

Open Source Tech: Flutter



Momik Shrestha (LIC00015002679)

Masters of Computer Science, Lincoln University College



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INTRODUCTION

What

Open source SDK that allows for cross platform development

Who

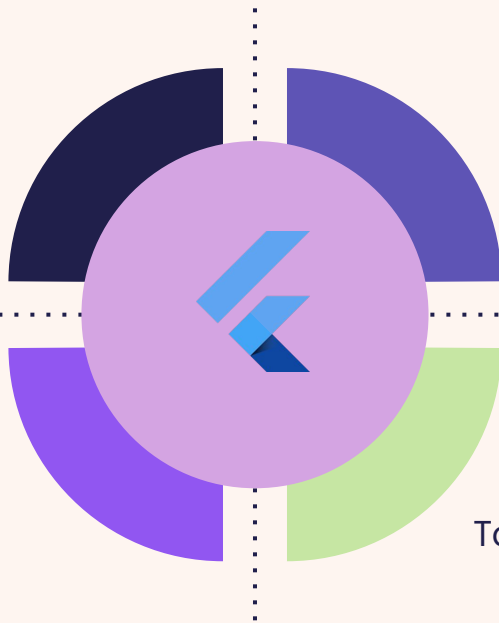
Developed by Google and maintained by global community

When

Announced in 2015, with the first stable version (Flutter 1.0) released in December 2018.

Why

To accelerate cross-platform app development and deliver high-performance, visually appealing experiences.





What is Flutter?

Definition:

Flutter is an open-source UI software development kit (SDK) created by Google under the BSD license. It enables the development of **cross-platform applications** using a single codebase.

Components:

Flutter includes:

1. **Framework:** A UI library based on widgets.
2. **Engine:** A high-performance runtime for executing Flutter apps



Build for any screen



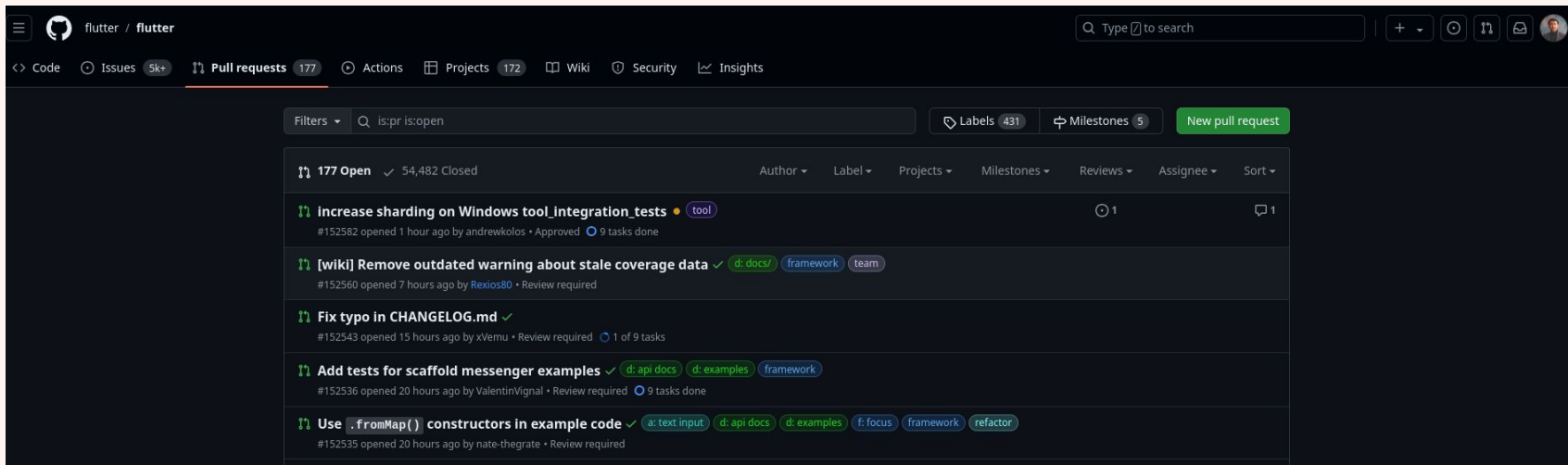
Who developed Flutter?

Developer:

Google.

Community:

Flutter has a large, active community of developers contributing to its growth.



When was Flutter released?

1. **First Release:** Flutter was announced in 2015 and its first stable version, Flutter 1.0, was released in December 2018.
2. **Stable Updates:** Since its release, Flutter has received several updates, with Flutter 2.0 being released in March 2021, introducing support for web, desktop, and embedded devices.
3. **Continuous update:** Flutter has now reached version 3.0 and still putting out frequent changes.

Flutter release notes

[Stay up to date](#) > [Release notes](#)

This page links to announcements and release notes for releases to the stable channel.

Note

For information about bug-fix releases, check out our [CHANGELOG](#).

- 3.22.0
 - [3.22.0 announcement](#)
 - [3.22.0 release notes & change log](#)
 - [3.22.0 breaking changes & migrations](#)
- 3.19.0
 - [3.19.0 announcement](#)
 - [3.19.0 release notes & change log](#)
 - [3.19.0 breaking changes & migrations](#)
- 3.16.0
 - [3.16.0 announcement](#)
 - [3.16.0 release notes & change log](#)
 - [3.16.0 breaking changes & migrations](#)
- 3.13.0
 - [3.13.0 announcement](#)



Why use Flutter?

1. **Cross-Platform Development:** One codebase for multiple platforms (iOS, Android, web, desktop).
2. **Performance:** High-performance rendering engine, fast compilation to native code.
3. **Productivity:** Hot reload speeds up the development process.
4. **Customizable:** Highly customizable UI components that allow for creative and complex UI designs.
5. **Community and Support:** Strong community, extensive documentation, and plenty of third-party plugins.



Overview: Whats under the hood

Language

Dart, also developed by Google, is the primary language for Flutter development.

Compilation

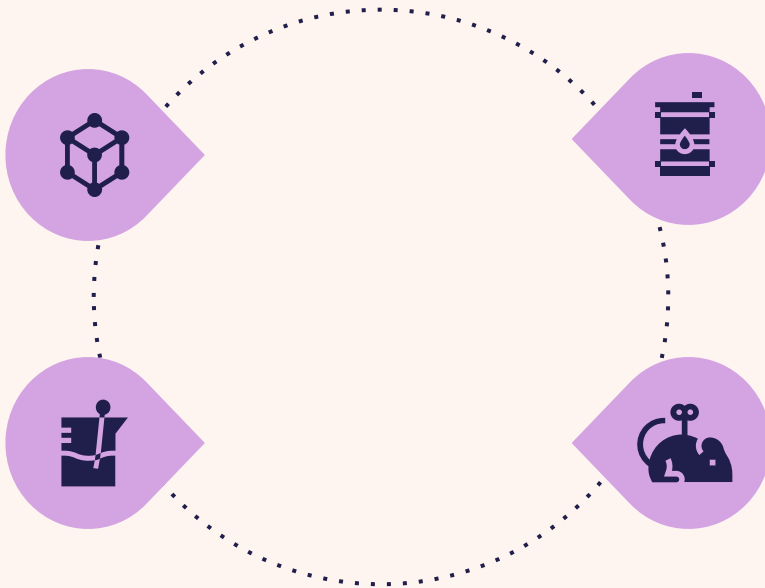
Flutter compiles to native ARM code for iOS and Android, ensuring high performance on mobile devices.

Widgets

Flutter uses a modern reactive framework to build UI, and everything in Flutter is a widget.

Hot Reload

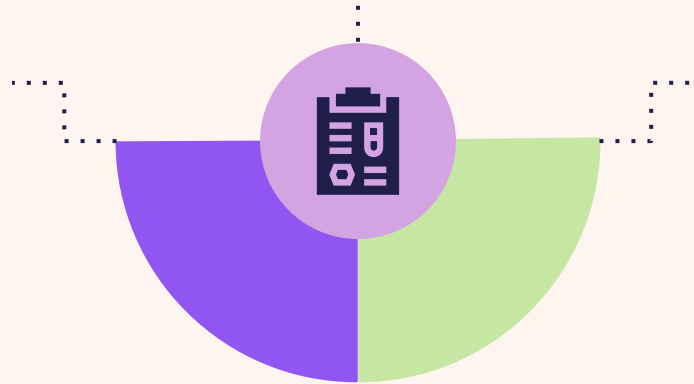
Allows developers to see changes in real-time without restarting the application.



Advantages of Flutter

Development

Advantages of Flutter
Over Other Mobile
Development Languages
and Frameworks



Business

Business Advantages of
Using Flutter





Development Advantages - i

- 1. Unified Development and Experience Single Language for All Platforms:** Unlike React Native (JavaScript) or Xamarin (C#), Flutter uses Dart for both frontend and backend development, reducing the learning curve and simplifying the development process.
- 2. Native Performance via Direct Compilation:** Flutter compiles directly to native ARM code for both iOS and Android, unlike hybrid frameworks like Cordova or Ionic that rely on WebViews and JavaScript bridges, which can lead to performance issues.
- 3. Highly Customizable UI with Widget-Based Architecture:** Flutter's rich set of customizable widgets allows developers to create complex and tailored UIs easily, providing more design flexibility than native SDKs or other frameworks.



Development Advantages - ii

4. Consistency Across Platforms with Uniform UI: Flutter ensures that the UI and business logic are consistent across platforms, reducing the discrepancies that can occur when using platform-specific SDKs.

5. Faster Development Cycles: Flutter's hot reload feature significantly speeds up the development process, allowing developers to instantly see the effects of their changes without restarting the application.

7. Comprehensive Documentation and Learning Resources

- **Well-Structured Documentation:** Flutter's documentation is comprehensive and well-structured, making it easier for developers to find the information they need.
- **Learning Resources:** A wealth of tutorials, courses, and community resources are available to help developers learn and master Flutter.



Business Advantages - i

1. Reduced Development Costs

- **Single Codebase:** Developing and maintaining a single codebase for multiple platforms (iOS, Android, web, desktop) significantly reduces development and maintenance costs.
- **Resource Efficiency:** Companies can allocate resources more efficiently, focusing on enhancing features and user experience rather than maintaining separate codebases.

2. Faster Time to Market

- **Rapid Development:** Flutter's features like hot reload and customizable widgets speed up the development process, allowing businesses to launch their products faster.
- **Competitive Edge:** Faster time to market provides a competitive advantage, enabling businesses to respond quickly to market demands and user feedback.



Business Advantages - ii

3. High Performance and Quality

- **Native-Like Performance:** Flutter's direct compilation to native code ensures high performance, which enhances user experience and satisfaction.
- **Consistent Quality:** A single codebase ensures consistent quality across platforms, reducing the likelihood of platform-specific bugs and issues.

4. Future-Proofing

- **Scalability:** Flutter's ability to support web and desktop applications in addition to mobile makes it a scalable solution for future expansion.
- **Long-Term Support:** Being backed by Google, Flutter is continuously updated and improved, ensuring it remains a relevant and robust technology.



Business Advantages - iii

5. Enhanced User Experience

- **Customizable and Responsive UI:** Flutter's rich set of widgets and customizability allow for highly responsive and engaging user interfaces, which can improve user retention and satisfaction.
- **Smooth Animations:** Flutter's high-performance rendering engine enables smooth animations and transitions, enhancing the overall user experience.

6. Strong Community and Ecosystem

- **Community Support:** A vibrant and active community provides support, shares knowledge, and contributes to the growth of Flutter, ensuring that businesses have access to a wide range of resources and plugins.
- **Third-Party Integrations:** A rich ecosystem of third-party plugins and packages facilitates the integration of various functionalities, reducing development time and effort



Stata and data

Join developers around the world making Flutter
even better

| **155k**

Stars on GitHub

| **240k**

Followers on Twitter

| **175k**

Members on Meetup

Flutter is the the most popular cross-platform
framework in the world*

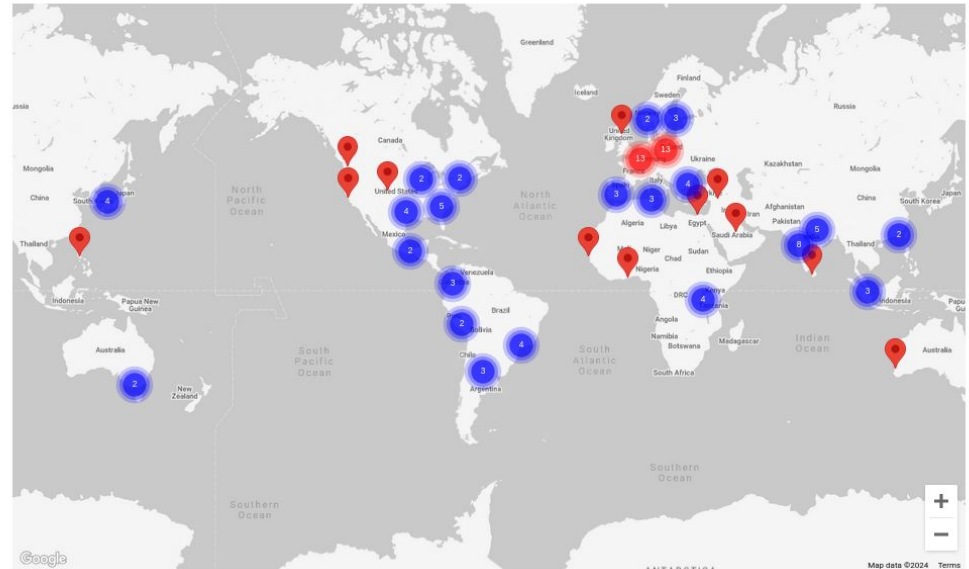
*According to the JetBrains 2021 State of Developer Ecosystem survey

Source : [Flutter community](#)

Stata and data

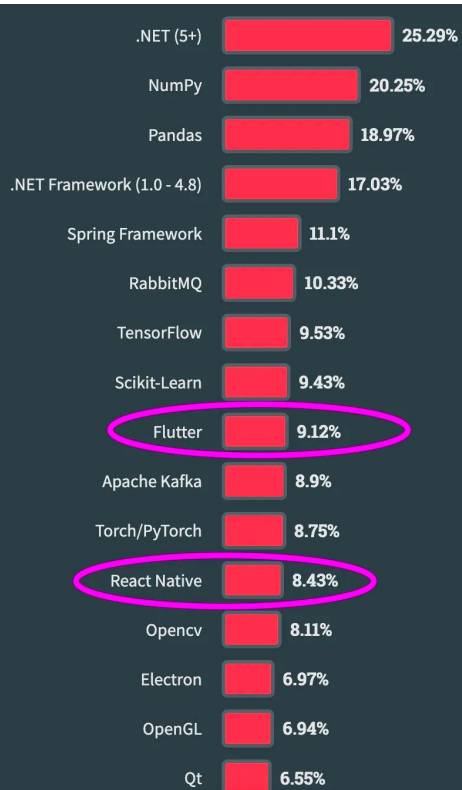
Attend events virtually, locally, and around the world

Source : Flutter community





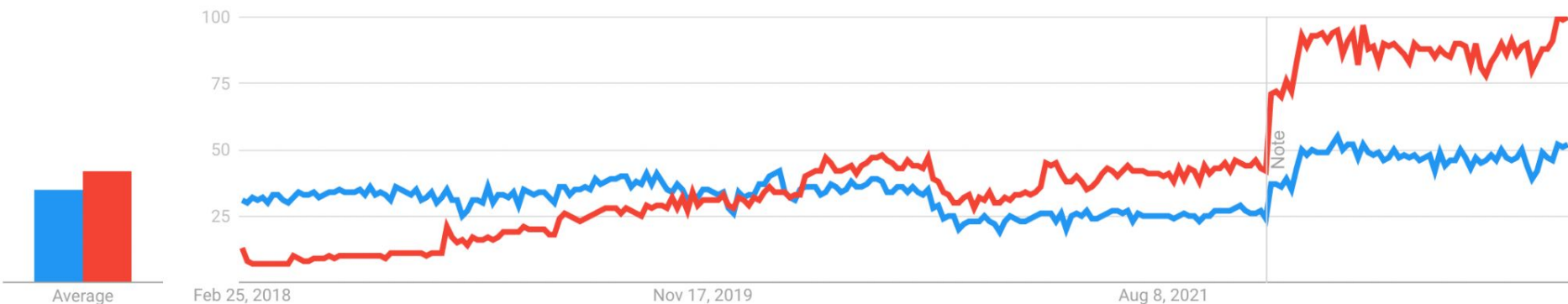
Stata and data



Source: Most popular technologies within "Other frameworks and libraries" category in 2023's Stack Overflow Survey.



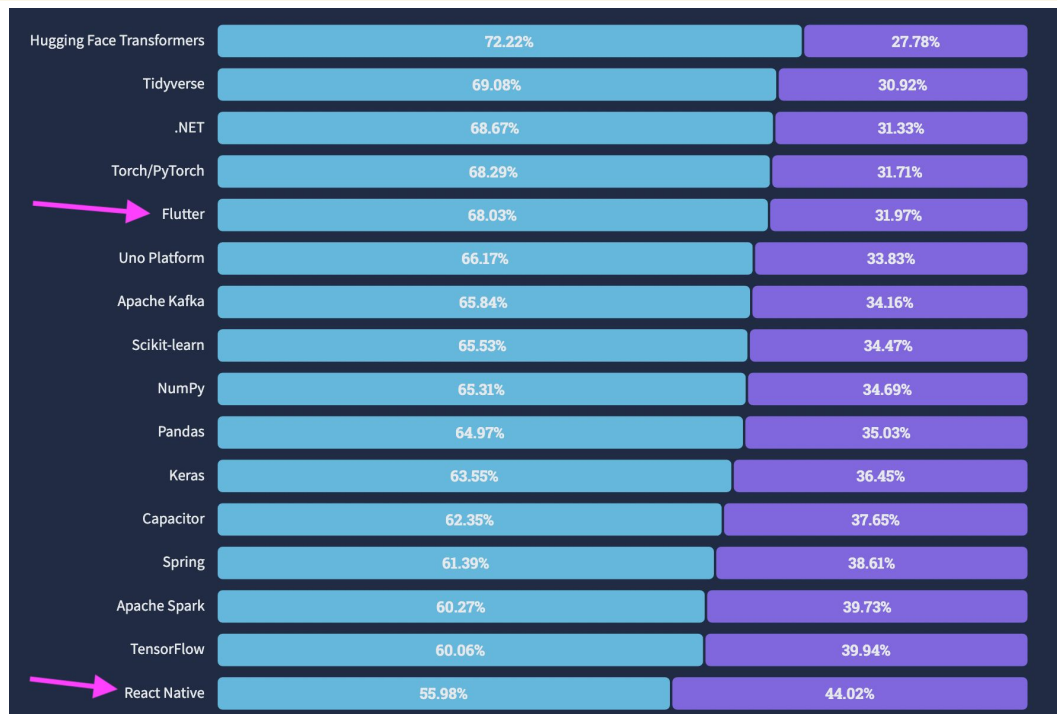
Stata and data



Source: Worldwide Flutter (red) and React Native (blue) popularity trend (2018–2023),
[Google Trends](#)



Stata and data



Source: Results for "Most Loved Technology — Other Frameworks and Libraries" category in the [Stack Overflow Survey 2022](#). The violet color to the right represents the respondents who consider a technology "most dreaded."



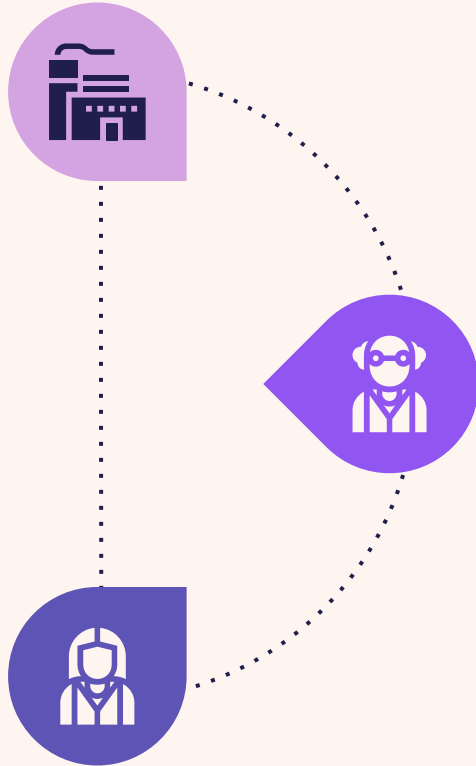
Stata and data

Flutter apps in production

Businesses of all sizes around the world are building with Flutter



Source : [Flutter Showcase](#)



Thanks

Do you have any questions?

Mail me at : momik.shrestha@gmail.com

