Flutter for Web
An Introduction

Patrick Buchholz, Leipzig, 07.02.2023

Patrick Buchholz

About me

- since January 2023- Flutter Developer at Appsfactory
- 2020-2022: Flutter & Angular Developer at EASY Software AG
- Before that Freelancing, Working Student for Android & iOS

What is it?

What is Flutter Web

- Stable since March 2021
- Device target for Flutter
- Good for single page Web apps with a lot of UI and animations
- DOM or Canvas, WebAssembly (in process)
- Dart to JS compiler
- Support for PWAs
- Single Page Apps
- Hot Restart, no Hot Reload (not yet)

Why Flutter Web

- Easy accessible you just need an URL
- Share existing codebase from mobile apps
- Quick for prototyping

Advantages / Disadvantages

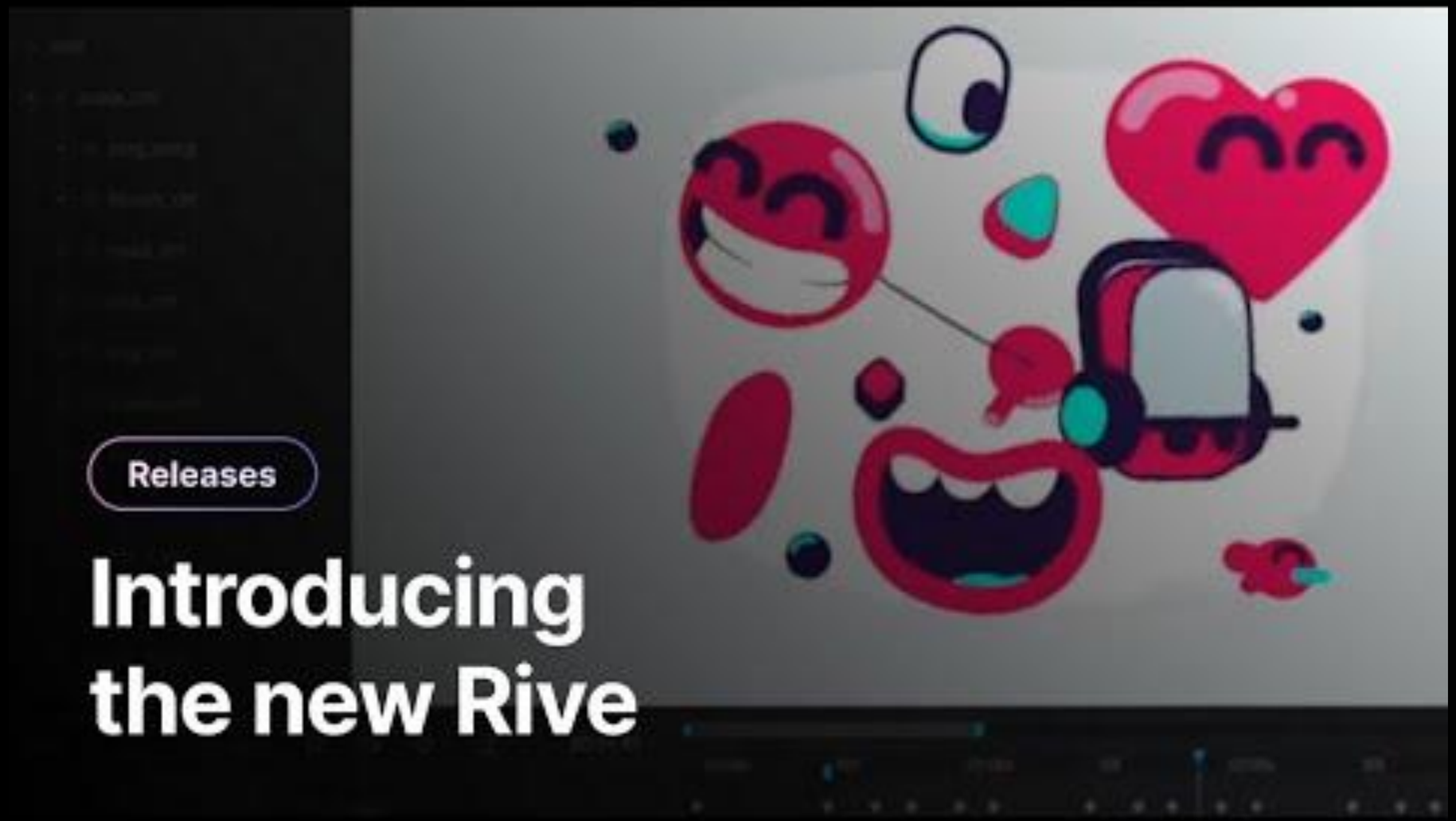
+ Cross platform, reuse business logic, components of mobile
+ Good for interactive single-page apps with a lot of UI and animations
+ Different design languages are supported out of the box (Cupertino, Material), others can be use via packages (fluent_ui, macos_ui)
+ PWA support
+ Can be integrated in existing websites

- Bad for static content
  - Initial download too big, initial loading of website takes too long
- No hot reload
- Not SEO friendly

Show me an example

Rive - https://editor.rive.app/

Rive



Show me more examples

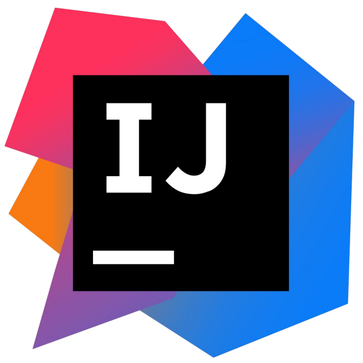
- Google Classroom - https://classroom.google.com/
- FlutterFlow - https://youtu.be/5j82wxzwFyI
  - https://flutterflow.io/
- Flutter Plasma - https://flutterplasma.dev/
  - https://github.com/felixblaschke/flutterplasma
- Flutter Gallery
  - https://gallery.flutter.dev/#/
- Material 3 Demo
  - https://flutter-experimental-m3-demo.web.app/#/
- JS Interop Demo
  - https://flutter-forward-demos.web.app/#/

Developer Experience

Visual Studio Code

IntelliJ / Android Studio

Emacs



Any editor that supports Dart

+ command line

Developer Experience

- Support for Chrome, Safari, Edge und Firefox
- Debugging, Logging and Inspector
  - Dartdevc – Development compiler
  - Dart2JS – Deployment compiler
  - Dart2wasm - WebAssembly compiler
- Dart:io package not available (limited to mobile)
- Different requirements than mobile apps
  - Routing
  - HyperLinks
  - Text
  - Autofill in form fields
  - Scrollbars
  - SemanticNode Tree (Accessibility)

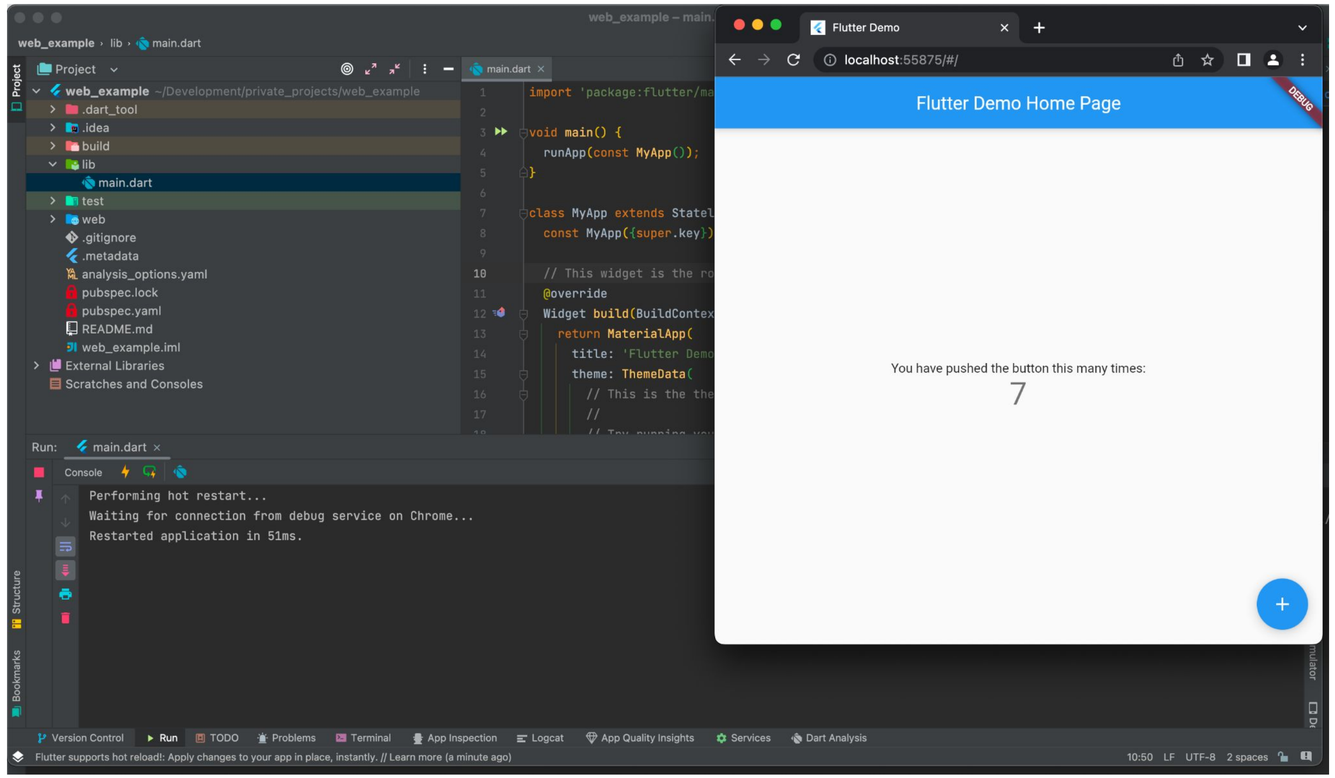
Developer Experience - Web Renderer

- HTML Renderer
  - HTML, CSS, Canvas und SVG
  - Better compatibility, smaller download
  - Worse performance
- CanvasKit Renderer
  - Fully consistent to Flutter Mobile and Desktop
  - Uses WebAssembly and WebGL
  - Good performance, but higher download
- Configuration via Command Line

```
flutter run -d chrome --web-renderer html
flutter run -d chrome --web-renderer canvaskit
flutter run -d chrome --web-renderer auto
```

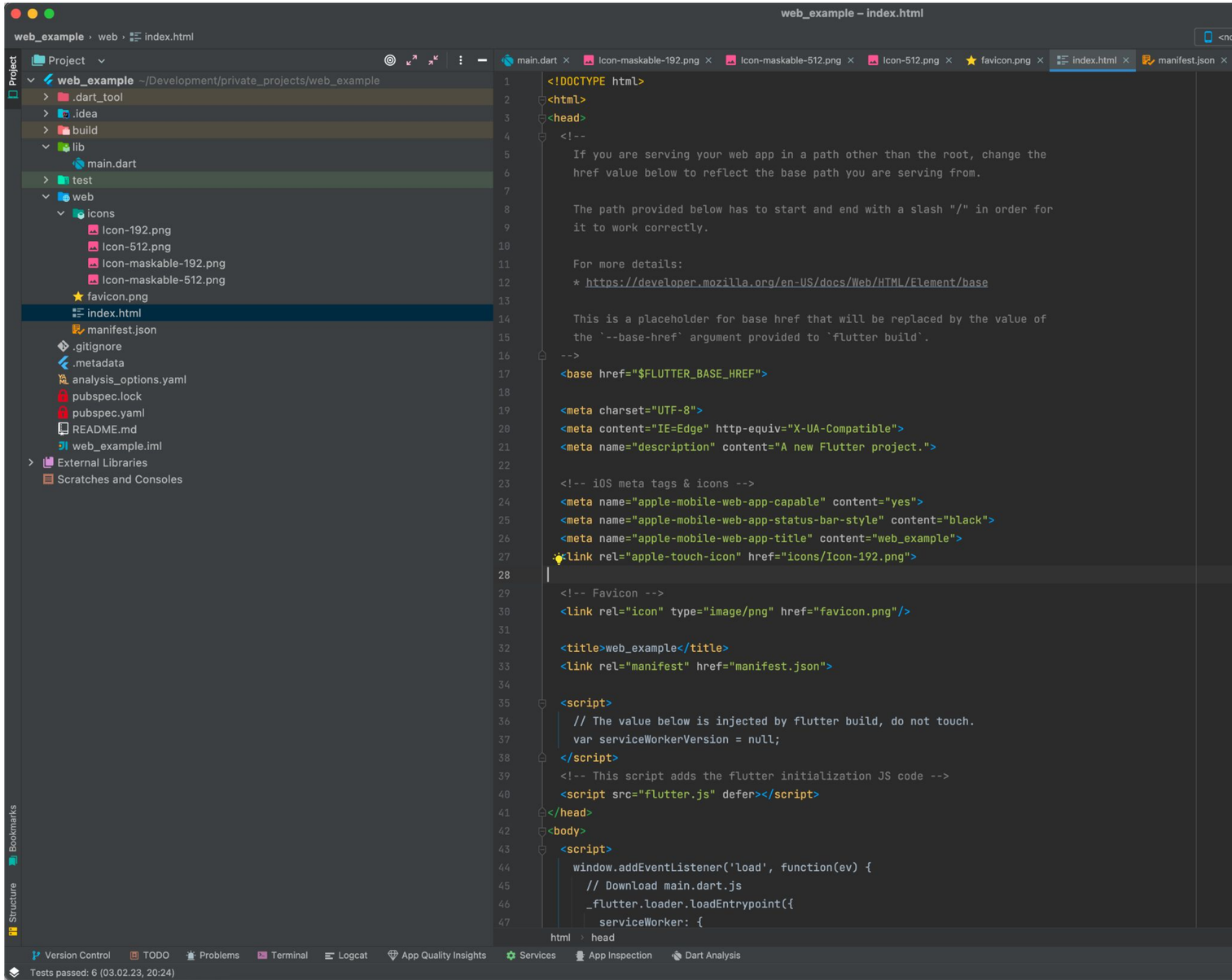
Developer Experience

- Hot restart
- DevTools
- Testing Framework
- Snippets/Code Actions



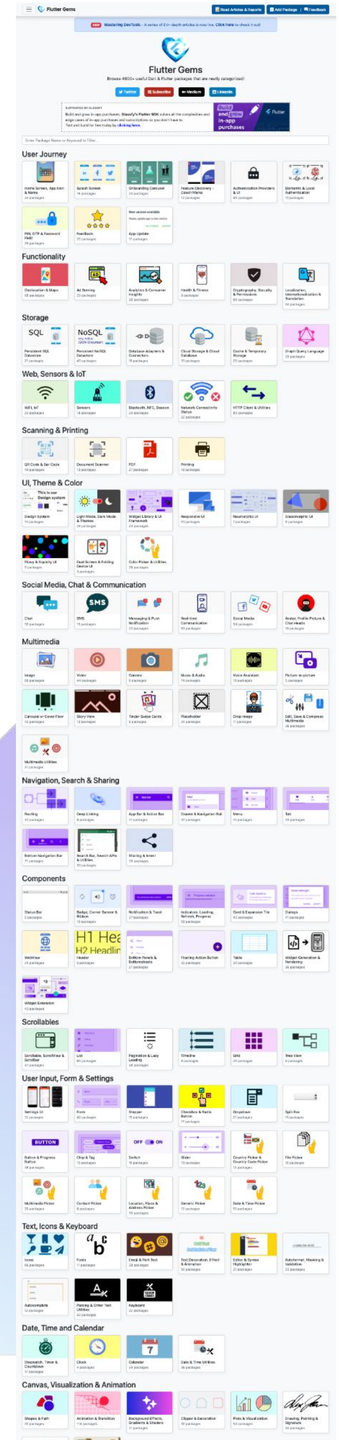
Developer Experience

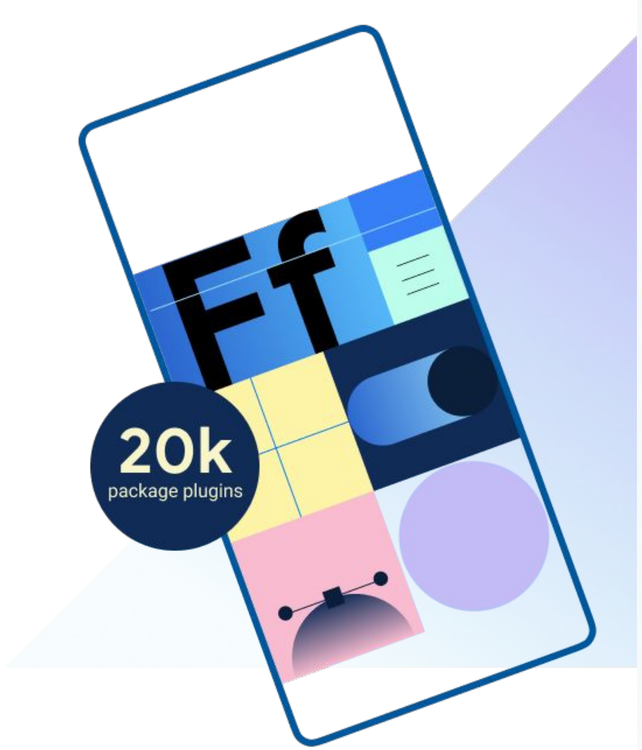
- Web folder
  - index.html - important for plugin callbacks
  - Icons
  - manifest.json
    - description for PWA



Ecosystem

- Pub.dev or Fluttergems
- Large ecosystem of plugins, look for “web”
- 1st party plugins
- verified publishers
- open source community





provider 6.0.5

Published 50 days ago • dash-overflow.net Dart 3 ready

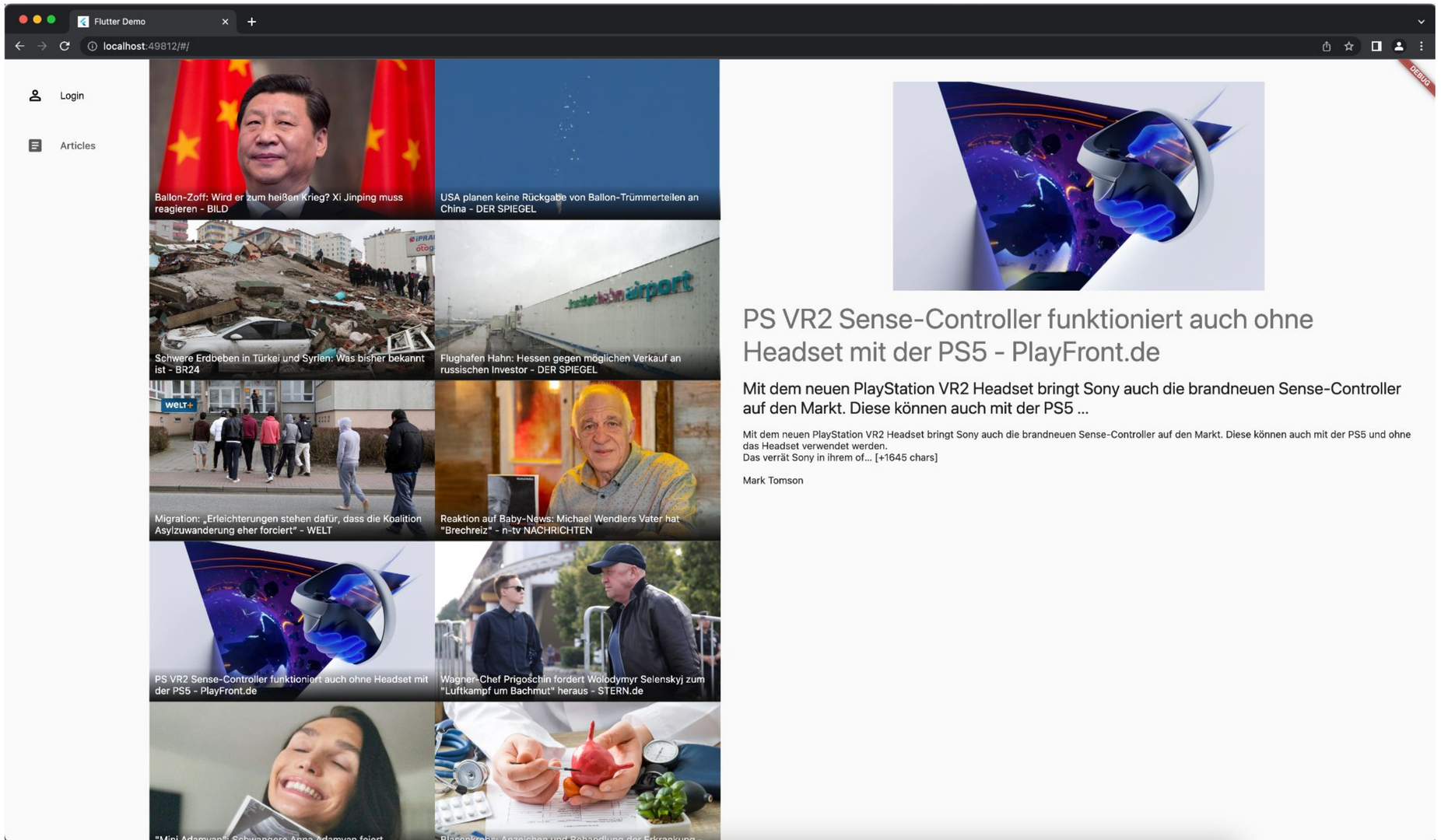
SDK | FLUTTER | PLATFORM | ANDROID | IOS | LINUX | MACOS | WEB | WINDOWS

Live

Let’s have a look to the prototype

Prototype

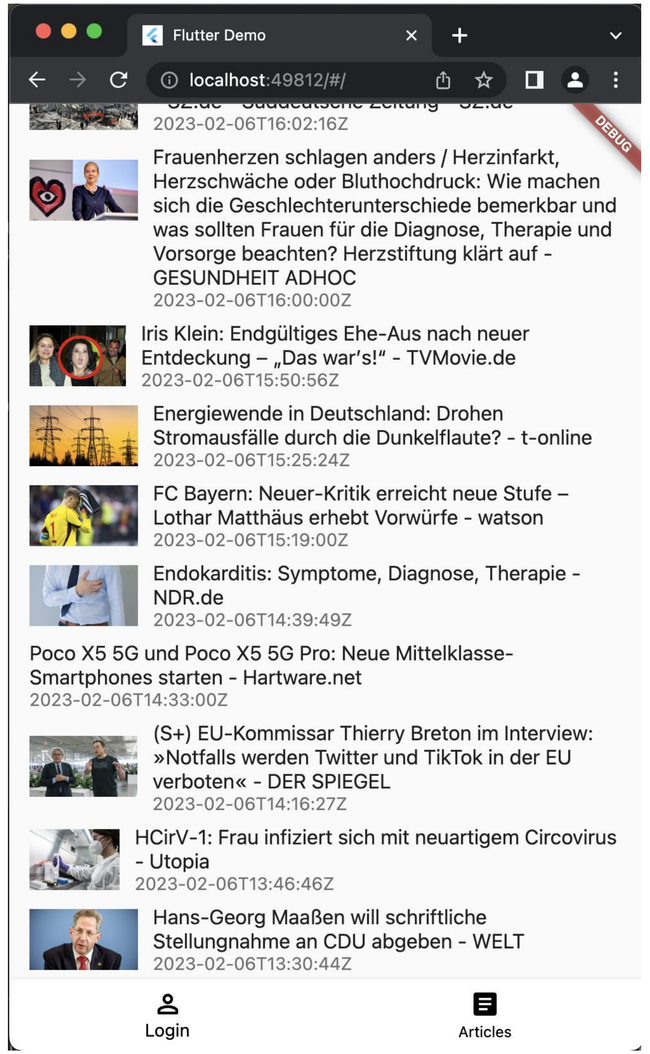
Wide Screen



Prototype

Medium Screen

Small/Mobile Screen



Let’s go

Let’s have a look how I did it

Prototype Tasks

- Tasks
  - Adaptive Layout
  - Article
  - Article API
  - Network Client
  - ListItem
  - GridView
  - FullScreenView

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- Official documentation:

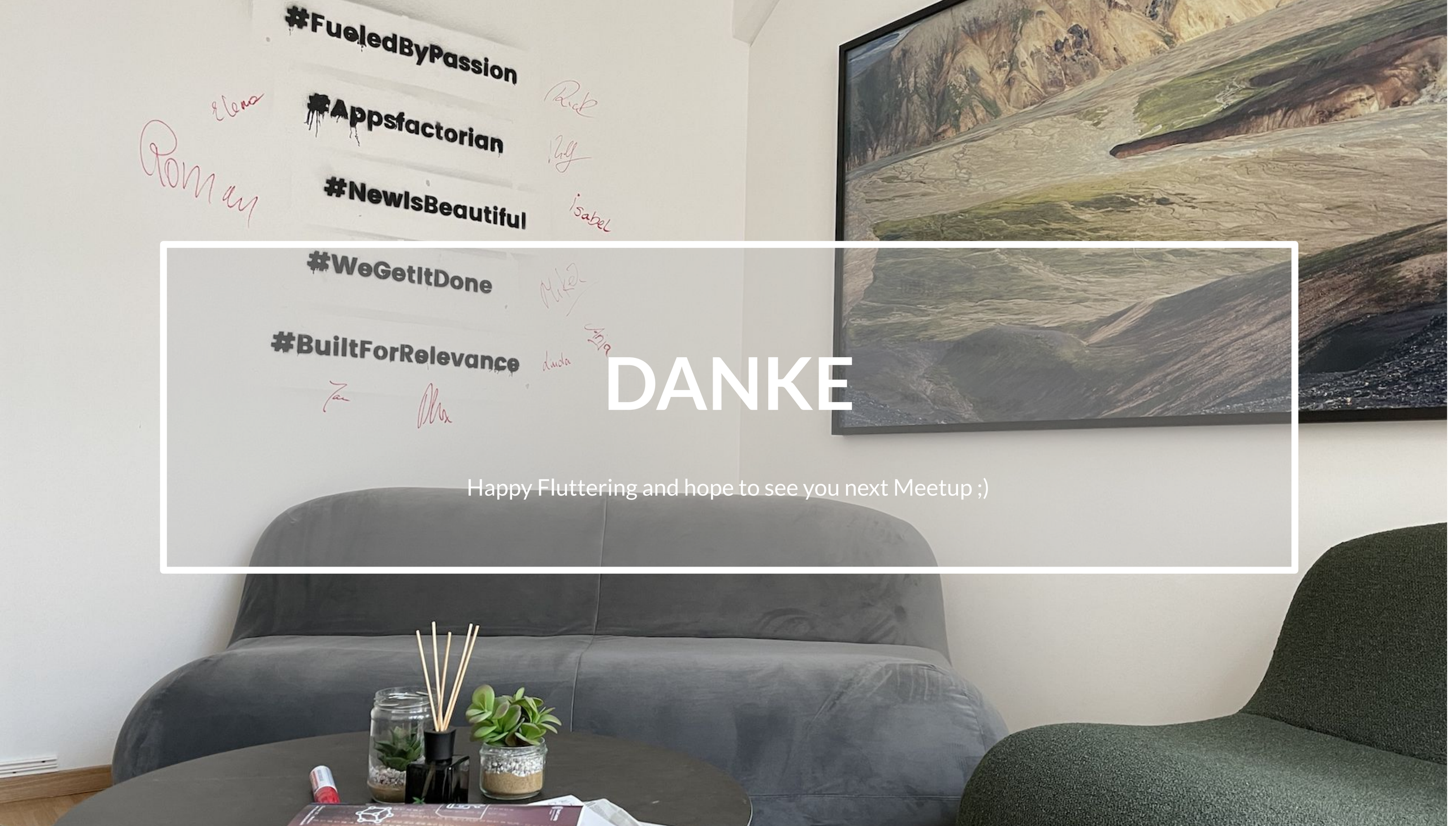
  https://flutter.dev/

  https://flutter.dev/multi-platform/web
- Flutter Community Medium

  https://medium.com/flutter-community
- Navigation API docs

  https://api.flutter.dev/flutter/widgets/Navigator-class.html
- Flutter Gems: Curated Flutter packages

  https://fluttergems.com



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Happy Fluttering and hope to see you next Meetup ;)