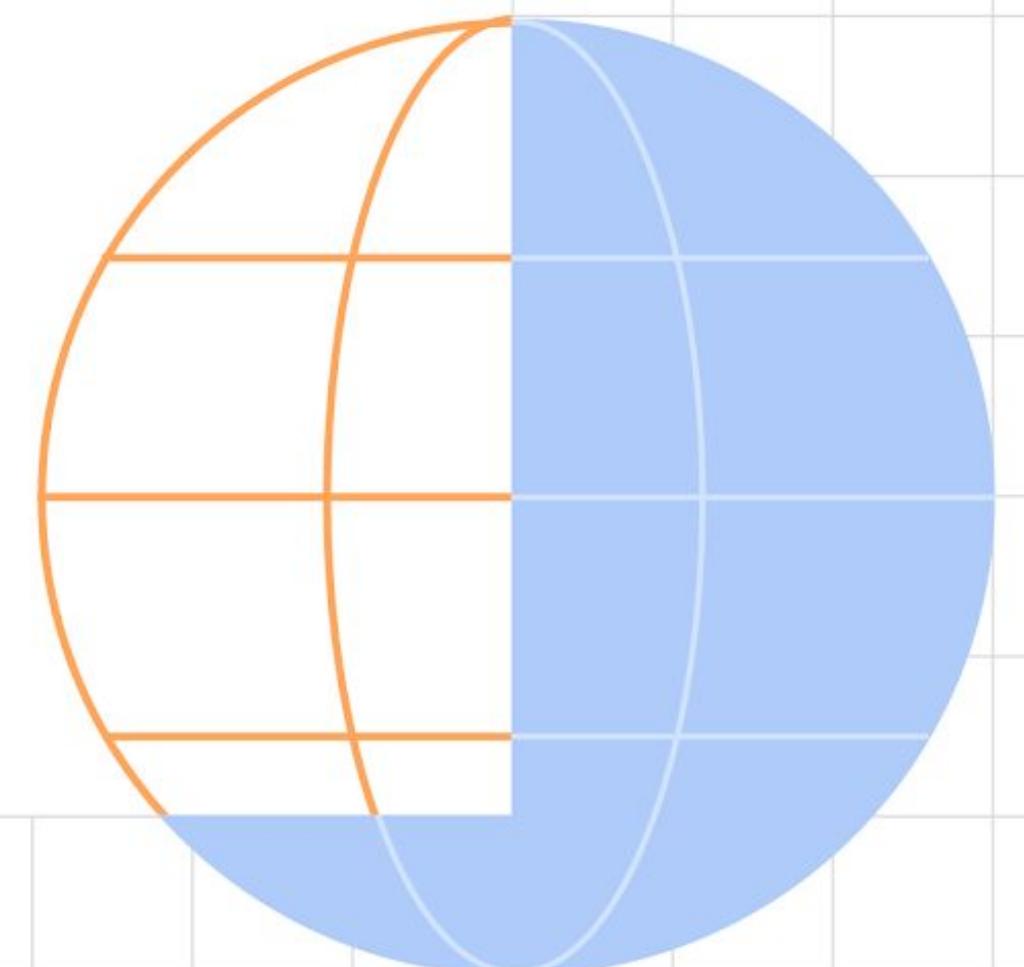


Make the code work for you: Flutter Code Generation



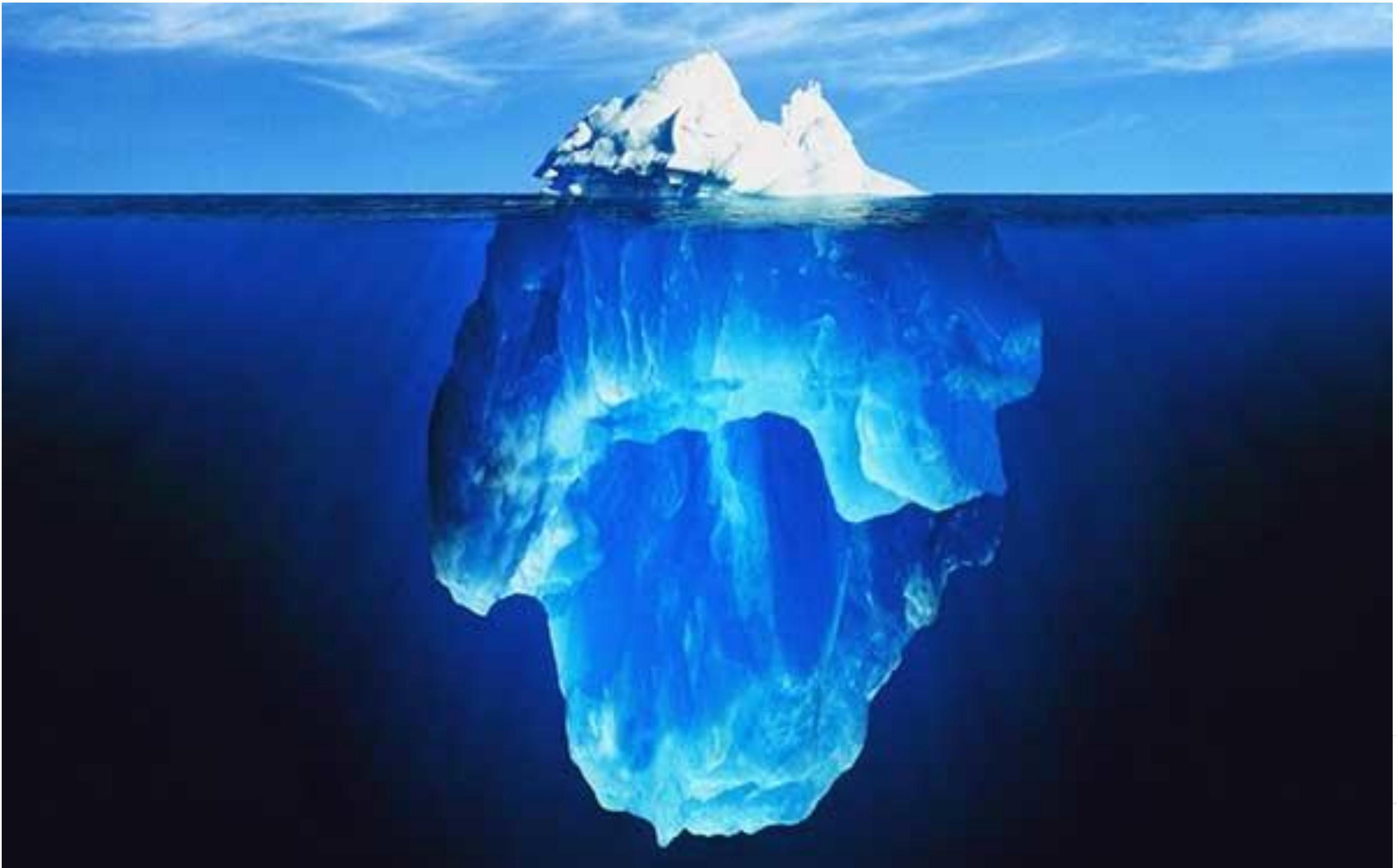
Mangirdas Kazlauskas
GDE for Flutter & Dart
@mkobuolys



Expectations

This talk

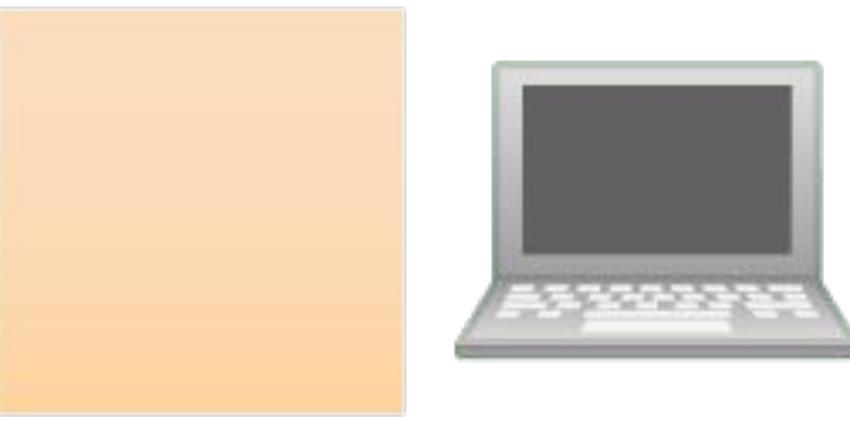
Flutter Code Generation



Agenda

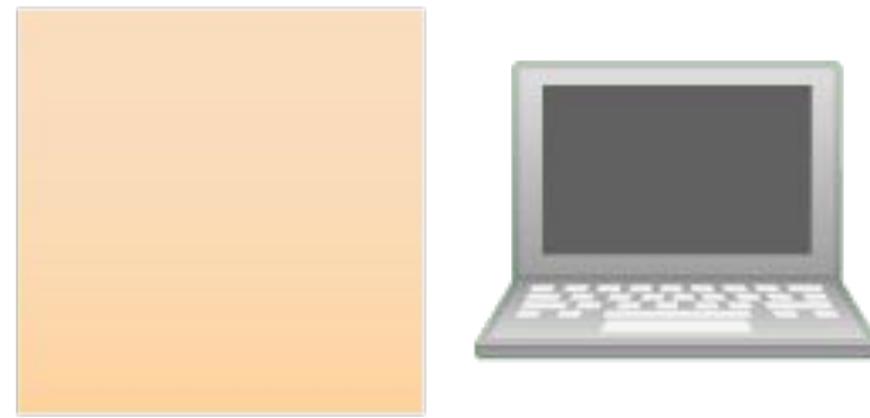
- Localization
- Assets
- Objects & State
- Widgets

What is Code Generation

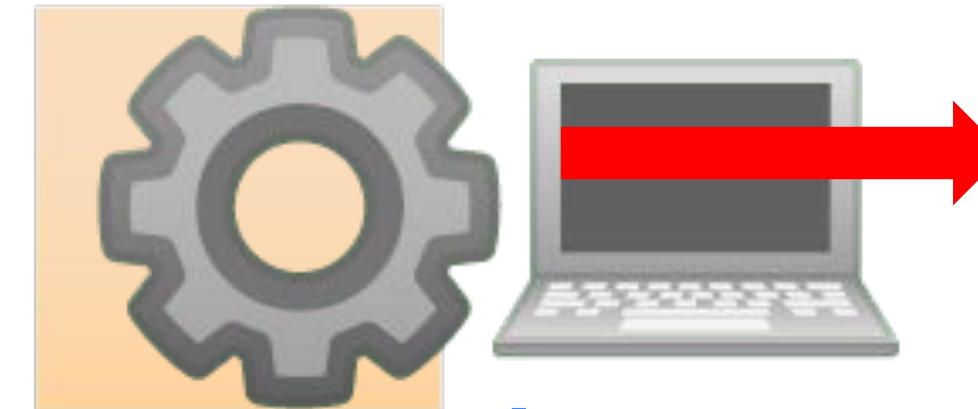


Basic development flow

What is Code Generation

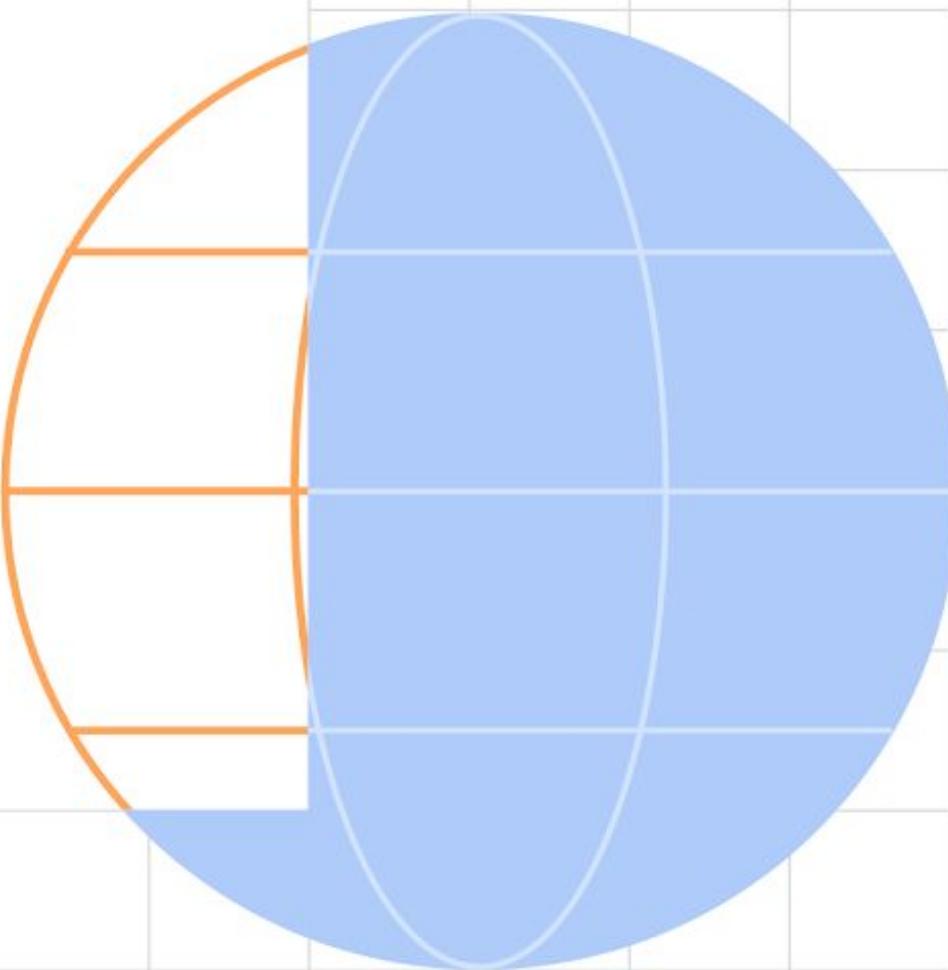


Basic development flow



Development flow with code generation

Localization



intl

Provides internationalization and localization facilities, including message translation, plurals and genders, date/number formatting and parsing, and bidirectional text.



intl 0.17.0

Published Feb 3, 2021 · [dart.dev](#) Null safety

DART NATIVE JS FLUTTER ANDROID IOS LINUX MACOS WEB WINDOWS 1.74K

[Readme](#) [Changelog](#) [Installing](#) [Versions](#) [Scores](#)

Provides internationalization and localization facilities, including message translation, plurals and genders, date/number formatting and parsing, and bidirectional text.

General

The most important library is [intl](#). It defines the [Intl](#) class, with the default locale and methods for accessing most of the internationalization mechanisms. This library also defines the [DateFormat](#), [NumberFormat](#), and [BidiFormatter](#) classes.

Current locale

Flutter Favorite

1736 LIKES | 120 PUB POINTS | 100% POPULARITY

Publisher [dart.dev](#)

Metadata

Contains code to deal with internationalized/localized messages, date and number formatting and parsing, bi-directional text, and other internationalization issues.

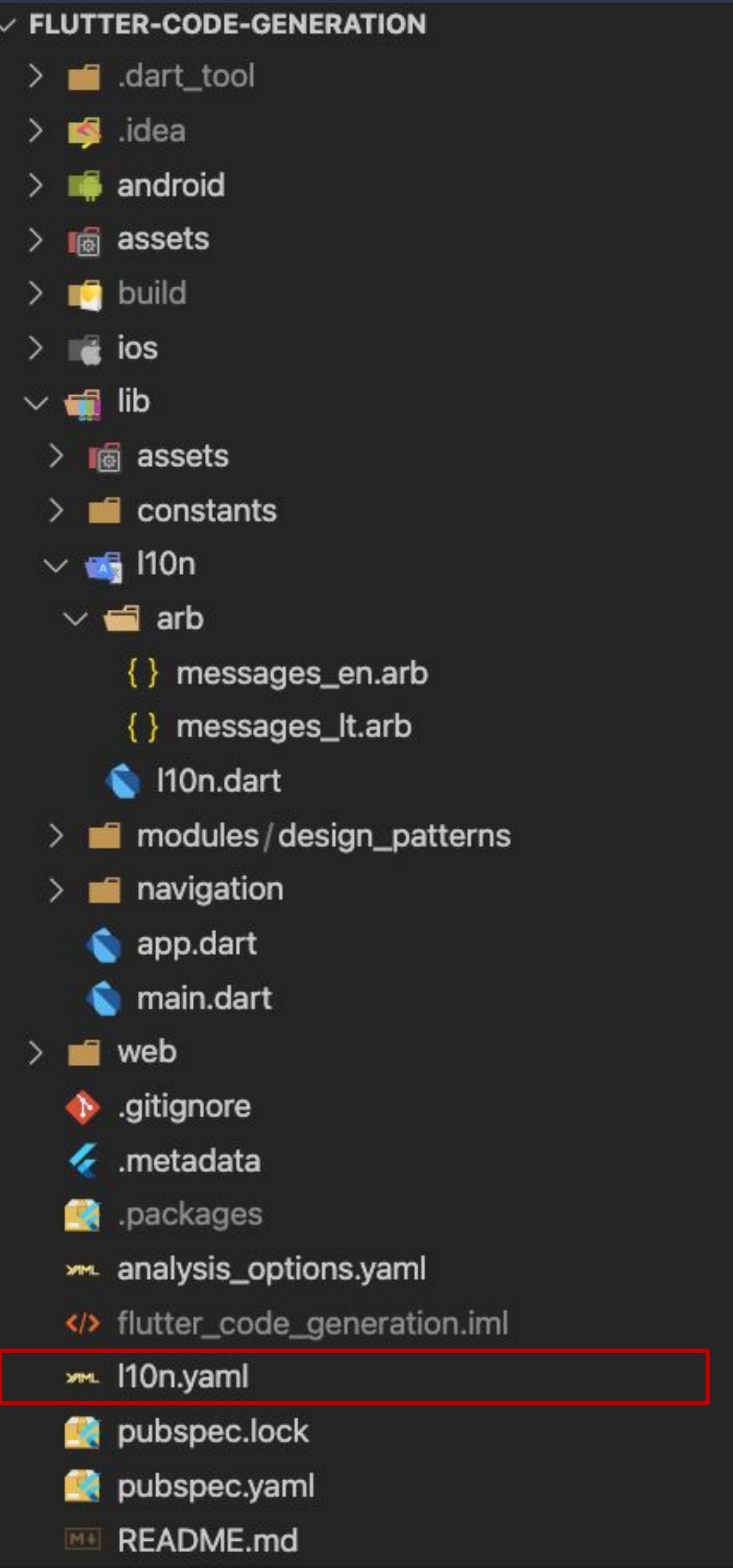
@mkobuolys

pubspec.yaml

```
1 name: flutter_code_generation
2 description: Examples of Flutter Code Generation.
3 version: 1.0.0+1
4
5 environment:
6   sdk: ">=2.12.0 <3.0.0"
7
8 dependencies:
9   flutter:
10     sdk: flutter
11   # Internationalization support.
12   flutter_localizations:
13     sdk: flutter
14   intl: ^0.17.0
15
16 flutter:
17   # Adds code generation (synthetic package) support
18   generate: true
```

l10n.yaml

```
1 arb-dir: lib/l10n/arb
2 template-arb-file: messages_en.arb
3 output-localization-file: app_localizations.dart
```

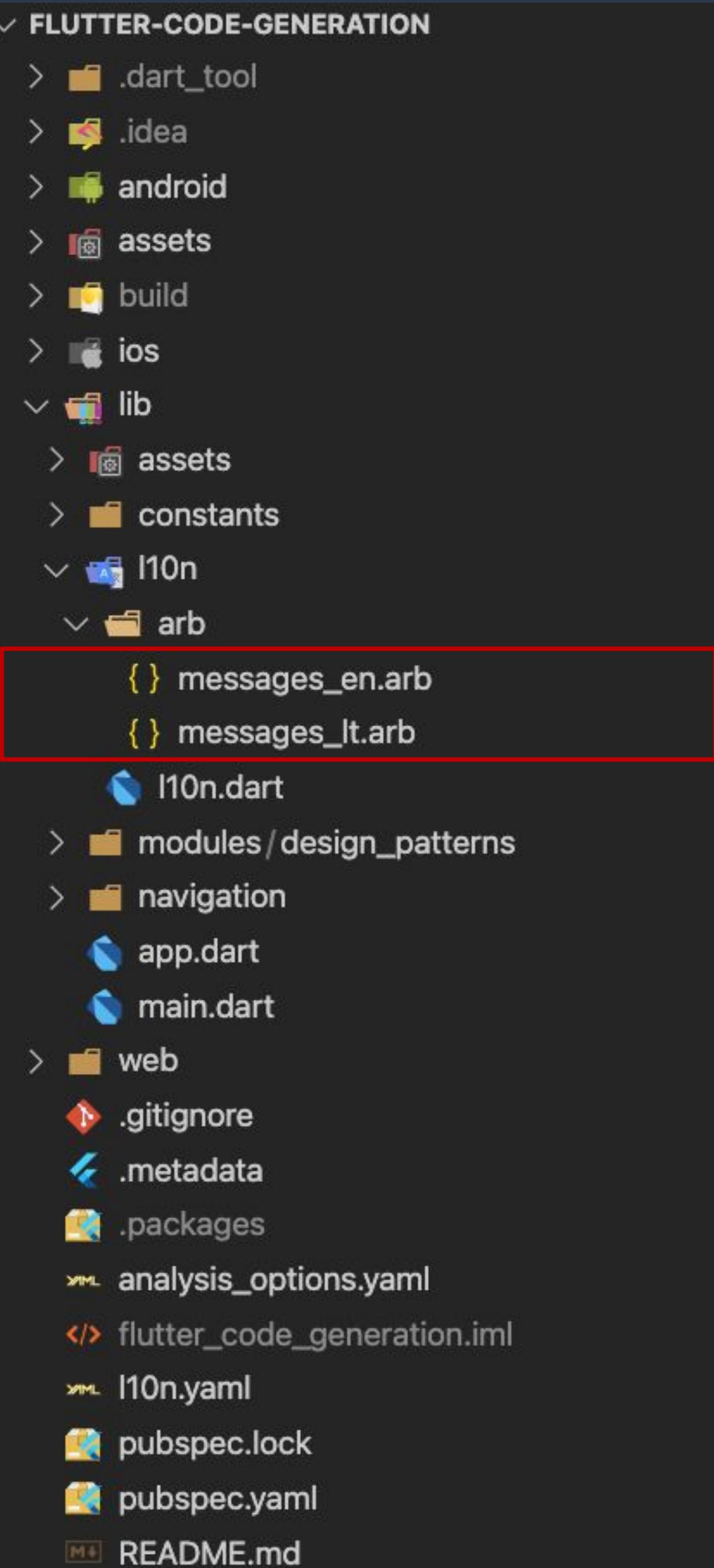


ARB (.arb) files

```
1  {
2      "@@locale": "en",
3      "appTitle": "Flutter Code Generation",
4      "@appTitle": {
5          "description": "Main menu page title."
6      },
7      "localizationExamplesTitle": "Localization Examples",
8      "@localizationExamplesTitle": {
9          "description": "Localization examples page title."
10     },
11     ...
12 }

1  {
2      "@@locale": "lt",
3      "appTitle": "Flutter Code Generation",
4      "localizationExamplesTitle": "Lokalizacijos pavyzdžiai",
5      "localizationExamplesLocaleText": "Lokalė: {locale}",
6      "localizationExamplesCurrentDateText": "Šiandienos data: {date}",
7      "localizationExamplesCurrencyText": "Kaina: {price}",
8      "localizationExamplesButtonPressedText": "{count, plural, =0 {Jūs dar nepaspaudėte mygtuko}
=1 {Jūs paspaudėte mygtuką vieną kartą} other {Jūs paspaudėte mygtuką tiek kartų: {count}}}",
9      ...
10 }
```

@mkobuolys



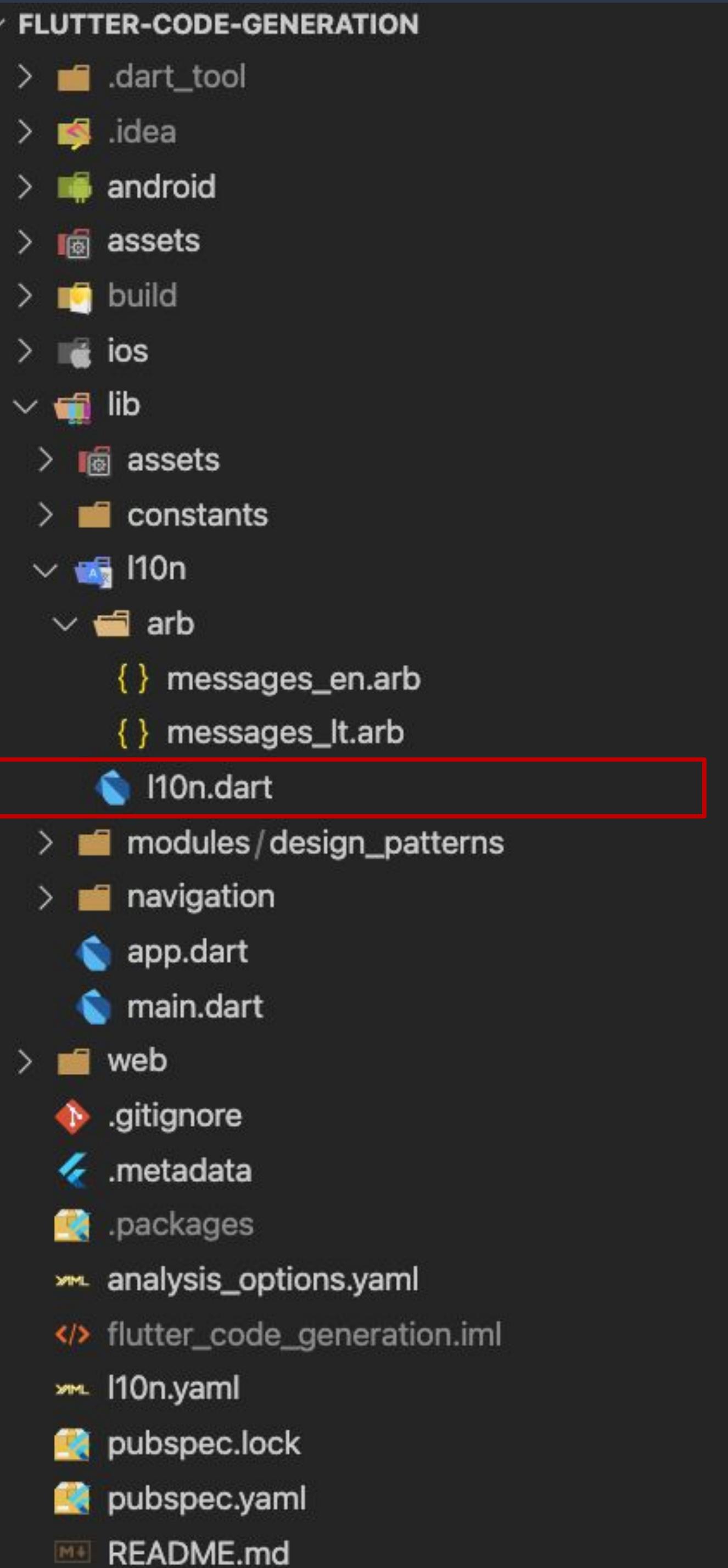
l10n.dart (optional)

```
1 import 'package:flutter/widgets.dart';
2
3 import 'package:flutter_gen/gen_l10n/app_localizations.dart';
4 export 'package:flutter_gen/gen_l10n/app_localizations.dart';
5
6 extension AppLocalizationsExtension on BuildContext {
7   AppLocalizations get l10n => AppLocalizations.of(this)!;
8 }
```

```
1 AppBar(
2   title: Text(context.l10n.appTitle), - w/ extension
3 ),
```

```
1 AppBar(
2   title: Text(AppLocalizations.of(context)!.appTitle), - w/o extension
3 ),
```

@mkobuolys



ARB -> Dart: Simple parameter

```
1 "localizationExamplesTitle": "Localization Examples",  
2 "@localizationExamplesTitle": {  
3   "description": "Localization examples page title."  
4 },  
5 "localizationExamplesLocaleText": "Locale: {locale}",  
6 "@localizationExamplesLocaleText": {  
7   "description": "Localization examples locale text.",  
8   "placeholders": {  
9     "locale": {  
10       "type": "String",  
11       "example": "en"  
12     }  
13   }  
14 },
```

```
1 /// The translations for English (`en`).  
2 class AppLocalizationsEn extends AppLocalizations {  
3   AppLocalizationsEn([String locale = 'en']) : super(locale);  
4  
5   @override  
6   String get localizationExamplesTitle => 'Localization Examples';  
7  
8   @override  
9   String localizationExamplesLocaleText(String locale) {  
10     return 'Locale: $locale';  
11   }  
12 }
```

ARB -> Dart: Date, currency

```
1 "localizationExamplesCurrentDateText": "Today's date: {date}",
2 "@localizationExamplesCurrentDateText": {
3   "description": "Localization examples current date and time text.",
4   "placeholders": {
5     "date": {
6       "type": "DateTime",
7       "format": "yMMMMd"
8     }
9   }
10 },
11 "localizationExamplesCurrencyText": "Price: {price}",
12 "@localizationExamplesCurrencyText": {
13   "description": "Localization examples current date and time text.",
14   "placeholders": {
15     "price": {
16       "type": "double",
17       "format": "simpleCurrency",
18       "optionalParameters": {
19         "decimalDigits": 2
20       }
21     }
22   }
23 },
```

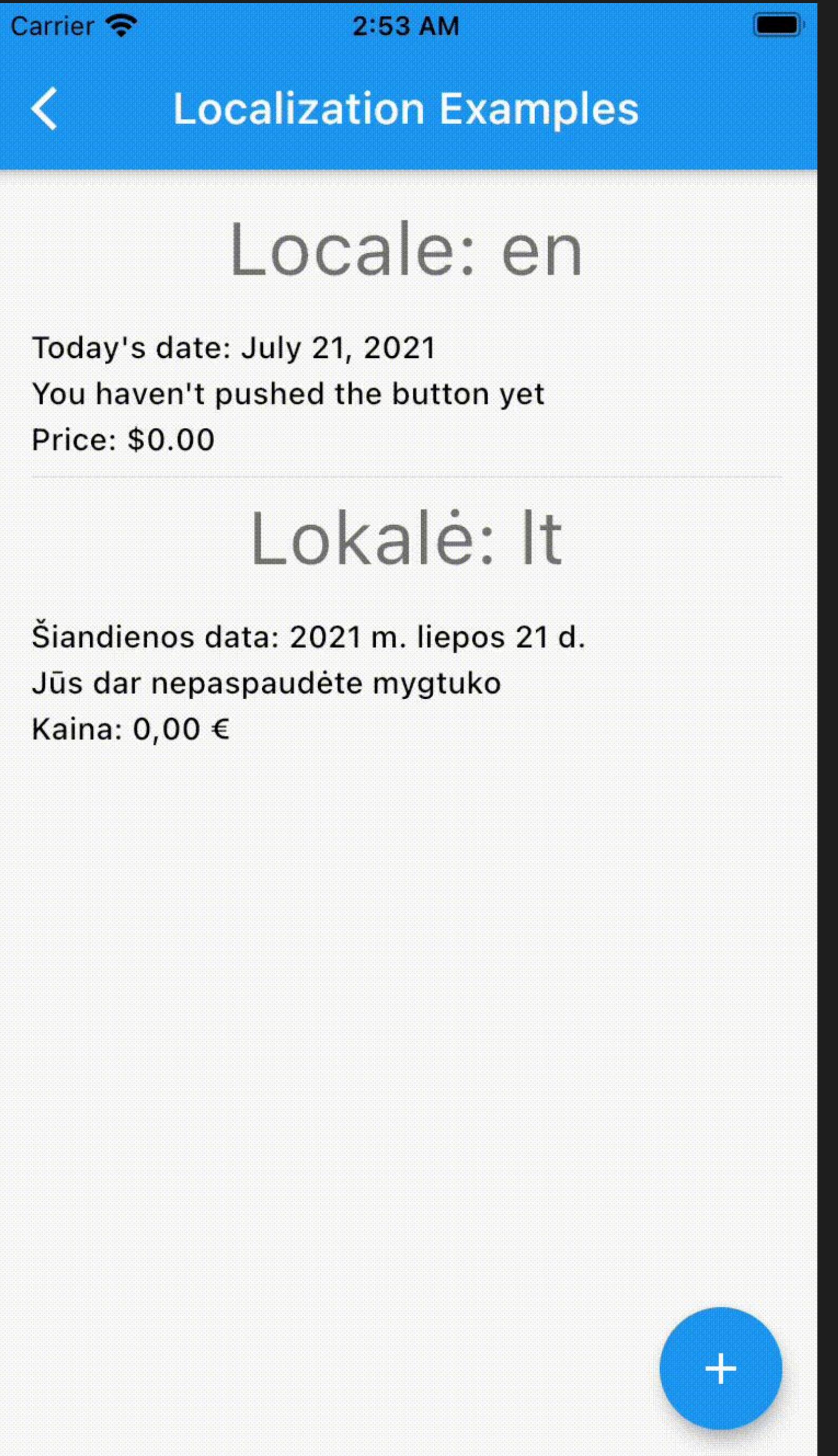
```
1 @override
2 String localizationExamplesCurrentDateText(DateTime date) {
3   final intl.DateFormat dateDateFormat = intl.DateFormat.yMMMMd(localeName);
4   final String dateString = dateDateFormat.format(date);
5
6   return 'Today\'s date: $dateString';
7 }
8
9 @override
10 String localizationExamplesCurrencyText(double price) {
11   final intl.NumberFormat priceNumberFormat = intl.NumberFormat.simpleCurrency(
12     locale: localeName,
13     decimalDigits: 2
14   );
15   final String priceString = priceNumberFormat.format(price);
16
17   return 'Price: $priceString';
18 }
```

ARB -> Dart: Plurals

```
1 "localizationExamplesButtonPressedText": "{count, plural, =0 {You haven't pushed  
the button yet} =1 {You have pushed the button once} other {You have pushed the  
button this many times: {count}}}",  
2 "@localizationExamplesButtonPressedText": {  
3   "description": "Localization examples button pressed example text.",  
4   "placeholders": {  
5     "count": {  
6       "type": "int",  
7       "format": "decimalPattern",  
8       "example": "10"  
9     }  
10    }  
11  },  
12  @override  
13  String localizationExamplesButtonPressedText(int count) {  
14    final intl.NumberFormat countNumberFormat = intl.NumberFormat.decimalPattern(localeName);  
15    final String countString = countNumberFormat.format(count);  
16  
17    return intl.Intl.pluralLogic(  
18      count,  
19      locale: localeName,  
20      zero: 'You haven\'t pushed the button yet',  
21      one: 'You have pushed the button once',  
22      other: 'You have pushed the button this many times: $count',  
23    );  
24  }
```

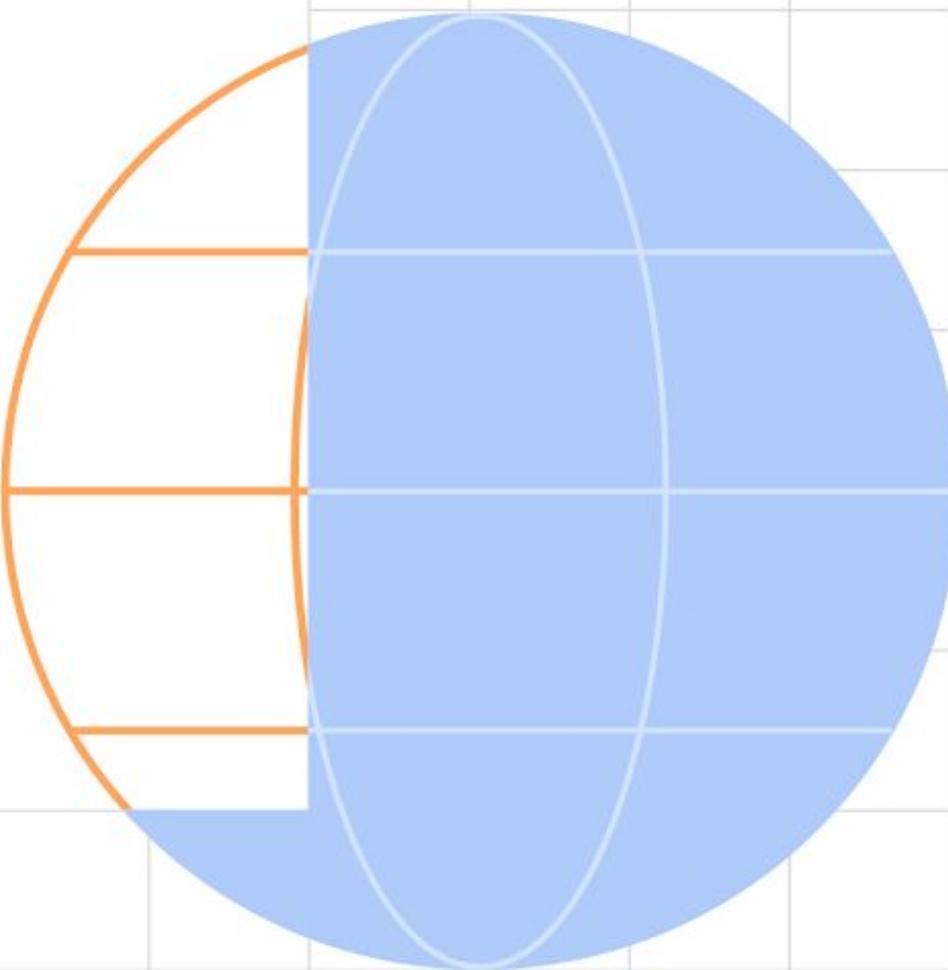
Usage

```
1 Column(  
2   crossAxisAlignment: CrossAxisAlignment.start,  
3   children: [  
4     Center(  
5       child: Text(  
6         context.l10n.localizationExamplesLocaleText(languageCode),  
7         style: Theme.of(context).textTheme.headline4,  
8       ),  
9     ),  
10    const SizedBox(height: LayoutConstants.spaceL),  
11    Text(  
12      context.l10n.localizationExamplesCurrentDateText(DateTime.now()),  
13      style: textStyle,  
14    ),  
15    const SizedBox(height: LayoutConstants.spaceS),  
16    Text(  
17      context.l10n.localizationExamplesButtonPressedText(counter),  
18      style: textStyle,  
19    ),  
20    const SizedBox(height: LayoutConstants.spaceS),  
21    Text(  
22      context.l10n.localizationExamplesCurrencyText(counter * 345.67),  
23      style: textStyle,  
24    ),  
25  ],  
26);
```





Assets



build_runner

Provides a concrete way of generating files using Dart code, outside of tools like pub.



build_runner 2.1.4

Published Oct 1, 2021 · [tools.dart.dev](#) Null safety

DART NATIVE

611

[Readme](#) Changelog Installing Versions Scores

611 100 99%
LIKES PUB POINTS POPULARITY

Standalone generator and watcher for Dart using [package:build](#).
[open "package: build_runner" issues](#) 38 [pub v2.1.4](#) [dartdocs latest](#) [chat on gitter](#)

The `build_runner` package provides a concrete way of generating files using Dart code, outside of tools like `pub`. Unlike `pub serve/build`, files are always generated directly on disk, and rebuilds are *incremental*- inspired by tools such as `Bazel`.

NOTE: Are you a user of this package? You may be interested in simplified user-facing documentation, such as our [getting started guide](#).

- [Installation](#)
- [Usage](#)

Publisher

[tools.dart.dev](#)

Metadata

A build system for Dart code generation and modular compilation.

[Repository \(GitHub\)](#)

[View/report issues](#)

@mkobuolys

flutter_gen

The Flutter code generator
for your assets, fonts,
colors, ... - Get rid of all
String-based APIs.



flutter_gen 4.0.0

Published Sep 30, 2021 · wasabeef.jp Null safety

DART NATIVE

205

Readme Changelog Installing Versions Scores



FLUTTERGEN

pub v4.0.0 Dart CI passing codecov 99% style effective dart

The Flutter code generator for your assets, fonts, colors, ... — Get rid of all String-based APIs.

205 | 110 | 90%
LIKES PUB POINTS POPULARITY

Publisher

wasabeef.jp

Metadata

The Flutter code generator
for your assets, fonts,
colors, ... — Get rid of all
String-based APIs.

Repository (GitHub)

[View/report issues](#)

Documentation

Documentation

[API reference](#)

License

MIT ([LICENSE](#))

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pubspec.yaml – dependencies/assets

```
1 dependencies:
2   flutter:
3     sdk: flutter
4     flare_flutter: ^3.0.1
5     flutter_svg: ^0.22.0
6
7   dev_dependencies:
8     build_runner: ^2.1.4
9     flutter_gen_runner: ^4.0.0
```

```
flutter:
  uses-material-design: true
  # Adds code generation (synthetic package) support
  generate: true
  assets:
    - assets/color/
    - assets/flare/
    - assets/images/
    - assets/images/icons/
    - assets/json/
  fonts:
    - family: Fuggles
      fonts:
        - asset: assets/fonts/Fuggles-Regular.ttf
```

pubspec.yaml – flutter_gen

```
1 flutter_gen:  
2   output: lib/assets/gen # Optional (default: lib/gen/  
3   line_length: 80 # Optional (default: 80)  
4   null_safety: true # Optional (default: true)  
5  
6   integrations:  
7     flutter_svg: true  
8     flare_flutter: true  
9  
10  colors:  
11    enabled: true  
12    inputs:  
13      - assets/color/colors.xml  
14  
15  assets:  
16    enabled: true  
17    # Assets.imagesDash  
18    # style: camel-case  
19  
20    # Assets.images_dash  
21    # style: snake-case  
22  
23    # Assets.images.dash (default style)  
24    # style: dot-delimiter  
25  
26  fonts:  
27    enabled: true
```

```
1 class $AssetsImagesIconsGen {  
2   const $AssetsImagesIconsGen();  
3  
4   String get githubLogo => 'assets/images/icons/github_logo.svg';  
5   String get mediumLogo => 'assets/images/icons/medium_logo.svg';  
6   String get twitterLogo => 'assets/images/icons/twitter_logo.svg';  
7 }  
  
1 class $AssetsImagesIconsGen {  
2   const $AssetsImagesIconsGen();  
3  
4   SvgGenImage get githubLogo =>  
5       const SvgGenImage('assets/images/icons/github_logo.svg');  
6   SvgGenImage get mediumLogo =>  
7       const SvgGenImage('assets/images/icons/medium_logo.svg');  
8   SvgGenImage get twitterLogo =>  
9       const SvgGenImage('assets/images/icons/twitter_logo.svg');  
10 }
```

- w/o integration

- w/ integration

Generating assets

```
> flutter pub run build_runner build
```

FLUTTER-CODE-GENERATION

- > .dart_tool
- > .idea
- > android
- > assets
- > build
- > ios
- ✓ lib
 - ✓ assets
 - ✓ gen
 - assets.gen.dart
 - colors.gen.dart
 - fonts.gen.dart
 - assets.dart
 - constants
 - I10n
 - modules
 - navigation
 - app.dart
 - main.dart

assets.gen.dart

```
1  class $AssetsColorGen {
2      const $AssetsColorGen();
3
4      String get colors => 'assets/color/colors.xml';
5  }
6
7  class $AssetsFlareGen {
8      const $AssetsFlareGen();
9
10     FlareGenImage get penguin => const FlareGenImage('assets/flare/penguin.flr');
11 }
12
13 class $AssetsImagesGen {
14     const $AssetsImagesGen();
15
16     AssetGenImage get dash1 => const AssetGenImage('assets/images/dash-1.png');
17     AssetGenImage get dash2 => const AssetGenImage('assets/images/dash-2.jpeg');
18     $AssetsImagesIconsGen get icons => const $AssetsImagesIconsGen();
19 }
20
21 class $AssetsJsonGen {
22     const $AssetsJsonGen();
23
24     String get designPatterns => 'assets/json/design_patterns.json';
25 }
26
27 class $AssetsImagesIconsGen {
28     const $AssetsImagesIconsGen();
29
30     SvgGenImage get githubLogo =>
31         const SvgGenImage('assets/images/icons/github_logo.svg');
32     SvgGenImage get mediumLogo =>
33         const SvgGenImage('assets/images/icons/medium_logo.svg');
34     SvgGenImage get twitterLogo =>
35         const SvgGenImage('assets/images/icons/twitter_logo.svg');
36 }
```

colors.gen.dart

```
1 <?xml version="1.0" encoding="utf-8"?>
2 <resources>
3   <color name="black">#000000</color>
4   <color name="gray_70">#EEEEEE</color>
5   <color name="gray_410">#979797</color>
6   <color name="crimson_red" type="material">#CF2A2A</color>
7   <color name="yellow_ocher" type="material material-accent">#DF9527</color>
8 </resources>
```

```
1 class ColorName {
2   ColorName._();
3
4   static const Color black = Color(0xFF000000);
5   static const MaterialColor crimsonRed = MaterialColor(
6     0xFFCF2A2A,
7     <int, Color>{
8       50: Color(0xFFFF9E5E5),
9       100: Color(0xFFF1BFBF),
10      200: Color(0xFFE79595),
11      300: Color(0xFFDD6A6A),
12      400: Color(0xFFD64A4A),
13      500: Color(0xFFCF2A2A),
14      600: Color(0xFFCA2525),
15      700: Color(0xFFC31F1F),
16      800: Color(0xFFBD1919),
17      900: Color(0xFFB20F0F),
18    },
19  );
20  static const Color gray410 = Color(0xFF979797);
21  static const Color gray70 = Color(0xFFFFFFFF);
22  static const MaterialColor yellowOcher = MaterialColor(
23    0xFFDF9527,
24    <int, Color>{
25      50: Color(0xFFFFBF2E5),
26      100: Color(0xFFF5DFBE),
27      200: Color(0xFFEFC9A3),
28      300: Color(0xFFE9B568),
29      400: Color(0FFE4A547),
30      500: Color(0xFFDF9527),
31      600: Color(0xFFDB8D23),
32      700: Color(0xFFD7821D),
33      800: Color(0xFFD27817),
34      900: Color(0xFFCA670E),
35    },
36  );
37  static const MaterialAccentColor yellowOcherAccent = MaterialAccentColor(
38    0xFFFFBCA3,
39    <int, Color>{
40      100: Color(0xFFFFE8E0),
41      200: Color(0xFFFFBCA3),
42      400: Color(0xFFFFA989),
43      700: Color(0xFFFF9E7A),
44    },
45  );
46 }
```

fonts.gen.dart

```
1  class FontFamily {  
2    FontFamily._();  
3  
4    static const String fuggles = 'Fuggles';  
5  }
```

Usage: Icons/images

```
1 Row(  
2   mainAxisAlignment: MainAxisAlignment.center,  
3   children: [  
4     Assets.images.icons.githubLogo.svg(width: _iconWidth),  
5     const SizedBox(width: LayoutConstants.spaceM),  
6     Assets.images.icons.mediumLogo.svg(width: _iconWidth),  
7     const SizedBox(width: LayoutConstants.spaceM),  
8     Assets.images.icons.twitterLogo.svg(width: _iconWidth),  
9   ],  
10 );  
  
1 Row(  
2   mainAxisAlignment: MainAxisAlignment.spaceAround,  
3   children: [  
4     Assets.images.dash1.image(  
5       height: _imageHeight,  
6       width: _imageWidth,  
7     ),  
8     Assets.images.dash2.image(  
9       height: _imageHeight,  
10      width: _imageWidth,  
11    ),  
12  ],  
13 );
```

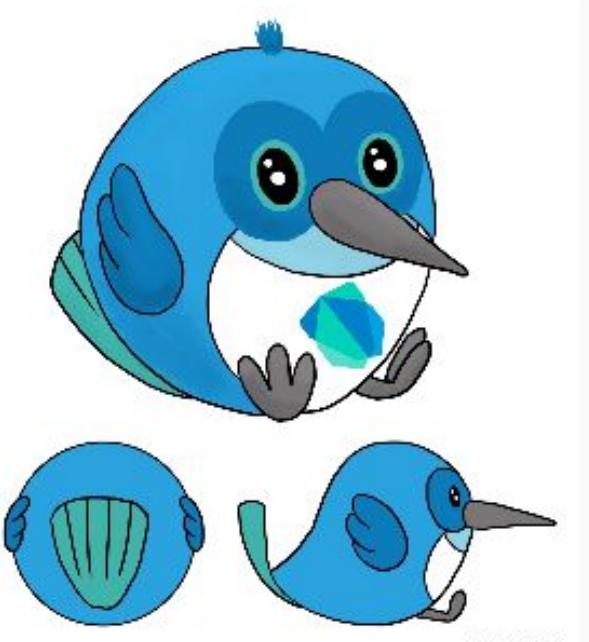
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Assets Examples

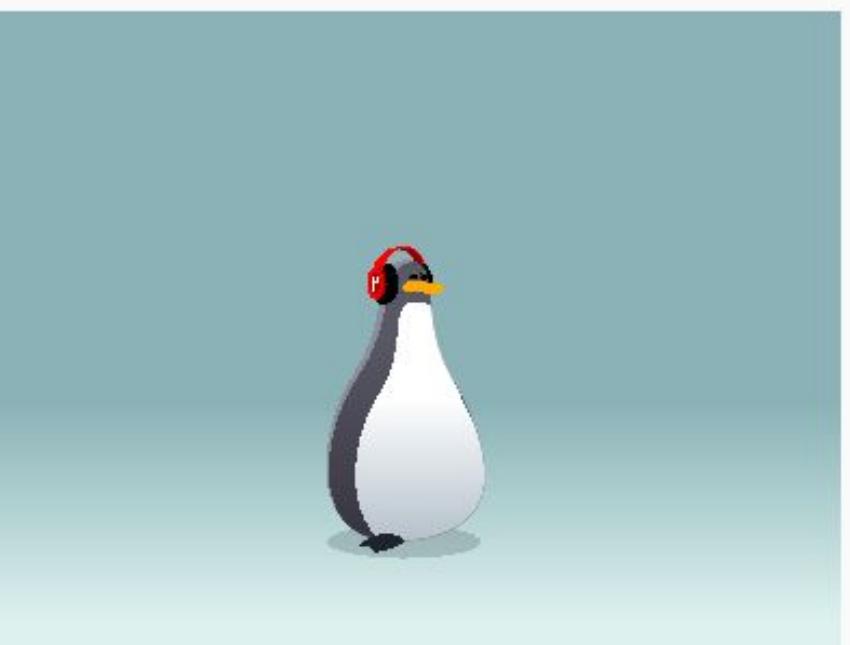
Icons



Images



Flare

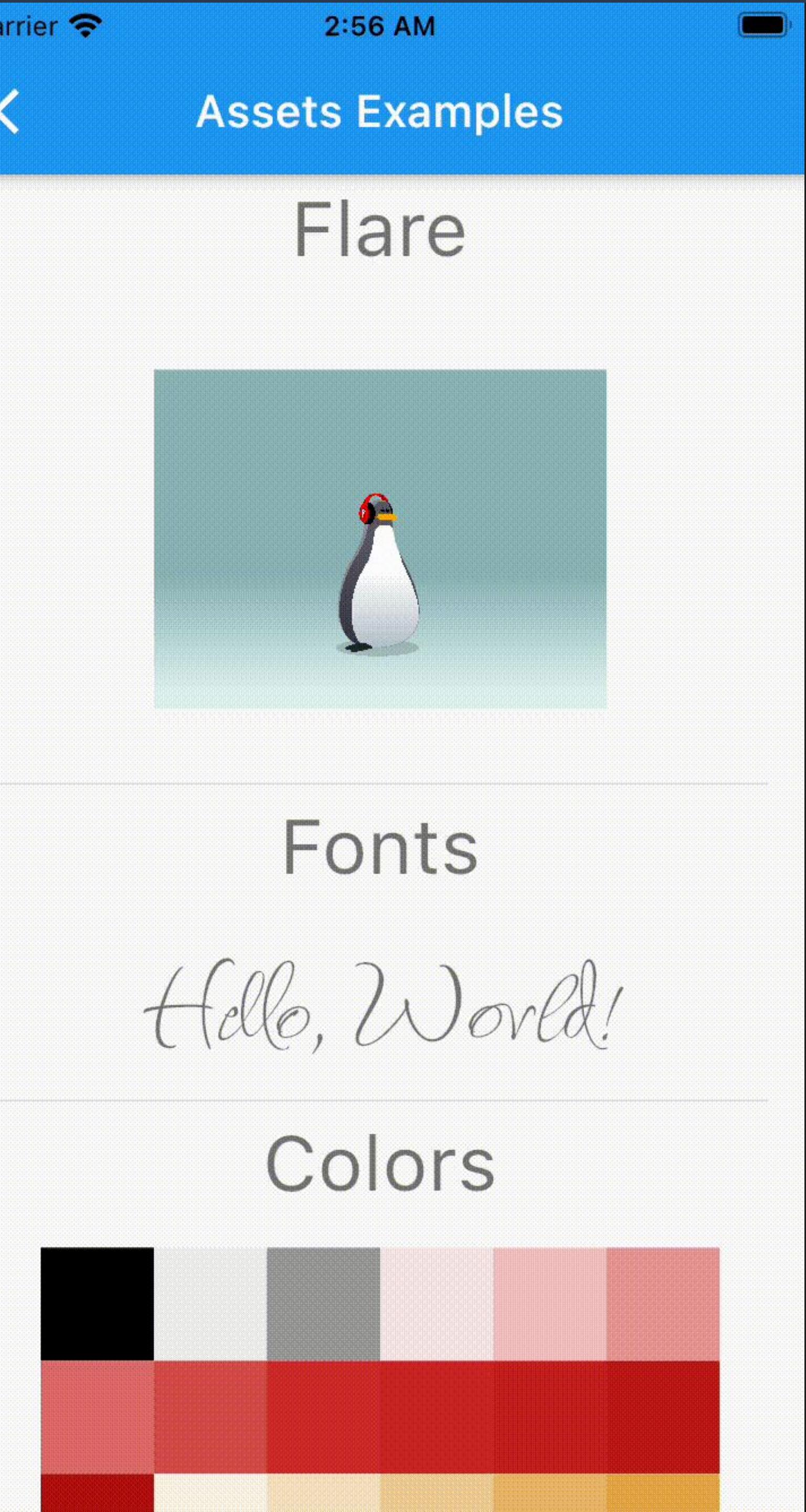


Usage: Flare/fonts

```
1 Center(  
2   child: SizedBox(  
3     height: 200.0,  
4     width: 200.0,  
5     child: Assets.flare.penguin.flare(  
6       animation: 'walk',  
7     ),  
8   ),  
9 );
```

```
1 Text(  
2   context.l10n.assetsExamplesFontsHelloWorldText,  
3   style: Theme.of(context)  
4     .textTheme  
5     .headline2!  
6     .copyWith(fontFamily: FontFamily.fuggles),  
7 );
```

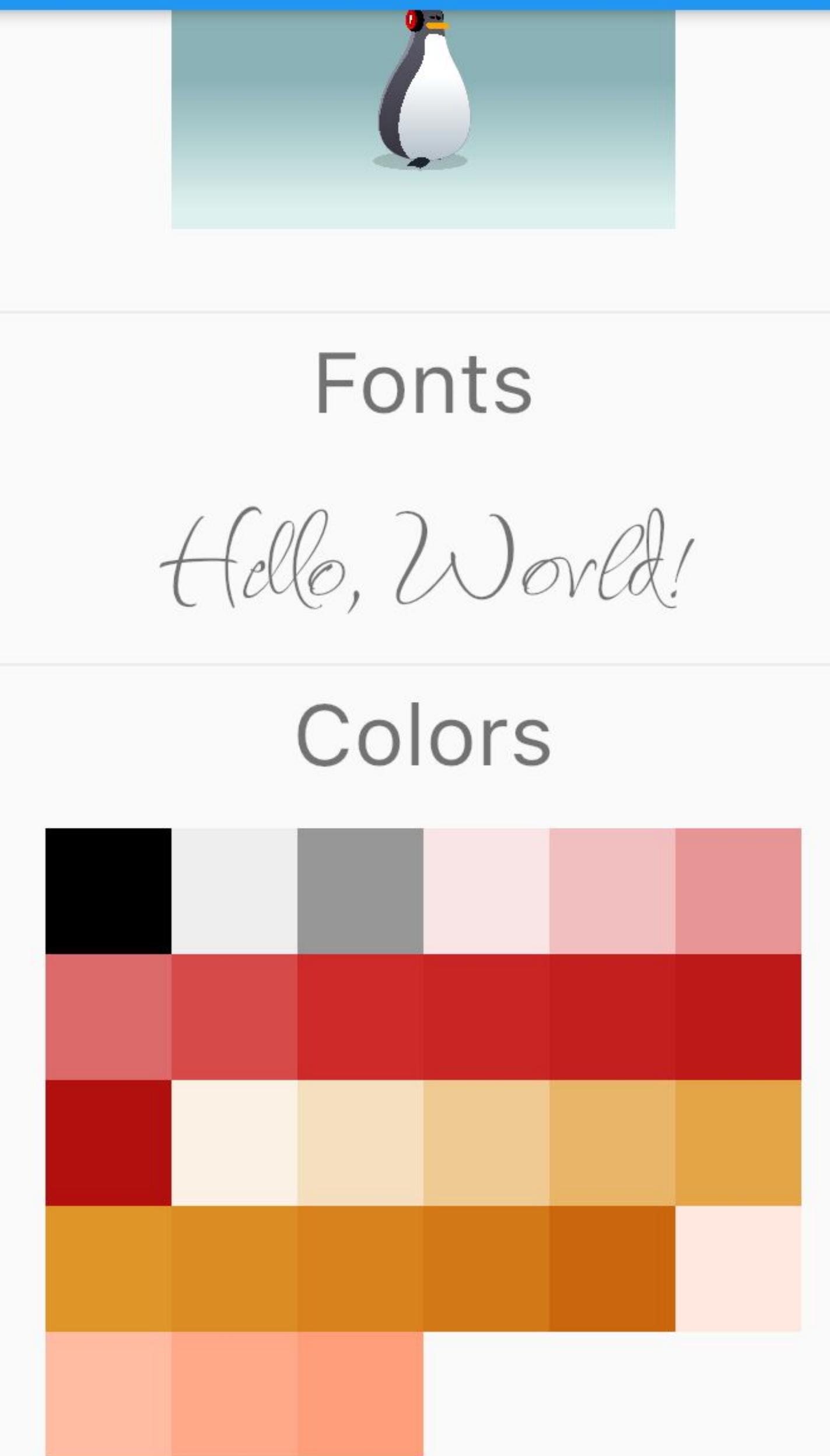
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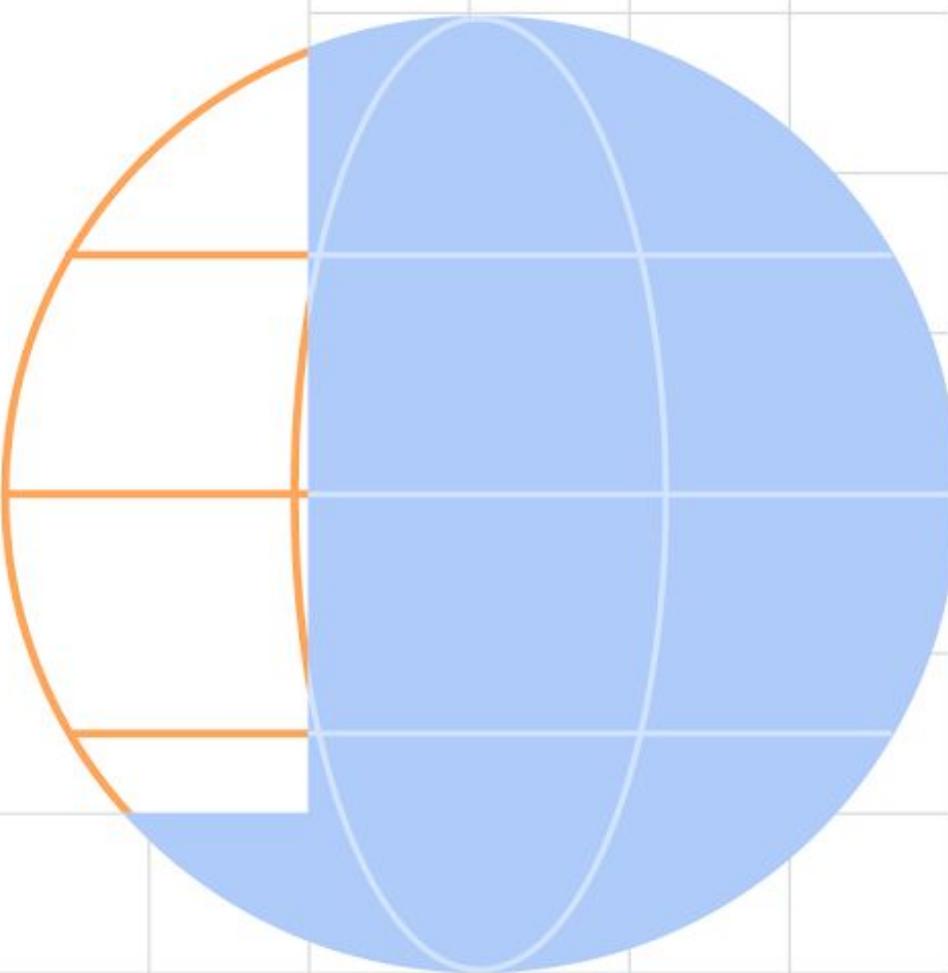
Usage: Colors

```
1  Wrap(  
2    children: [  
3      const _ColorCube(color: ColorName.black),  
4      const _ColorCube(color: ColorName.gray70),  
5      const _ColorCube(color: ColorName.gray410),  
6      _ColorCube(color: ColorName.crimsonRed.shade50),  
7      _ColorCube(color: ColorName.crimsonRed.shade100),  
8      _ColorCube(color: ColorName.crimsonRed.shade200),  
9      _ColorCube(color: ColorName.crimsonRed.shade300),  
10     _ColorCube(color: ColorName.crimsonRed.shade400),  
11     _ColorCube(color: ColorName.crimsonRed.shade500),  
12     _ColorCube(color: ColorName.crimsonRed.shade600),  
13     _ColorCube(color: ColorName.crimsonRed.shade700),  
14     _ColorCube(color: ColorName.crimsonRed.shade800),  
15     _ColorCube(color: ColorName.crimsonRed.shade900),  
16     _ColorCube(color: ColorName.yellowOcher.shade50),  
17     _ColorCube(color: ColorName.yellowOcher.shade100),  
18     _ColorCube(color: ColorName.yellowOcher.shade200),  
19     _ColorCube(color: ColorName.yellowOcher.shade300),  
20     _ColorCube(color: ColorName.yellowOcher.shade400),  
21     _ColorCube(color: ColorName.yellowOcher.shade500),  
22     _ColorCube(color: ColorName.yellowOcher.shade600),  
23     _ColorCube(color: ColorName.yellowOcher.shade700),  
24     _ColorCube(color: ColorName.yellowOcher.shade800),  
25     _ColorCube(color: ColorName.yellowOcher.shade900),  
26     _ColorCube(color: ColorName.yellowOcherAccent.shade100),  
27     _ColorCube(color: ColorName.yellowOcherAccent.shade200),  
28     _ColorCube(color: ColorName.yellowOcherAccent.shade400),  
29     _ColorCube(color: ColorName.yellowOcherAccent.shade700),  
30   ],  
31 );
```

Assets Examples



Objects & State



freezed

“... yet another code generator for unions/pattern-matching/copy.”



freezed 0.15.0+1

Published Oct 9, 2021 · [dash-overflow.net](#) Null safety

DART NATIVE

1.03K

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Build passing pub v0.15.0 chat 107 online

1031 LIKES 120 PUB POINTS 97% POPULARITY

Welcome to Freezed, yet another code generator for unions/pattern-matching/copy.

0.14.0 and null-safety

Important note:

From 0.14.0 and onwards, Freezed does not support non-null-safe code.

If you want to keep using Freezed but cannot migrate to null-safety yet, use the version 0.12.7 instead.

Note that this version is no-longer maintained (so bugs found there won't be fixed).

Publisher

[dash-overflow.net](#)

Metadata

Code generation for immutable classes that has a simple syntax/API without compromising on the features.

[Repository \(GitHub\)](#)

[View/report issues](#)

@mkobuolys

freezed_annotation

Annotations for freezed package.

freezed_annotation 0.15.0

Published Oct 8, 2021 Null safety

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98

Readme Changelog Installing Versions Scores

Annotations for [freezed](#).

This package does nothing without [freezed](#).

98 | 120 | 99%
LIKES PUB POINTS POPULARITY

Metadata

Annotations for the
freezed code-generator.
This package does
nothing without freezed
too.

[Repository \(GitHub\)](#)

[View/report issues](#)



@mkobuolys

json_serializable

Automatically generate code for converting to and from JSON by annotating Dart classes.



json_serializable 5.0.2

Published Sep 20, 2021 · google.dev Null safety

DART | NATIVE

1.39K

[Readme](#) [Changelog](#) [Example](#) [Installing](#) [Versions](#) [Scores](#)

pub v5.0.2

Provides [Dart Build System](#) builders for handling JSON.

The builders generate code when they find members annotated with classes defined in [package:json_annotation](#).

- To generate to/from JSON code for a class, annotate it with `@JsonSerializable`. You can provide arguments to `JsonSerializable` to configure the generated code. You can also customize individual fields by annotating them with `@JsonKey` and providing custom arguments. See the table below for details on the [annotation values](#).
- To generate a Dart field with the contents of a file containing JSON, use the `JsonLiteral` annotation.



1391 LIKES | 120 PUB POINTS | 99% POPULARITY

Publisher

google.dev

Metadata

Automatically generate code for converting to and from JSON by annotating Dart classes.

[Repository \(GitHub\)](#)

[View/report issues](#)

Documentation

@mkobuolys

pubspec.yaml

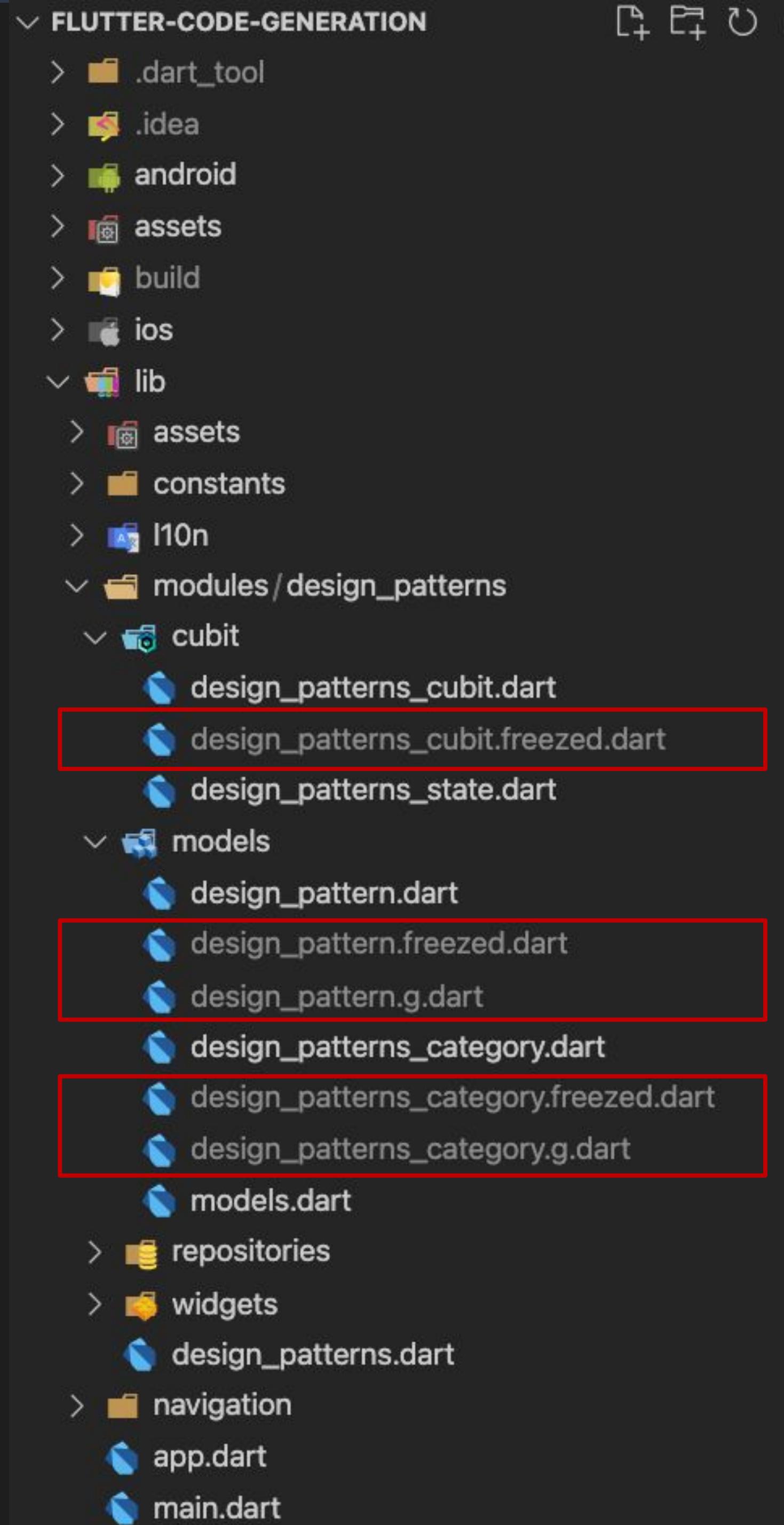
```
1 dependencies:  
2   flutter:  
3     sdk: flutter  
4     freezed_annotation: ^0.15.0  
5  
6 dev_dependencies:  
7   build_runner: ^2.1.4  
8   freezed: ^0.15.0+1  
9   json_serializable: ^5.0.2
```

Generating files

```
> flutter pub run build_runner build
```

or

```
> flutter pub run build_runner watch
```



Freezed class

```
1 part 'design_patterns_category.freezed.dart';
2 part 'design_patterns_category.g.dart';
3
4 @freezed
5 class DesignPatternsCategory with _$DesignPatternsCategory {
6   const factory DesignPatternsCategory({
7     required String id,
8     required String title,
9     required String color,
10    required List<DesignPattern> patterns,
11  }) = _DesignPatternsCategory;
12
13  factory DesignPatternsCategory.fromJson(Map<String, dynamic> json) =>
14    _$DesignPatternsCategoryFromJson(json);
15 }
```

Generated *.g.dart

```
1  _$DesignPatternsCategory _$$_DesignPatternsCategoryFromJson(
2      Map<String, dynamic> json) {
3      return _$DesignPatternsCategory(
4          id: json['id'] as String,
5          title: json['title'] as String,
6          color: json['color'] as String,
7          patterns: (json['patterns'] as List<dynamic>)
8              .map((e) => DesignPattern.fromJson(e as Map<String, dynamic>))
9              .toList(),
10     );
11 }
12
13 Map<String, dynamic> _$$_DesignPatternsCategoryToJson(
14     _$DesignPatternsCategory instance) =>
15     <String, dynamic>{
16         'id': instance.id,
17         'title': instance.title,
18         'color': instance.color,
19         'patterns': instance.patterns,
20     };

```

Generated *.freezed.dart

```
1 ...
2 @override
3 bool operator ==(dynamic other) {
4     return identical(this, other) ||
5         (other is _DesignPatternsCategory &&
6          (identical(other.id, id) ||
7           const DeepCollectionEquality().equals(other.id, id)) &&
8          (identical(other.title, title) ||
9           const DeepCollectionEquality().equals(other.title, title)) &&
10         (identical(other.color, color) ||
11          const DeepCollectionEquality().equals(other.color, color)) &&
12         (identical(other.patterns, patterns) ||
13          const DeepCollectionEquality()
14              .equals(other.patterns, patterns)));
15 }
16
17 @override
18 int get hashCode =>
19     runtimeType.hashCode ^
20     const DeepCollectionEquality().hash(id) ^
21     const DeepCollectionEquality().hash(title) ^
22     const DeepCollectionEquality().hash(color) ^
23     const DeepCollectionEquality().hash(patterns);
24
25 @JsonKey(ignore: true)
26 @override
27 _$DesignPatternsCategoryCopyWith<_DesignPatternsCategory> get copyWith =>
28     _$DesignPatternsCategoryCopyWithImpl<_DesignPatternsCategory>(
29         this, _$identity);
30
31 @override
32 Map<String, dynamic> toJson() {
33     return _$$_DesignPatternsCategoryToJson(this);
34 }
35 }
```

State management: State

```
1 abstract class DesignPatternsState extends Equatable {  
2   const DesignPatternsState();  
3  
4   @override  
5   List<Object> get props => [];  
6 }  
7  
8 class DesignPatternsInitial extends DesignPatternsState {}  
9  
10 class DesignPatternsLoadInProgress extends DesignPatternsState {}  
11  
12 class DesignPatternsLoadSuccess extends DesignPatternsState {  
13   final List<DesignPatternsCategory> categories;  
14  
15   const DesignPatternsLoadSuccess([this.categories = const []]);  
16  
17   @override  
18   List<Object> get props => [categories];  
19  
20   @override  
21   String toString() => 'DesignPatternsLoadSuccess { categories: $categories }';  
22 }  
23  
24 class DesignPatternsLoadFailure extends DesignPatternsState {}  
  
1 @freezed  
2 class DesignPatternsState with _$DesignPatternsState {  
3   const factory DesignPatternsState.initial() =  
4     _DesignPatternsStateInitial;  
5   const factory DesignPatternsState.loadInProgress() =  
6     _DesignPatternsStateLoadInProgress;  
7   const factory DesignPatternsState.loadSuccess({  
8     required List<DesignPatternsCategory> categories,  
9   }) = _DesignPatternsStateLoadSuccess;  
10  const factory DesignPatternsState.loadFailure() =  
11    _DesignPatternsStateLoadFailure;  
12 }
```

State management: Cubit

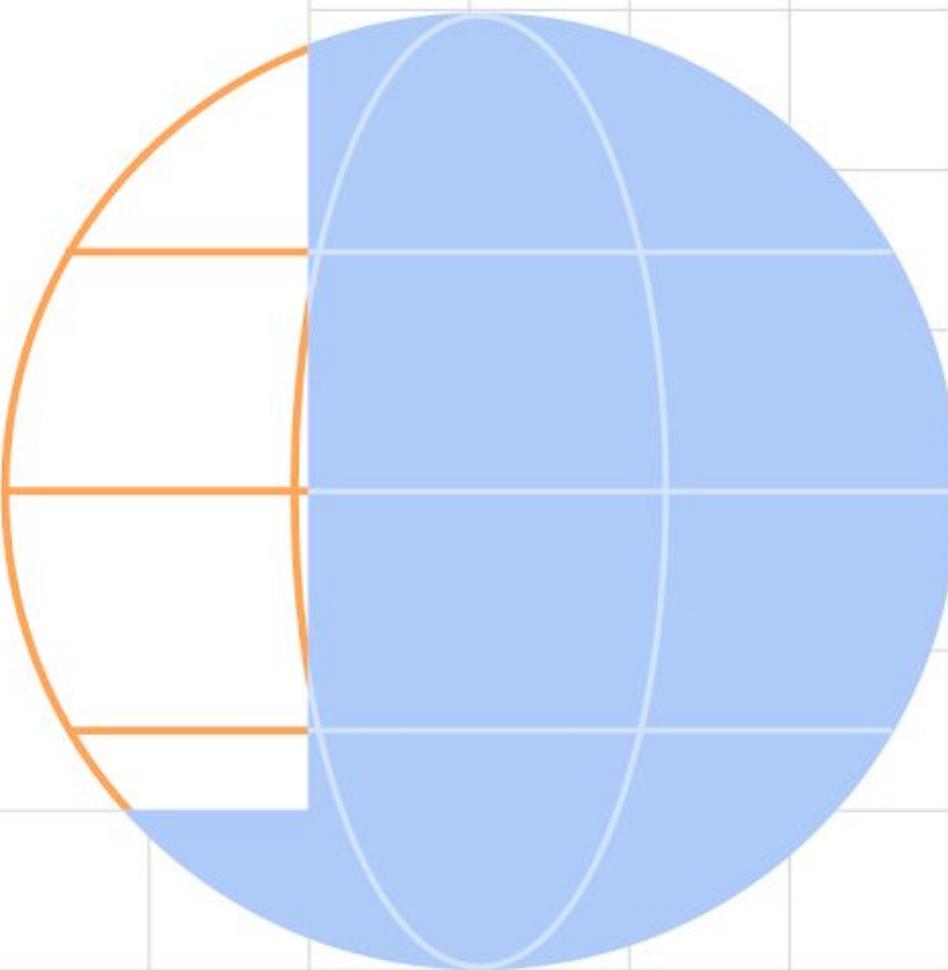
```
1  class DesignPatternsCubit extends Cubit<DesignPatternsState> {
2      final DesignPatternsRepository repository;
3
4      DesignPatternsCubit({
5          required this.repository,
6      }) : super(const DesignPatternsState.initial());
7
8      Future<void> load() async {
9          emit(const DesignPatternsState.loadInProgress());
10
11         try {
12             final categories = await repository.getCategories();
13
14             emit(DesignPatternsState.loadSuccess(categories: categories));
15         } on DesignPatternsJsonNotFoundException {
16             emit(const DesignPatternsState.loadFailure());
17         }
18     }
19 }
```

State management: Usage

```
1  @override
2  Widget build(BuildContext context) {
3      return BlocBuilder<DesignPatternsCubit, DesignPatternsState>(
4          builder: (_, state) {
5              if (state is DesignPatternsStateLoadInProgress) {
6                  return const _LoaderView();
7              } else if (state is DesignPatternsStateLoadFailure) {
8                  return const _ErrorView();
9              } else if (state is DesignPatternsStateLoadSuccess) {
10                  return DesignPatternsListView(
11                      categories: state.categories,
12                  );
13              } else {
14                  return const SizedBox();
15              }
16          },
17      );
18  }

@override
Widget build(BuildContext context) {
    return BlocBuilder<DesignPatternsCubit, DesignPatternsState>(
        builder: (_, state) => state.maybeWhen(
            loadInProgress: () => const _LoaderView(),
            loadFailure: () => const _ErrorView(),
            loadSuccess: (categories) => DesignPatternsListView(
                categories: categories,
            ),
            orElse: () => const SizedBox(),
        ),
    );
}
```

Widgets



IDE Extensions

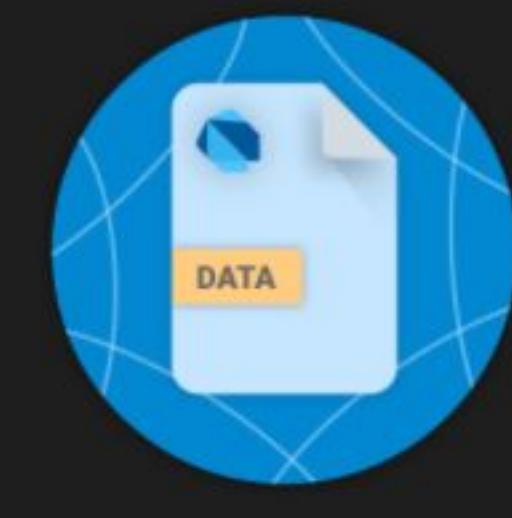


Awesome Flutter Snippets nash.awesome-flutter-snippets

Neevash Ramdial | ⚡ 584,328 | ★★★★★ | Repository | License | v3.0.1

Awesome Flutter Snippets is a collection snippets and shortcuts for commonly used Flutter functions and classes

[Disable](#) [Uninstall](#)  *This extension is enabled globally.*

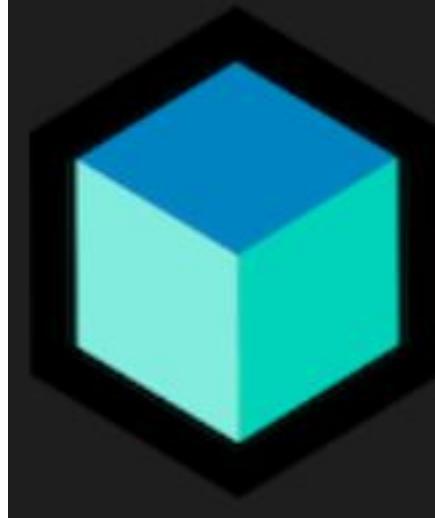


Dart Data Class Generator bendixma.dart-data-class-generator

BendixMa | ⚡ 89,845 | ★★★★★ | Repository | License | v0.5.0

Create dart data classes easily, fast and without writing boilerplate or running code generation.

[Disable](#) [Uninstall](#)  *This extension is enabled globally.*



bloc felixangelov.bloc

Felix Angelov | ⚡ 118,026 | ★★★★★ | Repository | License | v5.6.2

Support for the bloc library and provides tools for effectively creating blocs for both Flutter and AngularDart apps.

[Disable](#) [Uninstall](#)  *This extension is enabled globally.*

Awesome Flutter Snippets

A screenshot of a code editor showing a tooltip for the word 'state'. The tooltip provides information about stateful and stateless widgets and includes a sample code snippet for creating a StatelessWidget.

```
lib > snippets.dart > state
2 state    Variables must be declared using the keywords 'const', 'final', 'var' or a type name. Try adding the na
  └─ statefulBldr      StatefulWidget
  └─ statefulW        StatefulWidget
  └─ statelessW       StatelessWidget
    └─ State
    └─ State
    └─ State
    └─ StateError
    └─ StateManagementExamplesPage
    └─ StateManagementExamplesPage
    └─ StatefulWidget
    └─ StatefulWidget
    └─ StatefulWidget
Create a Stateless widget (Awesome Flutte ×
r Snippets)

class name extends StatelessWidget {
  const name({Key? key}) : super(key: key);

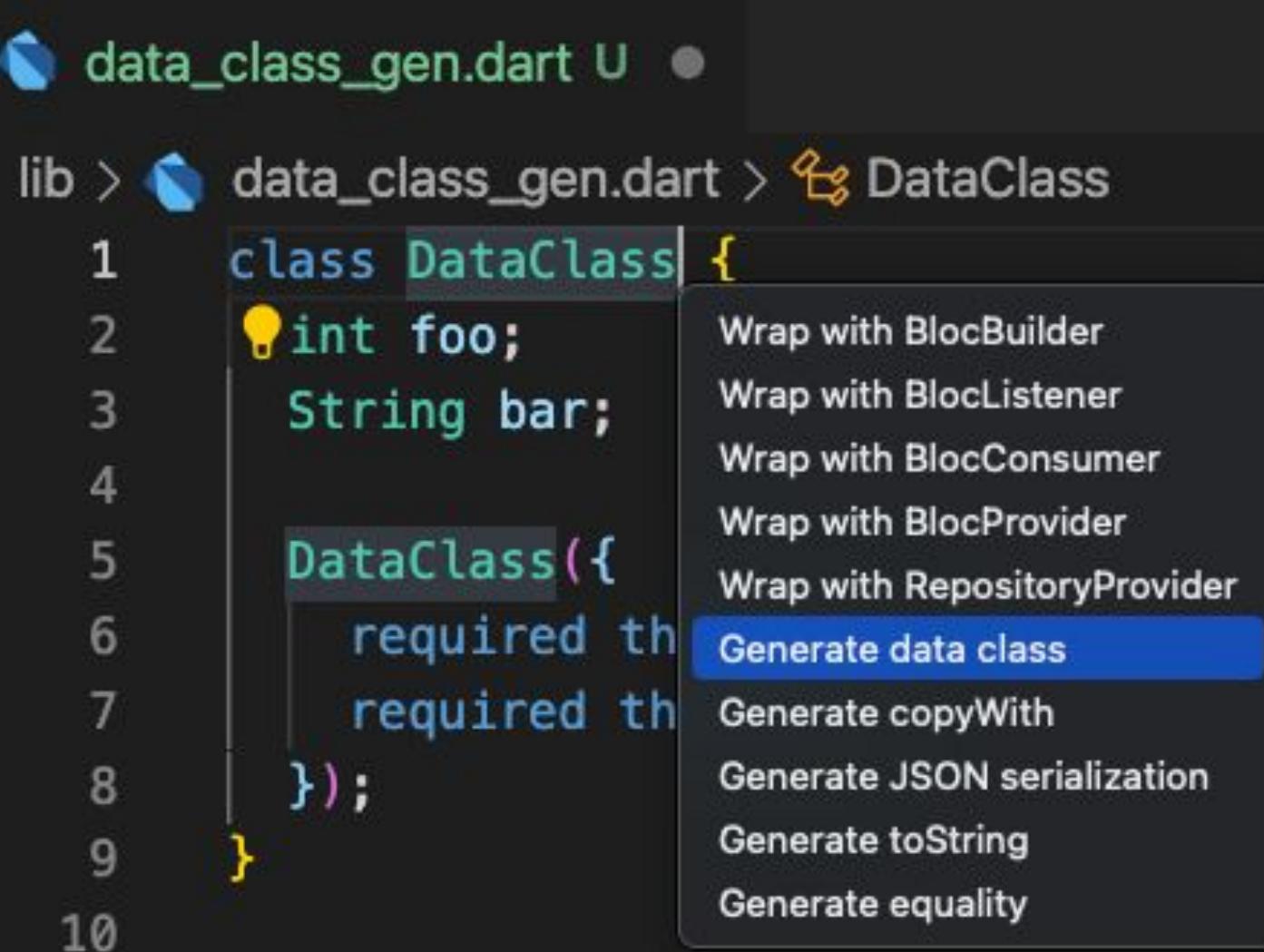
  @override
  Widget build(BuildContext context) {
    return Container(
      child: null,
    );
}
```

snippets.dart U ●

A screenshot of a code editor showing a tooltip for the class 'MyStatelessWidget'. The tooltip provides a sample code snippet for defining a StatelessWidget.

```
lib > snippets.dart > MyStatelessWid
1 import 'package:flutter/material.dart';
2
3 class MyStatelessWid extends StatelessWidget {
4   const MyStatelessWid({Key? key}) : super(key: key);
5
6   @override
7   Widget build(BuildContext context) {
8     return Container();
9   }
10
11 }
```

Dart Data Class Generator



```
1  class DataClass {  
2    int foo;  
3    String bar;  
4  
5    DataClass({  
6      required this.foo,  
7      required this.bar,  
8    });  
9  
10   DataClass copyWith({  
11     int? foo,  
12     String? bar,  
13   }) {  
14     return DataClass(  
15       foo: foo ?? this.foo,  
16       bar: bar ?? this.bar,  
17     );  
18   }  
19  
20   Map<String, dynamic> toMap() {  
21     return {  
22       'foo': foo,  
23       'bar': bar,  
24     };  
25   }  
26  
27   factory DataClass.fromMap(Map<String, dynamic> map) {  
28     return DataClass(  
29       foo: map['foo'],  
30       bar: map['bar'],  
31     );  
32   }  
33   ...  
34 }
```

```
1  ...  
2  String toJson() => json.encode(toMap());  
3  
4  factory DataClass.fromJson(String source) =>  
5    DataClass.fromMap(json.decode(source));  
6  
7  @override  
8  String toString() => 'DataClass(foo: $foo, bar: $bar)';  
9  
10 @override  
11 bool operator ==(Object other) {  
12   if (identical(this, other)) return true;  
13  
14   return other is DataClass && other.foo == foo && other.bar == bar;  
15 }  
16  
17 @override  
18 int get hashCode => foo.hashCode ^ bar.hashCode;  
19 }
```

AI-powered tools

Technical preview

Your AI pair programmer

The screenshot shows a dark-themed code editor interface. At the top, there's a navigation bar with tabs: 'fetch_pic.js' (selected), 'push_to_git.py', 'JS d3_scale.js', 'JS fetch_stock.js', and 'JS material_ui.js'. Below the tabs, a code editor displays the following JavaScript code:

```
1 const fetchNASAPictureOfDay = () => {
2   return fetch('https://api.nasa.gov/planetary/apod?api_key=DEMO_KEY', {
3     method: 'GET',
4     headers: {
5       'Content-Type': 'application/json',
6     },
7   })
8   .then(response => response.json())
9   .then(json => {
10     return json;
11   });
12 }
```

A small blue button labeled 'Copilot' is visible at the bottom left of the code editor. Below the code editor, the GitHub Copilot logo (a white icon of two people) is followed by the text 'GitHub Copilot'.

Too smart?



copilot.dart 1, U

```
lib > copilot.dart > Copilot > build
1 import 'package:flutter/material.dart';
2
3 class Copilot extends StatelessWidget {
4     const Copilot();
5
6     @override
7     Widget build(BuildContext context) {    The body might compl
8         // Create a Center widget with Flutter Logo as its child.
9
10    }
11 }
12
```

1 Synthesizing 10/10 solutions

2

3 =====

4

5 Accept Solution

6 return new Center(

7 new Center(

8 new MaterialFlutterLogo(),

9 new Center(

10 new Center(

11 new Center(

12 new Center(

13 new Center(

14 new Center(

15 new Center(

16 new Center(

17 new Center(

18 new Center(

19 new Ce

20 ne

mason

A Dart template generator
which helps teams generate
files quickly and
consistently.



mason 0.0.1-dev.51

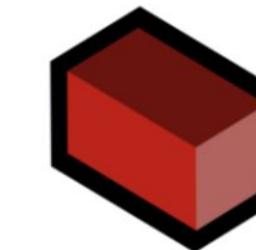
Published Sep 27, 2021 Null safety

DART NATIVE JS FLUTTER ANDROID IOS LINUX MACOS WEB WINDOWS

95

Readme Changelog Example Installing Versions Scores

95 | 130 | 79%
LIKES PUB POINTS POPULARITY



mason

pub v0.0.1-dev.51 mason passing license MIT

Mason allows developers to create and consume reusable templates called bricks.

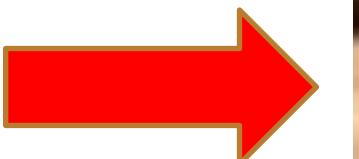
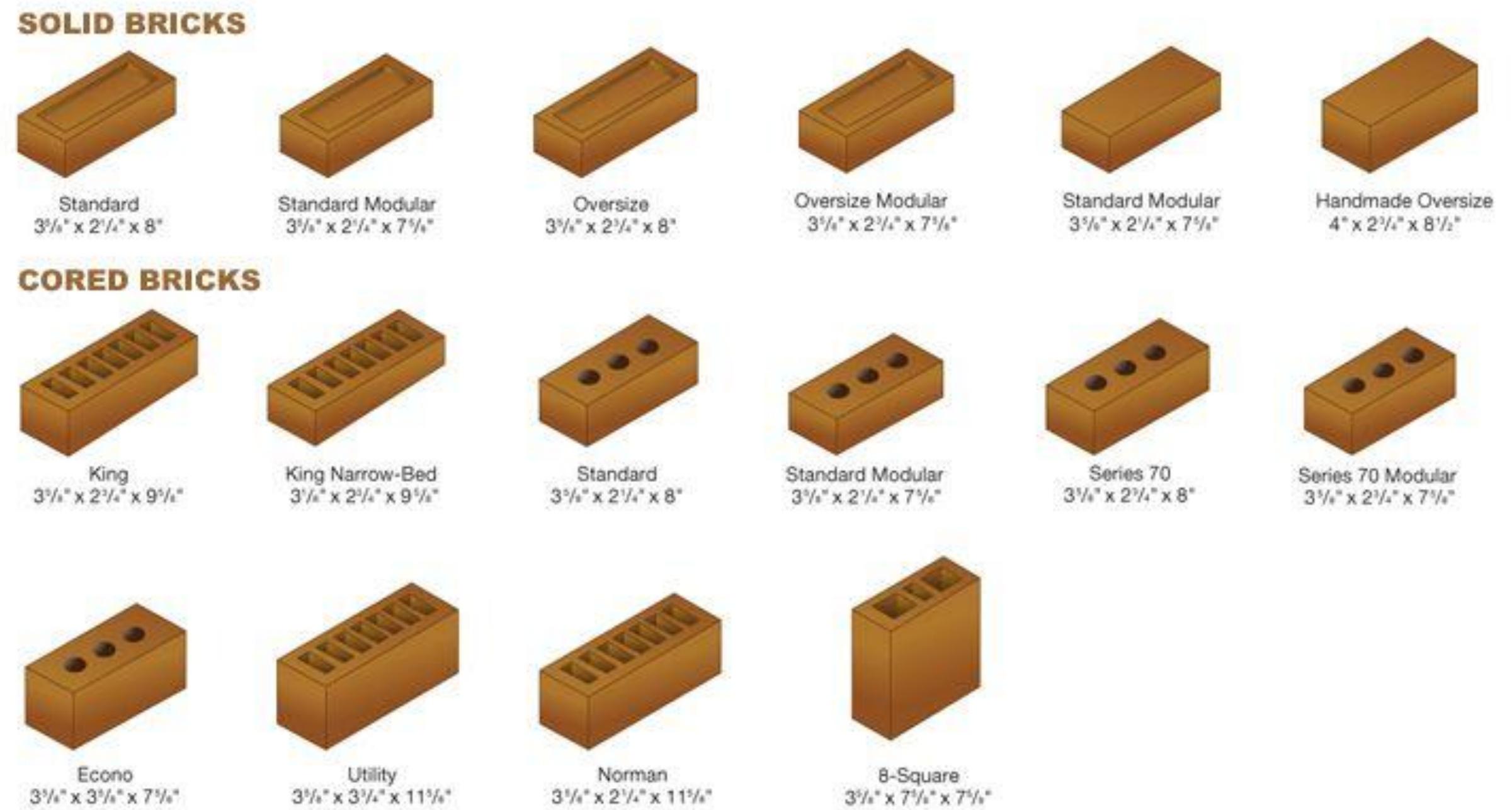
Metadata
A Dart template generator
which helps teams
generate files quickly and
consistently.

Repository (GitHub)
[View/report issues](#)

Documentation
[API reference](#)

@mkobuolys

Mason: Concept



Mason: Expected result

```
1 import 'package:flutter/material.dart';
2
3 class CustomPage extends StatelessWidget {
4   static PageRoute route() {
5     return MaterialPageRoute(builder: (context) => const CustomPage());
6   }
7
8   const CustomPage();
9
10  @override
11  Widget build(BuildContext context) {
12    return const _CustomPageView();
13  }
14}
15
16 class _CustomPageView extends StatelessWidget {
17   const _CustomPageView();
18
19   @override
20   Widget build(BuildContext context) {
21     return Container();
22   }
23 }
```

Mason: Expected result

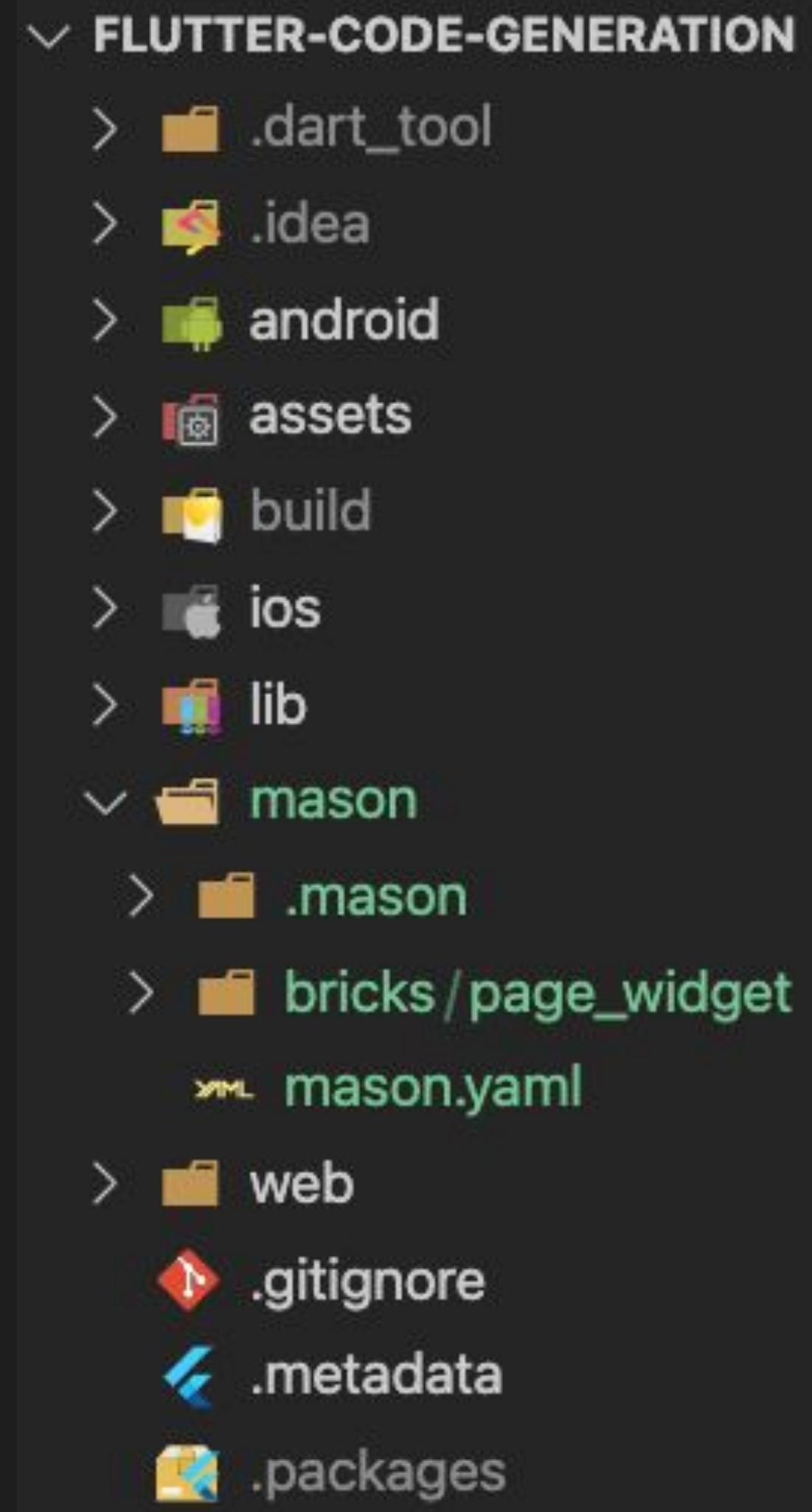
```
1 import 'package:flutter/material.dart';
2
3 class CustomPage extends StatelessWidget {
4     static PageRoute route() {
5         return MaterialPageRoute(builder: (context) => const CustomPage());
6     }
7
8     const CustomPage();
9
10    @override
11    Widget build(BuildContext context) {
12        return const _CustomPageView();
13    }
14}
15
16 class _CustomPageView extends StatelessWidget {
17     const _CustomPageView();
18
19    @override
20    Widget build(BuildContext context) {
21        return Container();
22    }
23}
```

Any name → Optional

Mason: Initial configuration

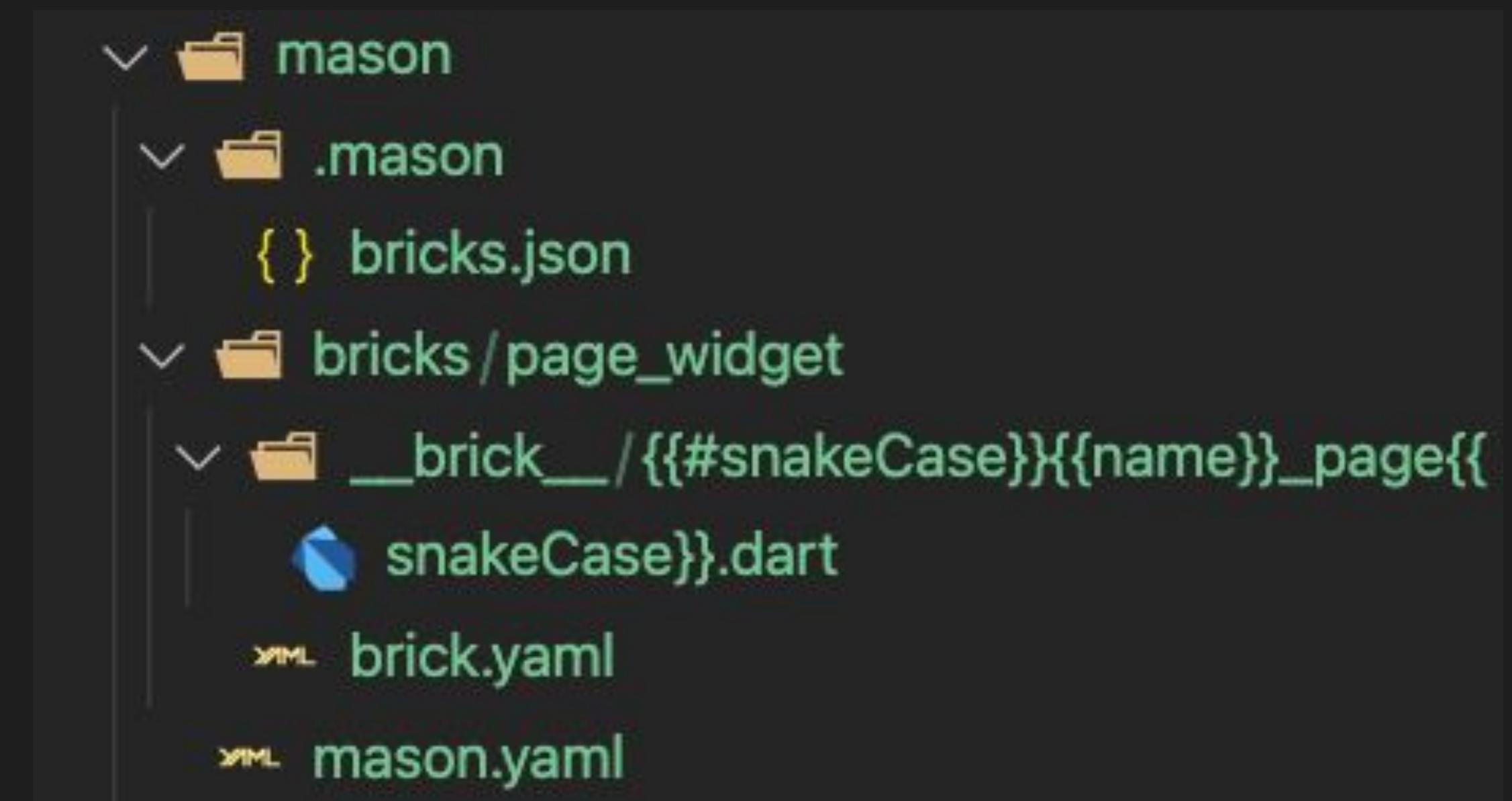
```
> mason init  
> mason new page_widget  
> mason get
```

```
mason.yaml U X  
mason > mason.yaml > ...  
1   bricks:  
2     page_widget:  
3       path: bricks/page_widget
```



Mason: Brick structure/dynamic name

```
brick.yaml U X  
mason > bricks > page_widget > brick.yaml > [ ] vars  
1   name: page_widget  
2   description: A custom page widget brick.  
3   vars:  
4     - name  
5     - routable
```



`{{{#snakeCase}}{{name}}_page{{/snakeCase}}}.dart`

Mason: Brick

Checks routable flag

```
1 import 'package:flutter/material.dart';
2
3 class {{#pascalCase}}{{name}} page {{/pascalCase}} extends StatelessWidget {
4   {{#routable}}
5     static PageRoute route() {
6       return MaterialPageRoute(builder: (context) => const {{#pascalCase}}{{name}} page {{/pascalCase}}());
7     }
8   {{/routable}}
9
10 const {{#pascalCase}}{{name}} page {{/pascalCase}}();
11
12 @override
13 Widget build(BuildContext context) {
14   return const _{{#pascalCase}} {{name}} page view {{/pascalCase}}();
15 }
16 }
17
18 class _{{#pascalCase}}{{name}} page view {{/pascalCase}} extends StatelessWidget {
19   const _{{#pascalCase}}{{name}} page view {{/pascalCase}}();
20
21   @override
22   Widget build(BuildContext context) {
23     return Container();
24   }
25 }
```

Dynamic name in PascalCase

Mason: Generating code

```
> mason make page_widget -o ...
```

```
Mangirdass-MBP:mason mkobuolys$ mason make page_widget -o ../lib/  
name: Custom  
routable: true  
✓ Made brick page_widget (7.7ms)  
✓ Generated 1 file(s):  
  /Users/mkobuolys/dev/Flutter_projects/flutter-code-generation/lib/custom_page.dart (new)
```

Mason: Expected vs Actual result

```
1 import 'package:flutter/material.dart';
2
3 class CustomPage extends StatelessWidget {
4     static PageRoute route() {
5         return MaterialPageRoute(builder: (context) => const CustomPage());
6     }
7
8     const CustomPage();
9
10    @override
11    Widget build(BuildContext context) {
12        return const _CustomPageView();
13    }
14}
15
16 class _CustomPageView extends StatelessWidget {
17    const _CustomPageView();
18
19    @override
20    Widget build(BuildContext context) {
21        return Container();
22    }
23}
```

```
1 import 'package:flutter/material.dart';
2
3 class CustomPage extends StatelessWidget {
4     static PageRoute route() {
5         return MaterialPageRoute(builder: (context) => const CustomPage());
6     }
7
8     const CustomPage();
9
10    @override
11    Widget build(BuildContext context) {
12        return const _CustomPageView();
13    }
14}
15
16 class _CustomPageView extends StatelessWidget {
17    const _CustomPageView();
18
19    @override
20    Widget build(BuildContext context) {
21        return Container();
22    }
23}
24
25}
```

[mkobuolys / flutter-code-generation](https://github.com/mkobuolys/flutter-code-generation)

Code Issues Pull requests Actions Projects Wiki Security Insights Settings

master 1 branch 0 tags Go to file Add file Code Surf

mkbolys Update Readme file fab6e04 1 minute ago 13 commits

android	Init project	3 days ago
assets	Add state management examples	2 days ago
ios	Implement localization examples	2 days ago
lib	Add state management examples	2 days ago
mason	Add Mason example	7 minutes ago
web	Init project	3 days ago
.gitignore	Add Mason example	7 minutes ago
.metadata	Add .gitignore and .metadata files	3 days ago
README.md	Update Readme file	1 minute ago
analysis_options.yaml	Add Mason example	7 minutes ago
l10n.yaml	Add localization files and dependencies	3 days ago
pubspec.lock	Add state management examples	2 days ago
pubspec.yaml	Add comments to pubspec.yaml	yesterday

Readme

Releases

No releases published Create a new release

Packages

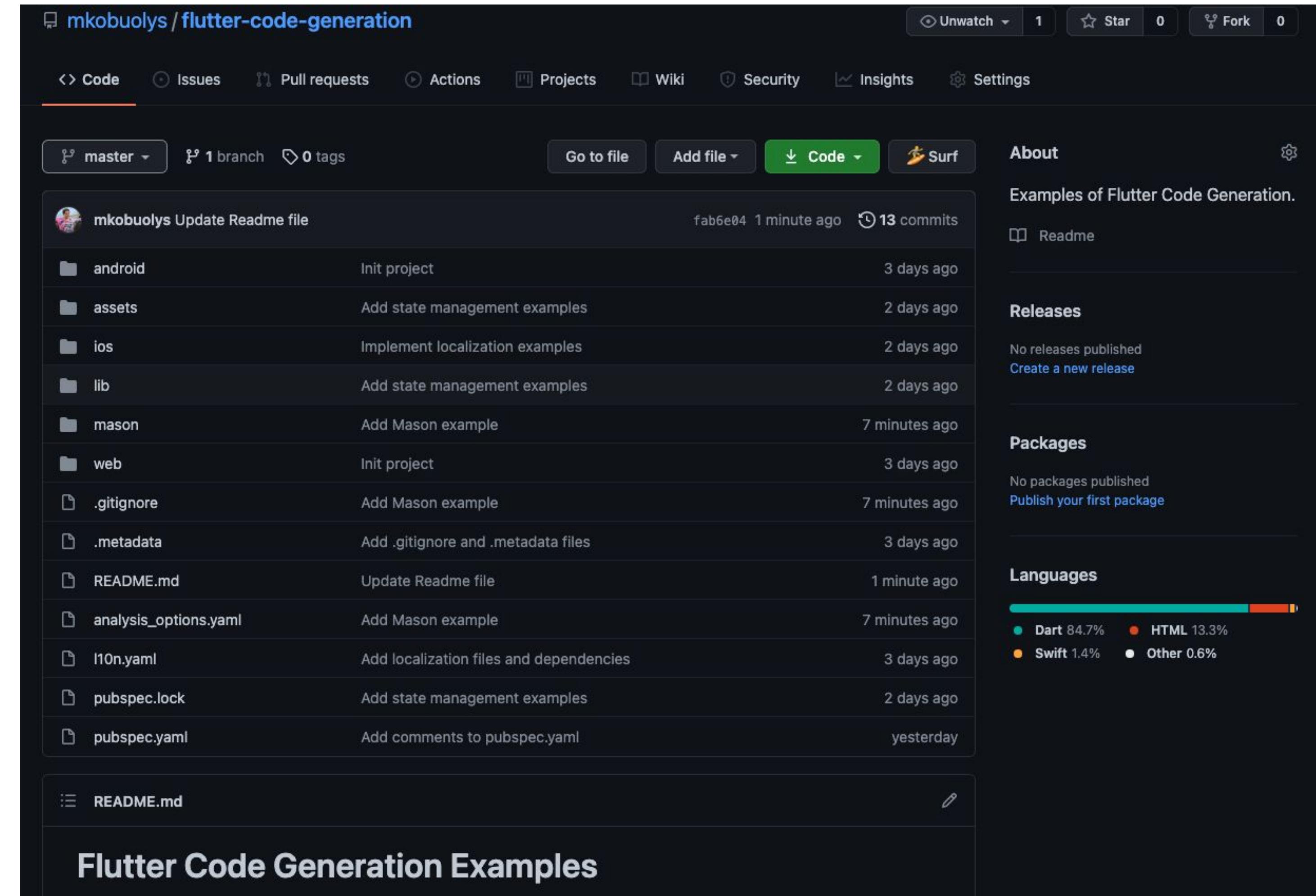
No packages published Publish your first package

Languages

Dart 84.7% HTML 13.3%

Swift 1.4% Other 0.6%

Flutter Code Generation Examples



<https://github.com/mkobuolys/flutter-code-generation>

Resources

- Localization
 - Internationalizing Flutter apps – <https://bit.ly/3z945Xu>
 - Internationalization User Guide - <https://bit.ly/3iHdOOv>
 - intl - <https://pub.dev/packages/intl>
- Assets
 - build_runner - https://pub.dev/packages/build_runner
 - flutter_gen - https://pub.dev/packages/flutter_gen

Resources

- Objects & State
 - freezed – <https://pub.dev/packages/freezed>
 - freezed_annotation - https://pub.dev/packages/freezed_annotation
 - json_serializable - https://pub.dev/packages/json_serializable
- Widgets
 - GitHub Copilot - <https://copilot.github.com/>
 - mason - <https://pub.dev/packages/mason>



Mangirdas Kazlauskas
GDE for Flutter & Dart
@mkobuolys

Experts

Save trees. Stay SOLID.
Thank you!

