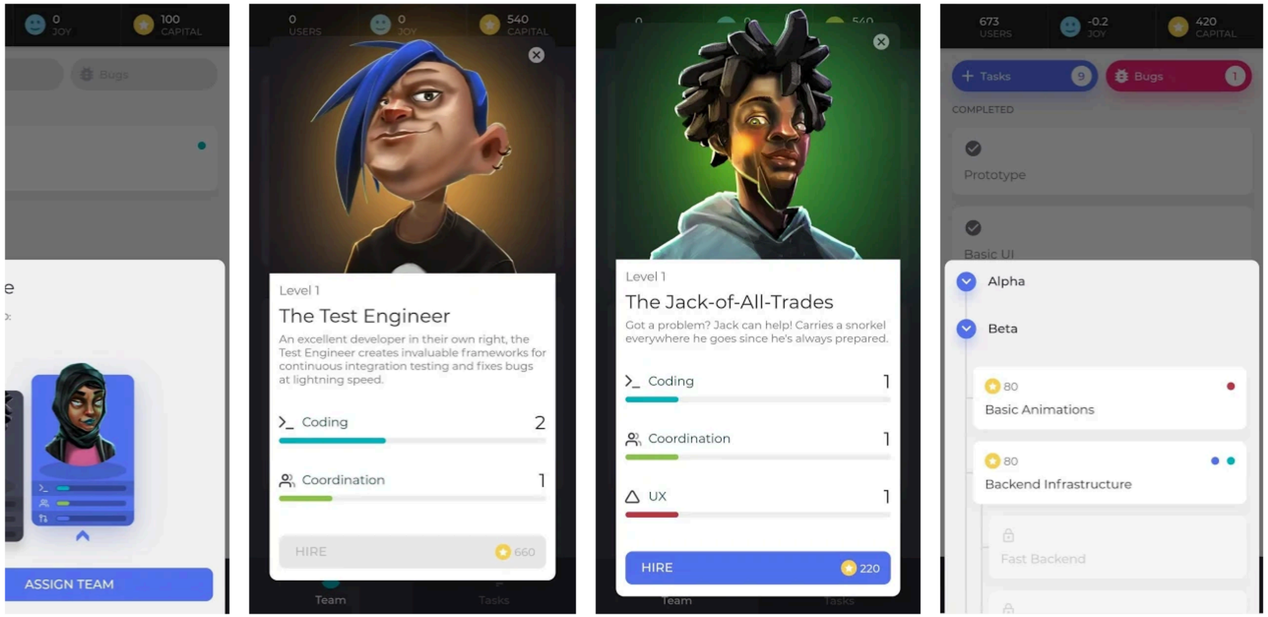
2D, Inc **Role Playing**

★★★★½ 132

3

This app is compatible with your device.

Installed



Become a tech lead, slay bugs, and don't get fired.

All in Flutter.

Demo

Implicit animation widgets

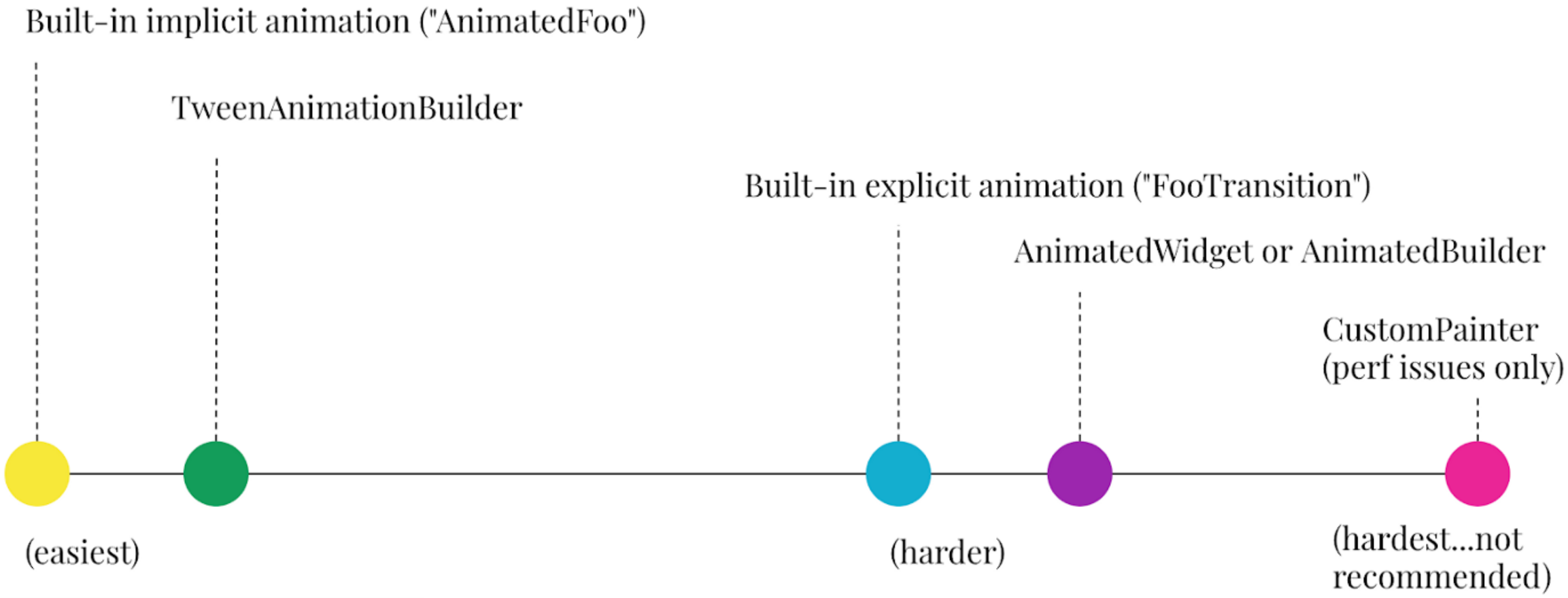


Схема принятия решения

Первый вопрос:

Моя анимация выглядит как мультипликация? (Выглядит так, что каким-либо алгоритмом такая анимация вообще не описывается)

ответили Да? Ваш выбор - Drawing Based Animation - RiveApp (Flare) / Lottie (Adobe After Effects)

Нет? Смотрим на пакет package:flutter/animation.dart

Explicit animation widgets

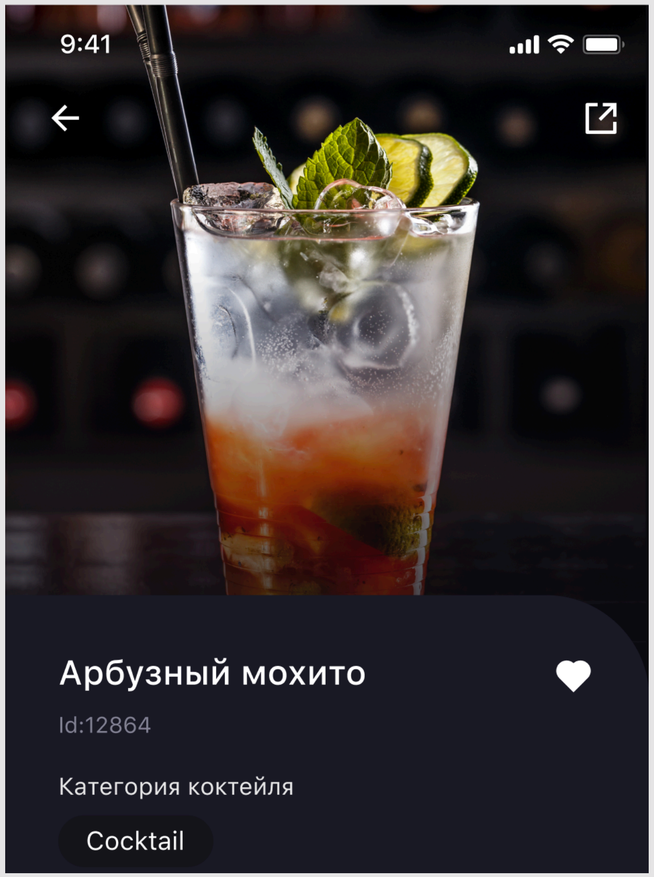
3 вопроса

- Будет ли моя анимация повторяться? Например, при выполнении какого-либо условия должна ли моя анимация выполнять один и тот же эффект?
- Есть ли прерывания в моей анимации?
- Зависит ли моя анимация от выполнения другой?

ответили Да? Ваш выбор - Explicit Animation

Домашнее задание

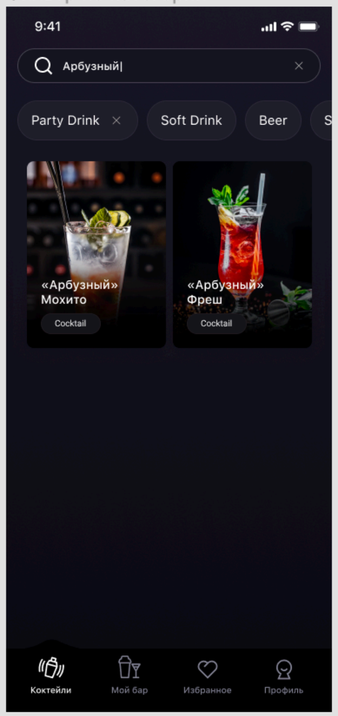
Домашнее задание



Поиск (карточки)

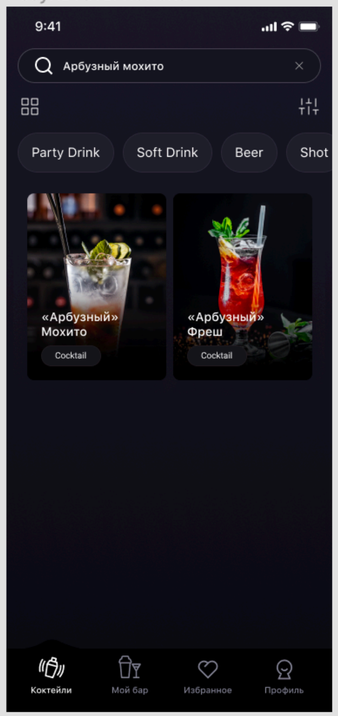
Фильтр по категории

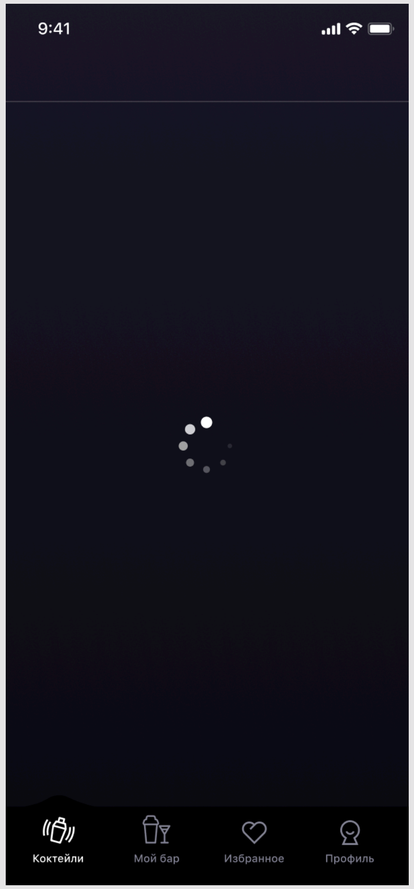
Фильтр по категории



Результаты поиска

Результаты поиска





Домашнее задание

- Открыть класс экрана CocktailDetailsScreen
- Внести верстку в метод build(context), используя виджеты и классы, используемые на предыдущих уроках из модуля Анимация

На усмотрение студента:
- Можно использовать любые виджеты из Flutter SDK, но не стоит использовать сторонние пакеты
- Можно выполнить любую декомпозицию метода build для упрощения верстки и улучшения читаемости кода (рефакторинг)

Форма сдачи:
- Задание сдается в личном кабинете ОТУС
- ДЗ Сдается в виде ссылки на github репозиторий с проектом
- В readme.md прикладываются скриншоты запущенного приложения с заданным экраном с реализованной анимацией и реализацией progress bar (в эмуляторе или с реального устройства)

Куда сдать ДЗ:
- Отправляется в чат по домашним работам в личном кабинете ОТУС

Куда и кому задавать вопросы, если они возникнут
- По всем вопросам можно обращаться в Slack к студентам, преподавателям в канал группы

Сегодня мы узнали про:

- Custom Paint & Clip Path widgets
- Lottie Animations
- Rive.app (Flare)

Заполните, пожалуйста,
опрос о занятии по ссылке в чате

Спасибо за внимание!
Приходите на следующие вебинары

Смирнов Андрей wrike

Курс **Мобильная разработка на Flutter**