

# Accelerate Your App Development with Flutter

NUNI IT Online Seminar - Erico Darmawan Handoyo



Erico Darmawan Handoyo  
Private Training & Online School



# Erico Darmawan Handoyo

- Lecturer at Maranatha Christian University
- Content creator:
  - Flutter Tutorial YouTube Channel
  - Online Courses at Udemy
- Flutter Trainer

 Flutter Tutorial YouTube Channel  
provides 300++ fundamental & tutorial videos

<https://youtube.com/@ericodarmawan>



[s.id/komunitas-flutter](https://s.id/komunitas-flutter)



[s.id/flixid](https://s.id/flixid)



[s.id/ig-ericodh](https://s.id/ig-ericodh)



[ericodarmawan.com](https://ericodarmawan.com)



[s.id/fb-ericodh](https://s.id/fb-ericodh)



[s.id/in-ericodh](https://s.id/in-ericodh)



Erico Darmawan Handoyo  
Private Training & Online School

JAN  
2024

# OVERVIEW OF INTERNET USE

ESSENTIAL INDICATORS OF INTERNET ADOPTION AND USE



GLOBAL OVERVIEW

INDIVIDUALS  
USING THE  
INTERNET



**5.35**  
BILLION

AVERAGE DAILY TIME  
SPENT USING THE INTERNET  
BY EACH INTERNET USER



GWI.

**6H 40M**

YOY: +0.8% (+3 MINS)

INDIVIDUALS USING THE  
INTERNET AS A PERCENTAGE  
OF TOTAL POPULATION



**66.2%**  
YOY: +0.9% (+60 BPS)

KEPPIOS  
Meltwater

YEAR-ON-YEAR CHANGE IN  
THE NUMBER OF INDIVIDUALS  
USING THE INTERNET



**+1.8%**  
+97 MILLION

PERCENTAGE OF THE  
TOTAL FEMALE POPULATION  
THAT USES THE INTERNET



we  
are.  
social

**63.5%**  
YOY: +4.9% (+304 BPS)

PERCENTAGE OF THE  
TOTAL MALE POPULATION  
THAT USES THE INTERNET



**68.8%**  
YOY: +4.2% (+285 BPS)

PERCENTAGE OF THE  
TOTAL RURAL POPULATION  
THAT USES THE INTERNET



Meltwater

**48.9%**

YOY: +7.2% (+340 BPS)

PERCENTAGE OF USERS  
ACCESSING THE INTERNET  
VIA MOBILE PHONES



D

YOY: +4.6% (+420 BPS)

PERCENTAGE OF USERS  
ACCESSING THE INTERNET  
VIA LAPTOPS AND DESKTOPS



we  
are.  
social

**61.8%**

YOY: -5.8% (-380 BPS)

PERCENTAGE OF THE  
TOTAL URBAN POPULATION  
THAT USES THE INTERNET



Meltwater

**78.8%**

YOY: +3.2% (+252 BPS)

JAN  
2024

# DEVICE OWNERSHIP

PERCENTAGE OF INTERNET USERS AGED 16 TO 64 WHO OWN EACH KIND OF DEVICE



ANY KIND OF  
MOBILE PHONE



**97.8%**

YEAR-ON-YEAR CHANGE  
**+1.7% (+160 BPS)**

GWI.

SMART  
PHONE



**97.6%**

YEAR-ON-YEAR CHANGE  
**+1.8% (+170 BPS)**

we  
are  
social

FEATURE  
PHONE



**6.9%**

YEAR-ON-YEAR CHANGE  
**-12.7% (-100 BPS)**

GWI.

LAPTOP OR  
DESKTOP COMPUTER



**57.7%**

YEAR-ON-YEAR CHANGE  
**-0.5% (-30 BPS)**



TABLET  
DEVICE



**30.9%**

YEAR-ON-YEAR CHANGE  
**-8.3% (-280 BPS)**

GAMES  
CONSOLE



Meltwater

**19.1%**

YEAR-ON-YEAR CHANGE  
**-5.9% (-120 BPS)**

SMART WATCH OR  
SMART WRISTBAND



GWI.

**30.1%**

YEAR-ON-YEAR CHANGE  
**+0.7% (+20 BPS)**

TV STREAMING  
DEVICE



K  
KEPIOS

**15.7%**

YEAR-ON-YEAR CHANGE  
**-4.8% (-80 BPS)**

SMART HOME  
DEVICE



GWI.

**16.2%**

YEAR-ON-YEAR CHANGE  
**-1.2% (-20 BPS)**

VIRTUAL REALITY  
DEVICE



GWI.

**4.4%**

YEAR-ON-YEAR CHANGE  
**-21.4% (-120 BPS)**



Erico Darmawan Handoyo  
Private Training & Online School

THE FINDINGS OF A BROAD SURVEY OF INTERNET USERS AGED 16 TO 64. SEE [GWI.COM](#). NOTES: PERCENTAGE CHANGE VALUES REPRESENT RELATIVE CHANGE (A VALUE OF 50% WOULD EQUAL 60%, NOT 70%). "BPS" VALUES REPRESENT BASIS POINTS, AND INDICATE ABSOLUTE CHANGE. COMPARABILITY: METHODOLOGY

we  
are  
social

Meltwater

JAN  
2024

# OVERVIEW OF INTERNET USE

ESSENTIAL INDICATORS OF INTERNET ADOPTION AND USE



INDONESIA

TOTAL NUMBER OF  
INTERNET USERS



**185.3**  
MILLION



INTERNET USERS vs.  
TOTAL POPULATION



**66.5%**

YEAR-ON-YEAR CHANGE  
IN TOTAL INTERNET USERS



**+0.8%**  
**+1.5 MILLION**

YEAR-ON-YEAR CHANGE IN  
INTERNET USERS vs. POPULATION



**0%**  
[UNCHANGED]

INDEXED INTERNET ADOPTION  
vs. GLOBAL AVERAGE



**100.5**



PERCENTAGE OF INTERNET USERS  
ACCESSING VIA MOBILE PHONES



**98.9%**



AVERAGE DAILY TIME SPENT  
USING THE INTERNET



**7H 38M**



YEAR-ON-YEAR CHANGE IN DAILY  
TIME SPENT USING THE INTERNET



**-1.0%**  
**-4 MINS**



**Erico Darmawan Handoyo**  
Private Training & Online School

ELIGIBILITY: EUROSTAT; CIA WORLD FACTBOOK; CNNIC; KANTAR & IAMA; LOCAL GOVERNMENT AUTHORITIES; UNITED NATIONS. TIME SPENT AND MOBILE SHARE  
BASED ON GWI'S Q3 2023 SURVEY OF INTERNET USERS AGED 16 TO 64. SEE [GWI.COM](http://GWI.COM). ADVISORY: FIGURES FOR INTERNET USER GROWTH MAY UNDER-REPRESENT ACTUAL TRENDS. SEE  
NOTE ON THE 'GROWTH' SOURCE AND BASE CHANGES.

**we  
are  
social**

Meltwater

JAN  
2024

# DEVICE OWNERSHIP

PERCENTAGE OF INTERNET USERS AGED 16 TO 64 WHO OWN EACH KIND OF DEVICE



ANY KIND OF  
MOBILE PHONE



**99.4%**

YEAR-ON-YEAR CHANGE  
**-0.1% (-10 BPS)**

GWI.

SMART  
PHONE



**99.3%**

YEAR-ON-YEAR CHANGE  
**-0.1% (-10 BPS)**

K  
KEPIOS

FEATURE  
PHONE



**9.5%**

YEAR-ON-YEAR CHANGE  
**-32.6% (-460 BPS)**

GWI.

LAPTOP OR  
DESKTOP COMPUTER



**57.8%**

YEAR-ON-YEAR CHANGE  
**-6.3% (-390 BPS)**

D  
D

TABLET  
DEVICE



**14.6%**

YEAR-ON-YEAR CHANGE  
**-19.8% (-360 BPS)**

GAMES  
CONSOLE



**14.6%**

YEAR-ON-YEAR CHANGE  
**-18.4% (-330 BPS)**

GWI.

SMART WATCH OR  
SMART WRISTBAND



**17.8%**

YEAR-ON-YEAR CHANGE  
**-6.3% (-120 BPS)**

GWI.

TV STREAMING  
DEVICE



**6.8%**

YEAR-ON-YEAR CHANGE  
**-19.0% (-160 BPS)**

K  
KEPIOS

SMART HOME  
DEVICE



**7.8%**

YEAR-ON-YEAR CHANGE  
**-17.9% (-170 BPS)**

GWI.

VIRTUAL REALITY  
DEVICE



**5.6%**

YEAR-ON-YEAR CHANGE  
**-11.1% (-70 BPS)**



Erico Darmawan Handoyo  
Private Training & Online School

THE FINDINGS OF A BROAD SURVEY OF INTERNET USERS AGED 16 TO 64. SEE [GWI.COM](http://GWI.COM). NOTES: PERCENTAGE CHANGE VALUES REPRESENT RELATIVE CHANGE (A VALUE OF 50% WOULD EQUAL 60%, NOT 70%). "BPS" VALUES REPRESENT BASIS POINTS, AND INDICATE ABSOLUTE CHANGE. COMPARABILITY: METHODOLOGY

we  
are  
social

Meltwater

# ALTERNATIVE PERSPECTIVES ON INTERNET USE

FIGURES FOR INTERNET USE PUBLISHED BY DIFFERENT SOURCES



INDIVIDUALS USING THE INTERNET: KEPIOS



Meltwater

**5.52**  
**BILLION**

vs. POPULATION

**67.5%**

INDIVIDUALS USING THE INTERNET: ITU



KEPIOS

**5.51**  
**BILLION**

vs. POPULATION

**67.4%**

INDIVIDUALS USING THE INTERNET: WORLD BANK



we  
are.  
social

**5.16**  
**BILLION**

vs. POPULATION

**63.1%**

INDIVIDUALS USING THE INTERNET: CIA WORLD FACTBOOK



we  
are.  
social

**5.40**  
**BILLION**

vs. POPULATION

**66.0%**



Erico Darmawan Handoyo

Private Training & Online School

**NOTES:** WHERE SOURCES PUBLISH INTERNET ADOPTION AS A PERCENTAGE (I.E. PENETRATION), VALUES SHOWN HERE COMPARE PUBLISHED ADOPTION RATES WITH ABSOLUTE USER NUMBERS. WHERE SOURCES PUBLISH ABSOLUTE USER NUMBERS, VALUES SHOWN HERE COMPARE THESE ABSOLUTE USER FIGURES WITH PUBLISHED PENETRATION VALUES FOR "vs. POPULATION". **COMPARABILITY:** POTENTIAL MISMATCHES. INTERNET USER FIGURES QUOTED ELSEWHERE IN THIS REPORT USE DATA FROM MULTIPLE SOURCES, INCLUDING SOURCES NOT FEATURED ON THIS SLIDE.

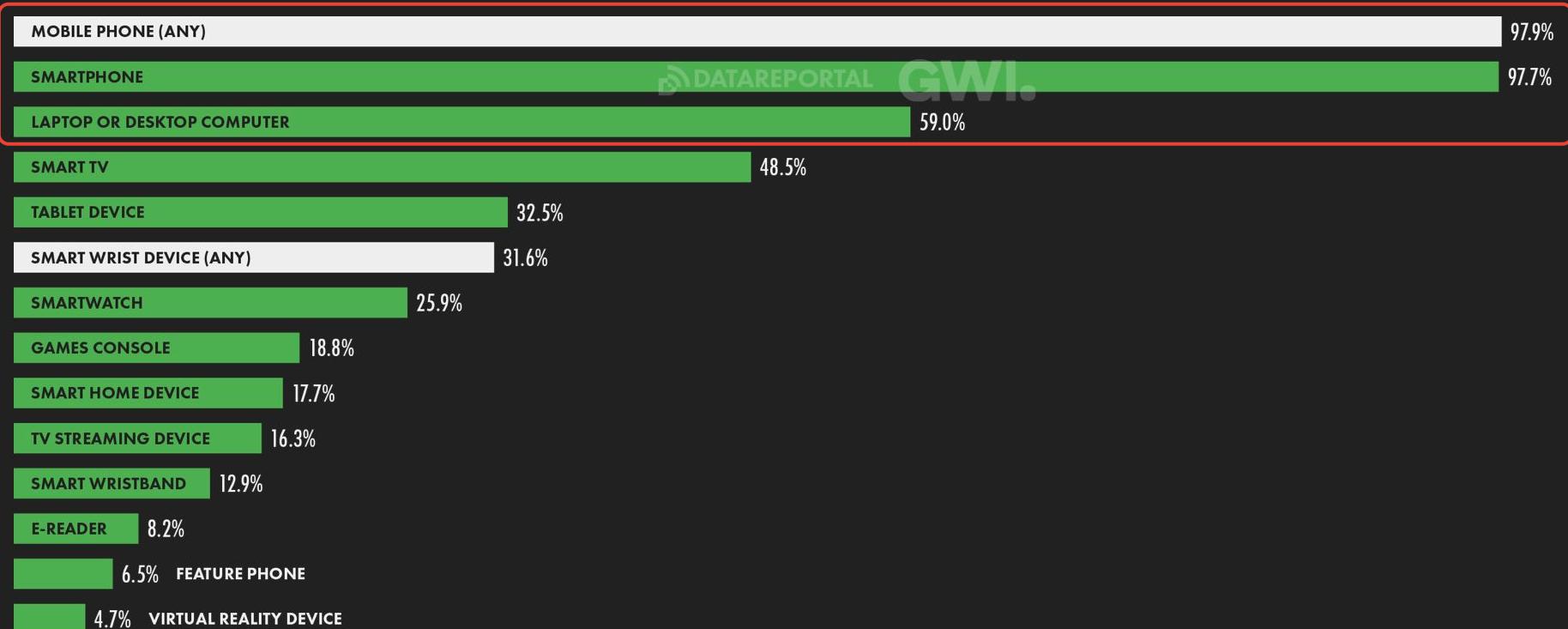
we  
are.  
social

Meltwater

OCT  
2024

# DEVICE OWNERSHIP

PERCENTAGE OF INTERNET USERS AGED 16+ WHO OWN EACH KIND OF DEVICE



Erico Darmawan Handoyo

Private Training & Online School



S IDENTIFY THE USE OF A COMBINATION OF DEVICES THAT ARE ALSO SHOWN INDIVIDUALLY ON THIS CHART. FOR EXAMPLE, "MOBILE PHONE (ANY)" REPRESENTS A "FEATURE PHONE". **COMPARABILITY:** CHANGES IN AUDIENCE COMPOSITION AND SURVEY METHODOLOGY. SEE [NOTES ON DATA](#).

we  
are  
social

Meltwater



### Internet Users



**±66%**

### Internet Users who own Smartphone



**±97-99%**

### Internet Users who own Laptop/Desktop Computer



**±57-59%**

**Digital systems play a vital role in  
today's business operations.**



Native

VS

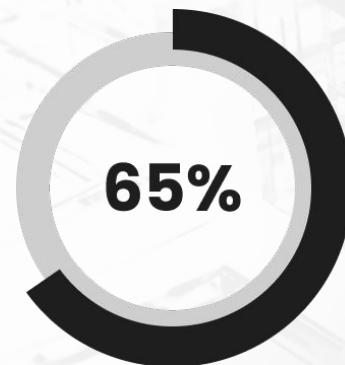


Cross-Platform

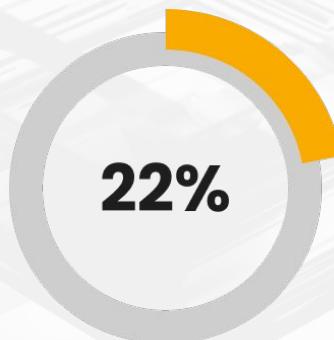


Erico Darmawan Handoyo  
Private Training & Online School

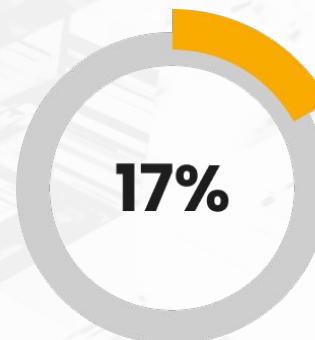
Do you develop cross-platform software?



No.

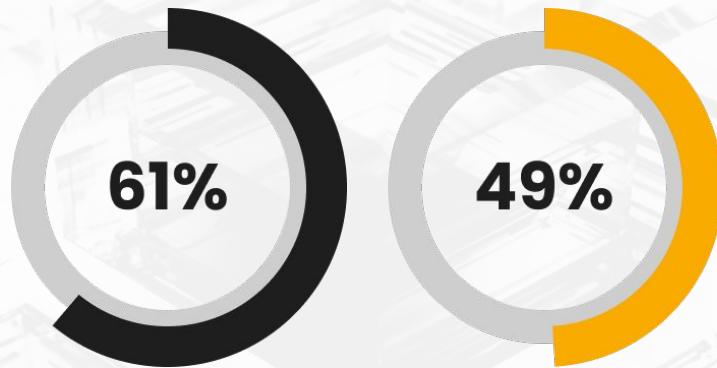


Yes. Mobile Apps.



Yes. Desktop Apps.

## How do you develop for mobile operating systems?



I use native tools.

I use cross-platform  
technologies and  
frameworks

# Why Cross-Platform Frameworks Benefit Companies

- Companies have to ensure their digital system are available on as many platforms as possible, accessible via smartphones and computers/laptops.
- Companies need to implement ideas faster to stay ahead of the competition.
- Companies must provide a consistent experience to their users on all platforms.
- Companies love time and cost efficiencies a lot 💰💰💰.



# Why Cross-Platform Frameworks Benefit Developers

- Developing apps for multiple platforms **doesn't require learning every single platform.**
- A **single fix/update applies to all platforms.**



**Saving your time**



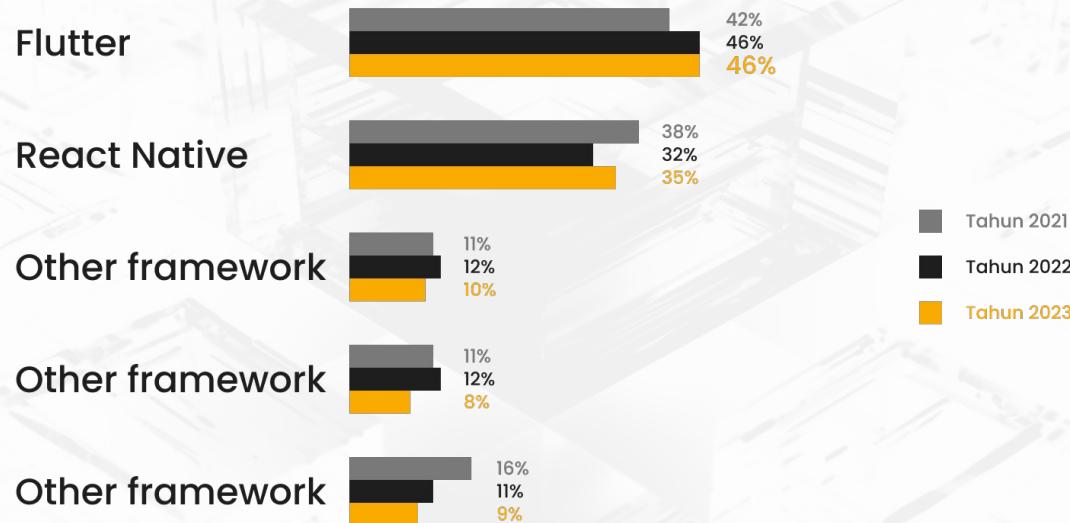
- Learning more to **improve your skill.**
- Getting **more projects.**
- Doing **exercises.**
- Doing your **hobbies.**
- Spending your time **with the loved ones.**



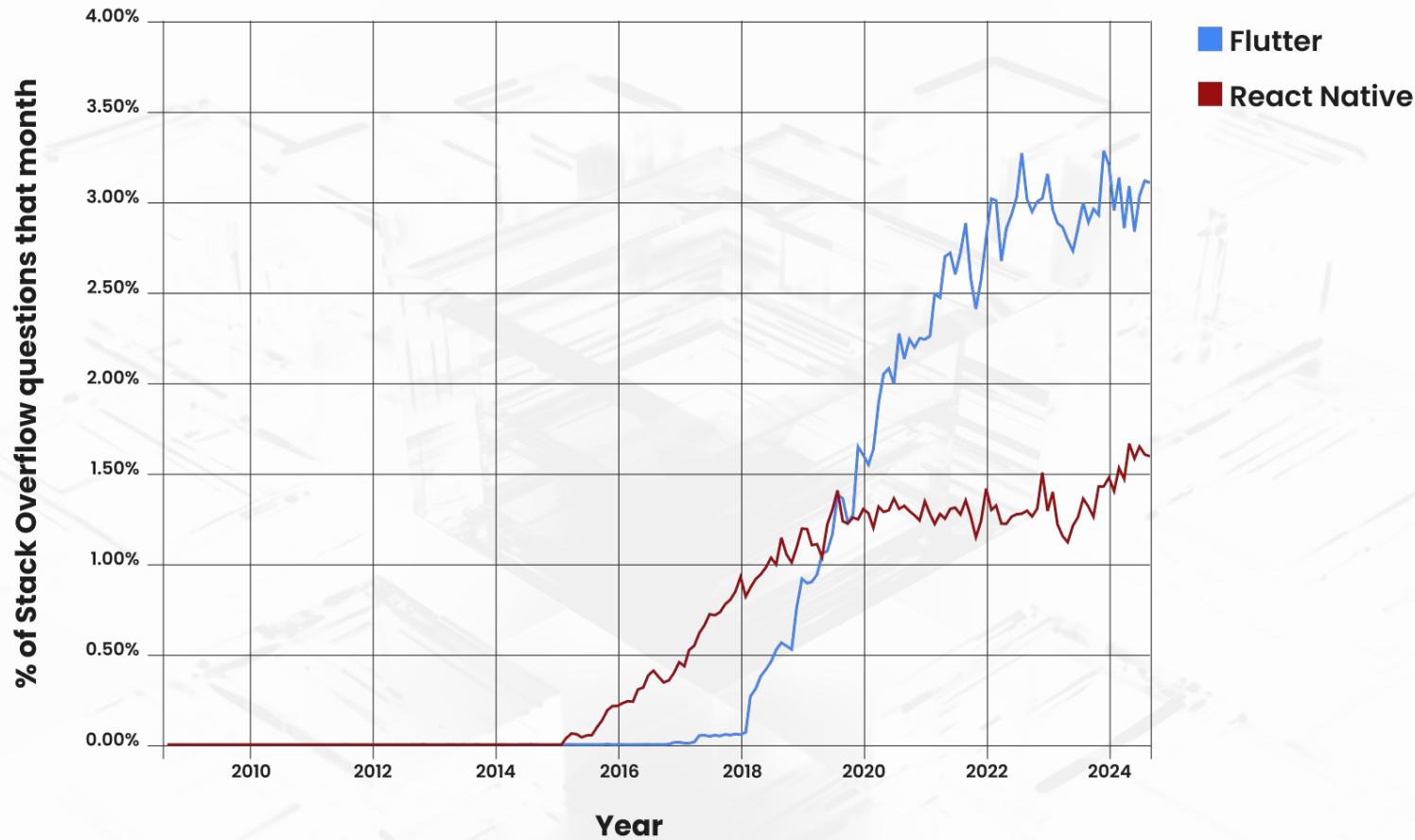
# FLUTTER IS THE MOST POPULAR CROSS-PLATFORM FRAMEWORK



## Which cross-platform mobile frameworks do you use?



Source: <https://www.jetbrains.com/lp/devecosystem-2023/development>  
<https://www.jetbrains.com/lp/devecosystem-2022/miscellaneous>



Source: <https://trends.stackoverflow.co/?tags=flutter,react-native>

number 5 →

Top 10 public projects by contributors on GitHub	
Project	Contributor count
<a href="#">home-assistant/core</a>	>21K
<a href="#">microsoft/vscode</a>	>20K
<a href="#">ProvableHQ/leo</a>	>20K
<a href="#">firstcontributions/first-contributions</a>	>13k
<a href="#">flutter/flutter</a>	>10K
<a href="#">NixOS/nixpkgs</a>	>9K
<a href="#">vercel/next.js</a>	>9K
<a href="#">langchain-ai/langchain</a>	>8K
<a href="#">godotengine/godot</a>	>7K
<a href="#">ollama/ollama</a>	>7K

Source:

<https://github.blog/news-insights/octoverse/octoverse-2024/#the-most-popular-programming-languages>





## The Most Popular Development SDKs

Type: Development

Category: Apps



**App Store**



**Google Play**



Flutter

**13%**



React Native

13%



Flutter

**22%**



React Native

17%

# Is Flutter Stopped by Google



Flutter Dihentikan oleh Google?  
<https://youtube.com/watch?v=mIlgG7xUXxY>



# #FlutterInProduction

Tune in at 11am PT on December 17, 2024

Register:

<https://flutter.dev/events/flutter-in-production>



=



Flutter +

**Flock is Flutter+** • Flock is a fork of Flutter.  
Flock stays up to date with Flutter, and  
also adds new community features.



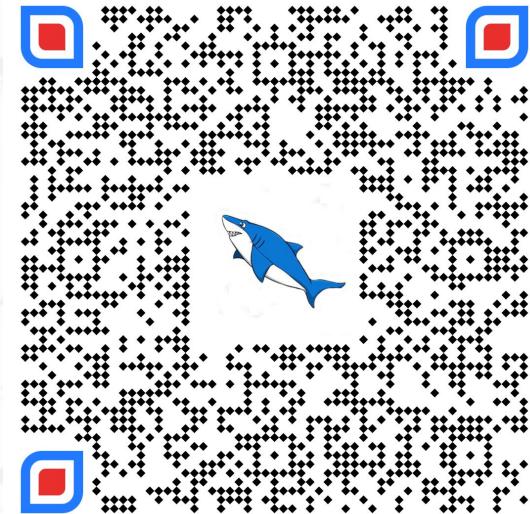
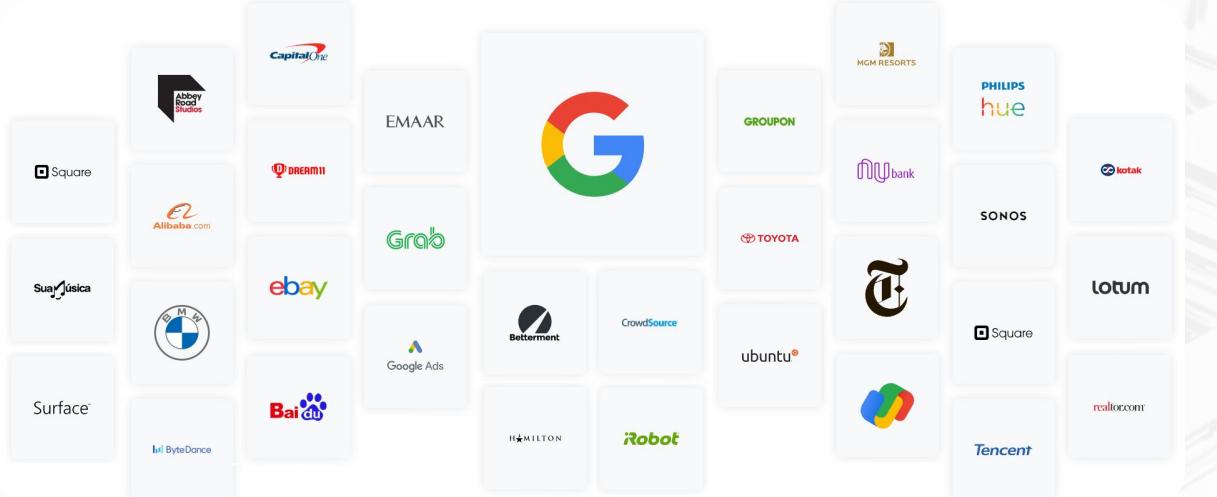
Flock = Flutter+

<https://youtu.be/jAHH33e3Nd8>

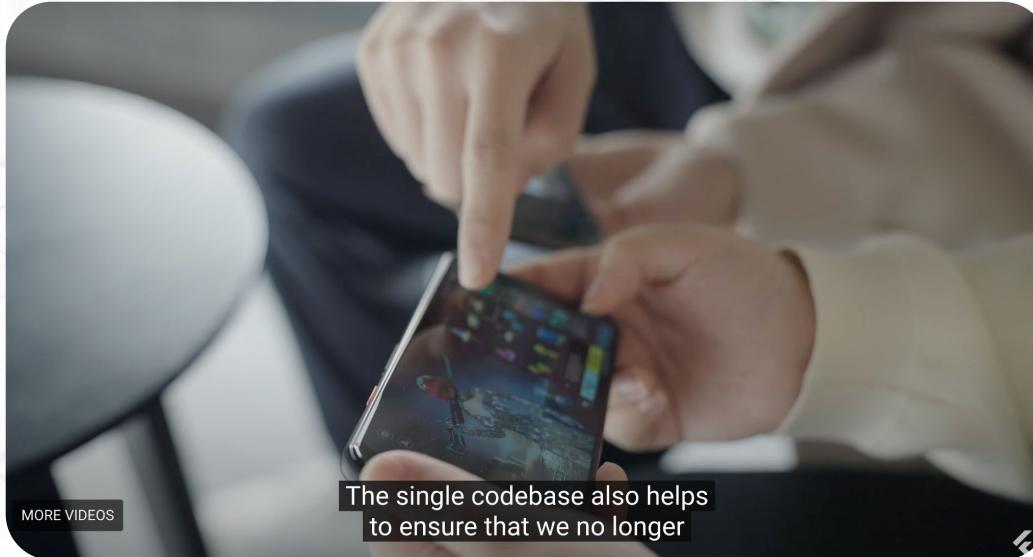


Erico Darmawan Handoyo  
Private Training & Online School

# Who use Flutter?



# Community Module of PUBG Mobile



The single codebase also helps  
to ensure that we no longer



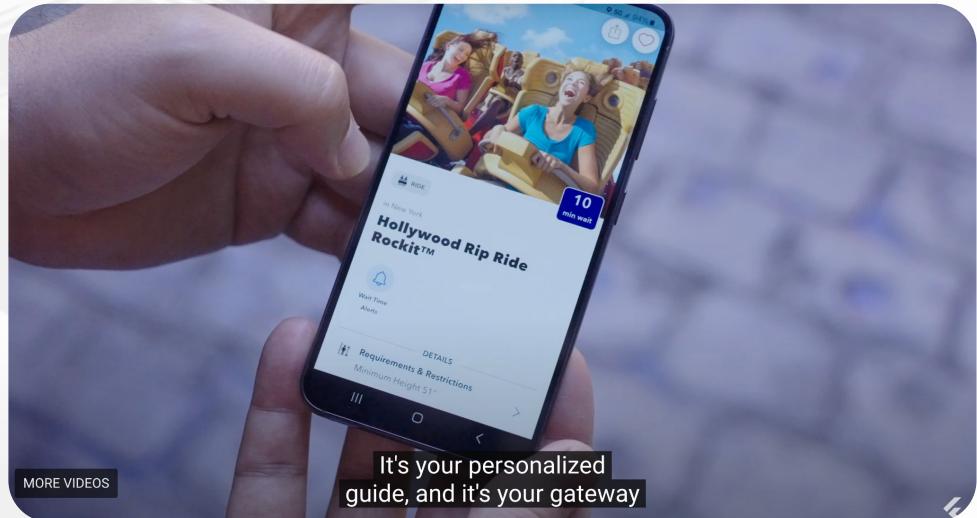
PUBG MOBILE (Flutter Dev Story)

<https://youtu.be/03ETVuWZiBc>

# Universal Studios build next generation experiences with Flutter

 How Universal Destinations & Experiences build next generation experiences with Flutter

<https://youtu.be/JTk2Exr7FO4>



# Who use Flutter?



BANKSULTRA



# What is Flutter?

Flutter is an **open source framework** by **Google** for building **beautiful, natively compiled, multi-platform** applications from a **single codebase**.



More information  
<https://flutter.dev>



# Multiplatform

Flutter app can be deployed on **Android, iOS, Web, Mac, Windows, Linux.**

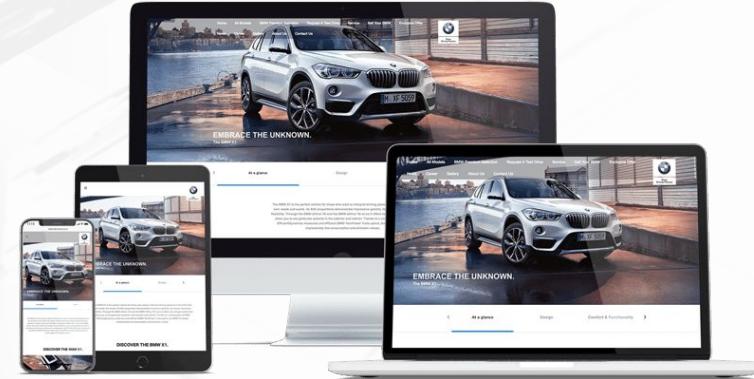
- Reduce development/maintenance **time**.
- Reduce development/maintenance **cost**.
- **Same feels** on all platforms.

## Tencent

When using Flutter, 90% of the code became multi-platform and only needed to be updated once.

---

Fei Song  
Senior Software Engineer, Tencent



Erico Darmawan Handoyo  
Private Training & Online School

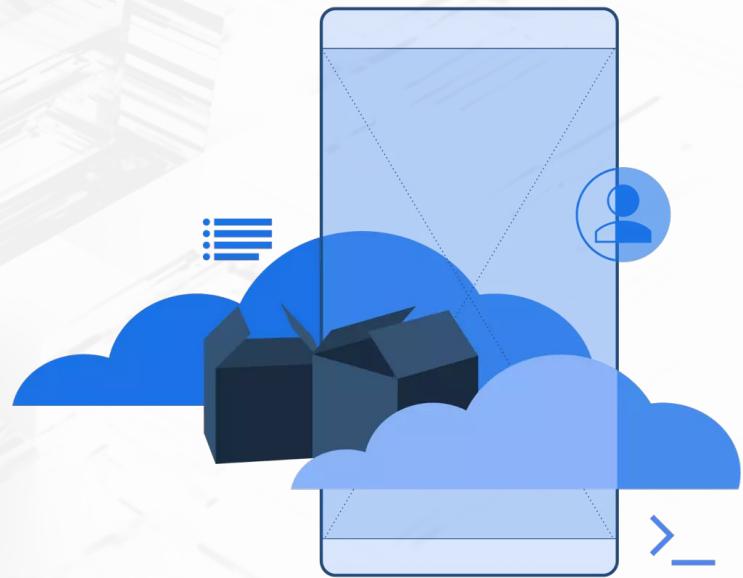
# Open Source

- Everyone can contribute on Flutter development.
- There are many useful packages (49K+) on pub.dev.



**Flutter Repository**  
<https://github.com/flutter/flutter>

**Flutter & Dart packages**  
<https://pub.dev>



# Strong Ecosystem

- Numerous contributors to Flutter.
- Many Flutter events are hosted globally and locally.



Erico Darmawan Handoyo  
Private Training & Online School

# Google Services Integration

Seamless integration with:

- Firebase
- Google Ads
- Google Play
- Google Pay
- Google Wallet
- Google Maps, and more.



# Dart Language

- Learning Flutter & Dart is **easy** for Java, Python, or C# devs.
- Flutter & Dart has **excellent documentation**.
- Dart keeps **evolving**:
  - **Null Safety**: prevents null errors.
  - **Enhanced enum**: allow enum to have additional features.
  - **Dart 3 new class modifiers**: mixin, final, seal, base, & interface.
  - **Macros**
- Dart **backends**  Dart Frog  Serverpod

 DevFest

Bandung

- Sabtu, 7 Desember 2024
- Maranatha Christian University

[gdgbandung.com/devfest](http://gdgbandung.com/devfest)



# Demo Time!



Erico Darmawan Handoyo  
Private Training & Online School

# Recipe Generator using Gemini AI

Front end : Android, iOS, Mac OS, Web

Back end : Dart Frog deployed on [globe.dev](https://globe.dev)



Flutter x Gemini AI

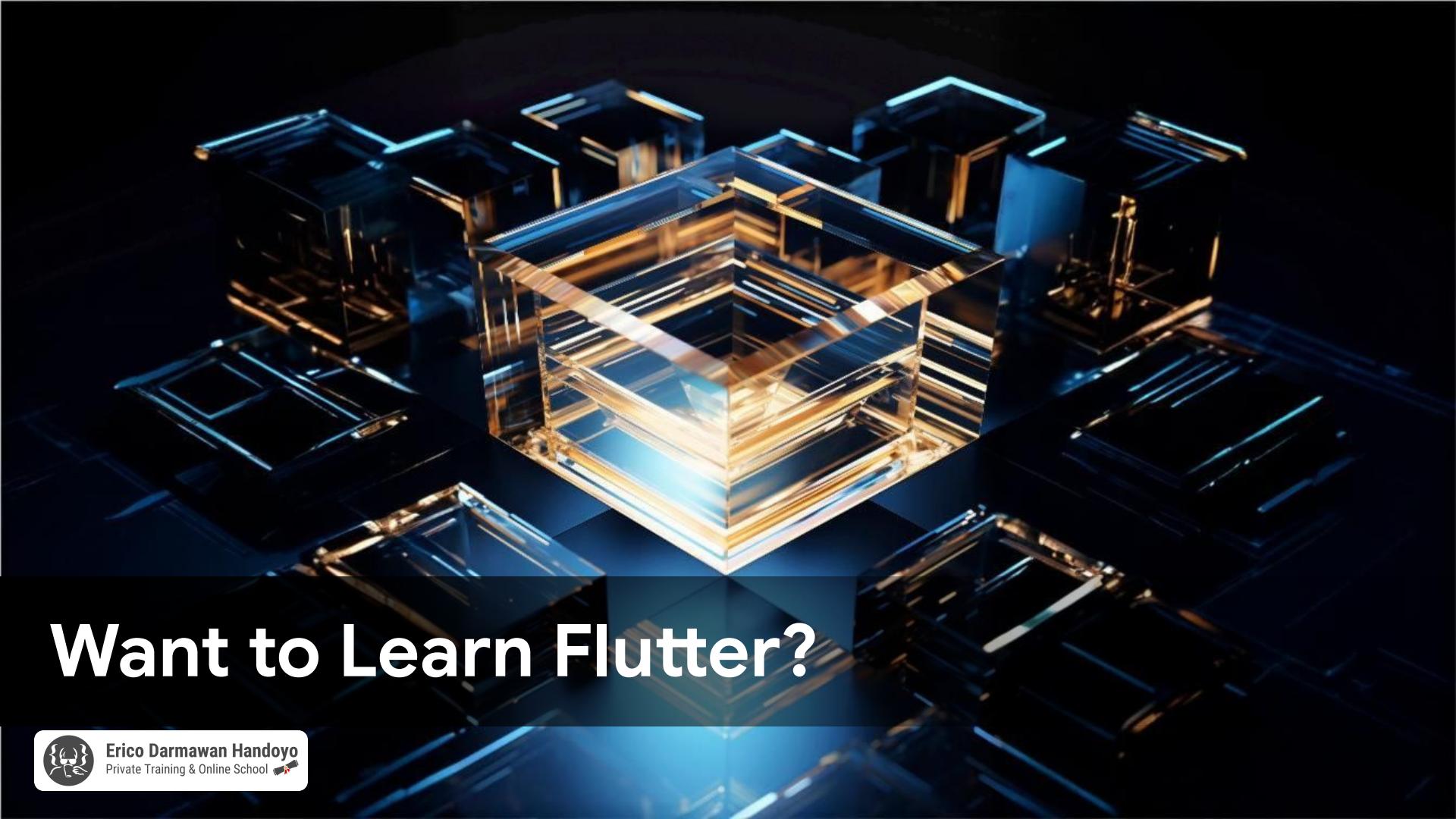
<https://youtu.be/PkqV3lmgAhs>

The screenshot displays four recipe cards from the application:

- Rosemary and Basil Roasted Chicken**
  - Ingredients:** 2 boneless, skinless chicken breasts, 1 tablespoon olive oil, 1/2 teaspoon black peppercorns, crushed, 1/4 teaspoon dried rosemary, 1/4 teaspoon dried basil, Salt to taste.
  - Instructions:** 1. Preheat oven to 400°F (200°C). 2. In a small bowl, combine olive oil, peppercorns, rosemary, basil, and salt. 3. Season chicken breasts with salt and rub the herb mix onto them. 4. Place chicken breasts on a baking sheet lined with parchment paper. 5. Roast for 20-25 minutes, or until chicken reaches an internal temperature of 165°F (75°C). 6. Let chicken rest for 5 minutes before slicing and serving.
- Banana Apple Oatmeal**
  - Ingredients:** banana, apple
  - Yields:** 1 serving **Prep time:** 5 minutes **Cook time:** 5 minutes
- Beef with Rosemary and Peppercorn**
  - Ingredients:** 1.5 lbs beef sirloin, cut into 1-inch cubes, 1 tbsp olive oil, 1 large onion, chopped, 2 cloves garlic, minced, 1 tsp dried rosemary, 1/2 cup black peppercorns, crushed, 1/2 cup beef broth, 1/4 cup red wine (optional), 1 tbsp butter, Salt to taste.
  - Instructions:** 1. In a large skillet over medium-high heat, add olive oil and butter. 2. Add the beef cubes and cook until browned on all sides. 3. Add the onion, garlic, and rosemary. 4. Pour in the red wine and beef broth. 5. Bring to a boil, then reduce heat and simmer for 15-20 minutes until the sauce has thickened.
- Pan-Seared Fish with Lemon & Peppercorns**
  - Ingredients:** fish fillets, lemon wedges, salt, peppercorns
  - Yields:** 2 servings **Prep time:** 10 minutes **Cook time:** 10-12 minutes
  - Instructions:** 1. Pat the fish fillets dry with paper towels. Season with salt and pepper. 2. Heat the olive oil in a large skillet over medium-high heat. 3. Add the fish fillets and cook for 2-3 minutes per side, or until they are opaque and flake easily with a fork.



Erico Darmawan Handoyo  
Private Training & Online School



# Want to Learn Flutter?



Erico Darmawan Handoyo  
Private Training & Online School

# Flutter Roadmap

## FUNDAMENTALS

- Basic Programming Dart for Newbies
- Pemrograman Berorientasi Objek dart

## FRONTEND (FLUTTER)

- Flutter Essentials
- Flutter Tutorial Part 1
- Flutter Tutorial Part 2

## BACKEND

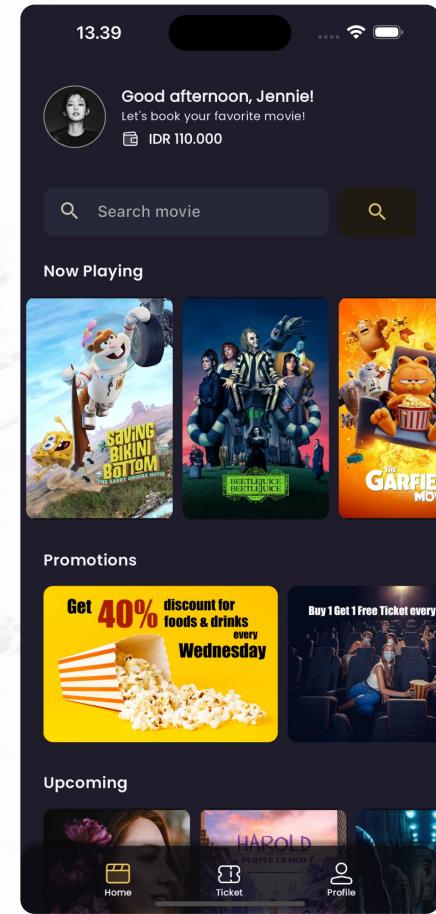
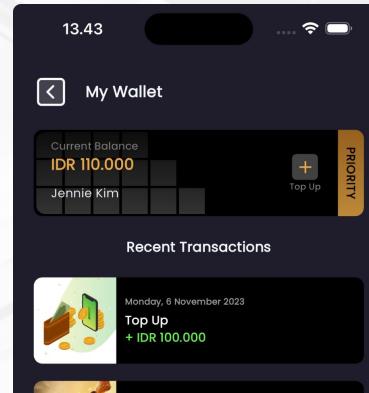
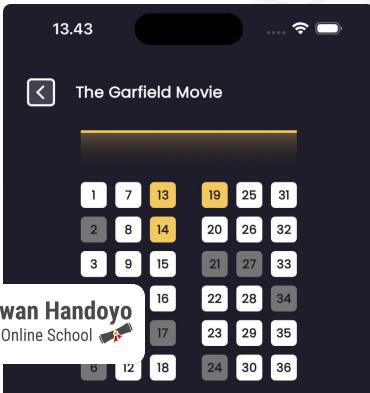
- Dart Frog (A fast, minimalistic backend framework for Dart)

 **Flutter Tutorial YouTube Channel**  
provides **300++** fundamental & tutorial videos  
<https://youtube.com/@ericodarmawan>



# Full Stack Flutter: FlixID

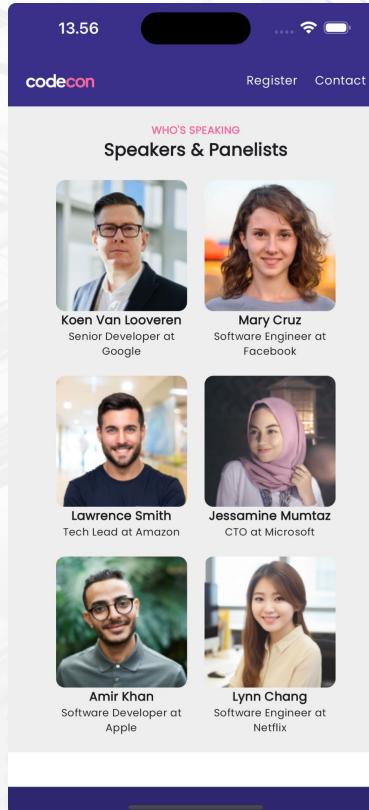
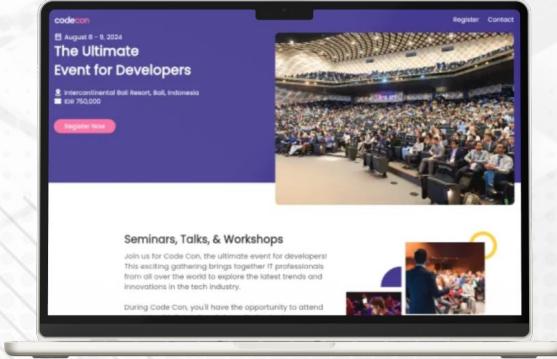
- Separation of Concerns
- Clean Architecture
- Riverpod State Management
- Firebase Auth, Storage, & Firestore
- GoRouter Navigation



Erico Darmawan Handoyo  
Private Training & Online School

# Full Stack Flutter: CodeCon

- Payment Gateway Integration
- Fullstack using Dart
- Flutter Web, iOS, Android, Mac OS
- Responsive Design
- Airtable as data storage



WHO'S SPEAKING  
Speakers & Panelists

Koen Van Looveren  
Senior Developer at Google

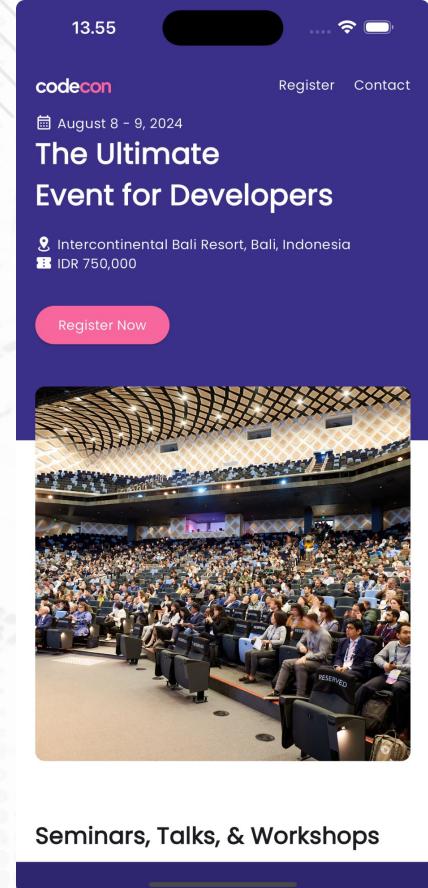
Mary Cruz  
Software Engineer at Facebook

Lawrence Smith  
Tech Lead at Amazon

Jessamine Mumtaz  
CTO at Microsoft

Amir Khan  
Software Developer at Apple

Lynn Chang  
Software Engineer at Netflix



codecon

13.55

Register Contact

codecon

August 8 - 9, 2024

The Ultimate Event for Developers

Intercontinental Bali Resort, Bali, Indonesia

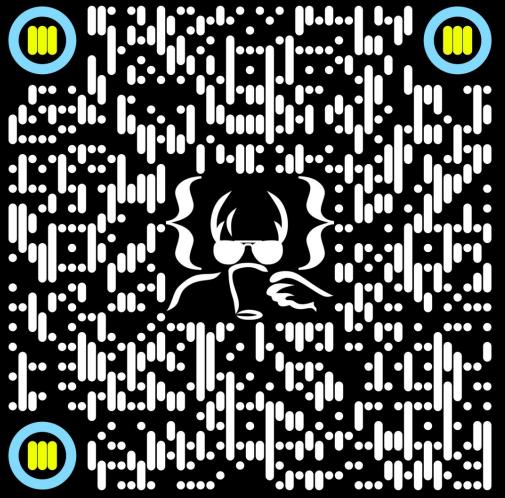
IDR 750,000

Register Now

Seminars, Talks, & Workshops



Thank You



 Flutter Tutorial YouTube Channel  
provides 300++ fundamental & tutorial videos  
<https://youtube.com/@ericodarmawan>

 [s.id/komunitas-flutter](https://s.id/komunitas-flutter)

 [s.id/kelas-online-erico](https://s.id/kelas-online-erico)

 [ericodarmawan.com](https://ericodarmawan.com)

 [s.id/fb-ericodh](https://s.id/fb-ericodh)

 [s.id/ig-ericodh](https://s.id/ig-ericodh)

 [s.id/in-ericodh](https://s.id/in-ericodh)