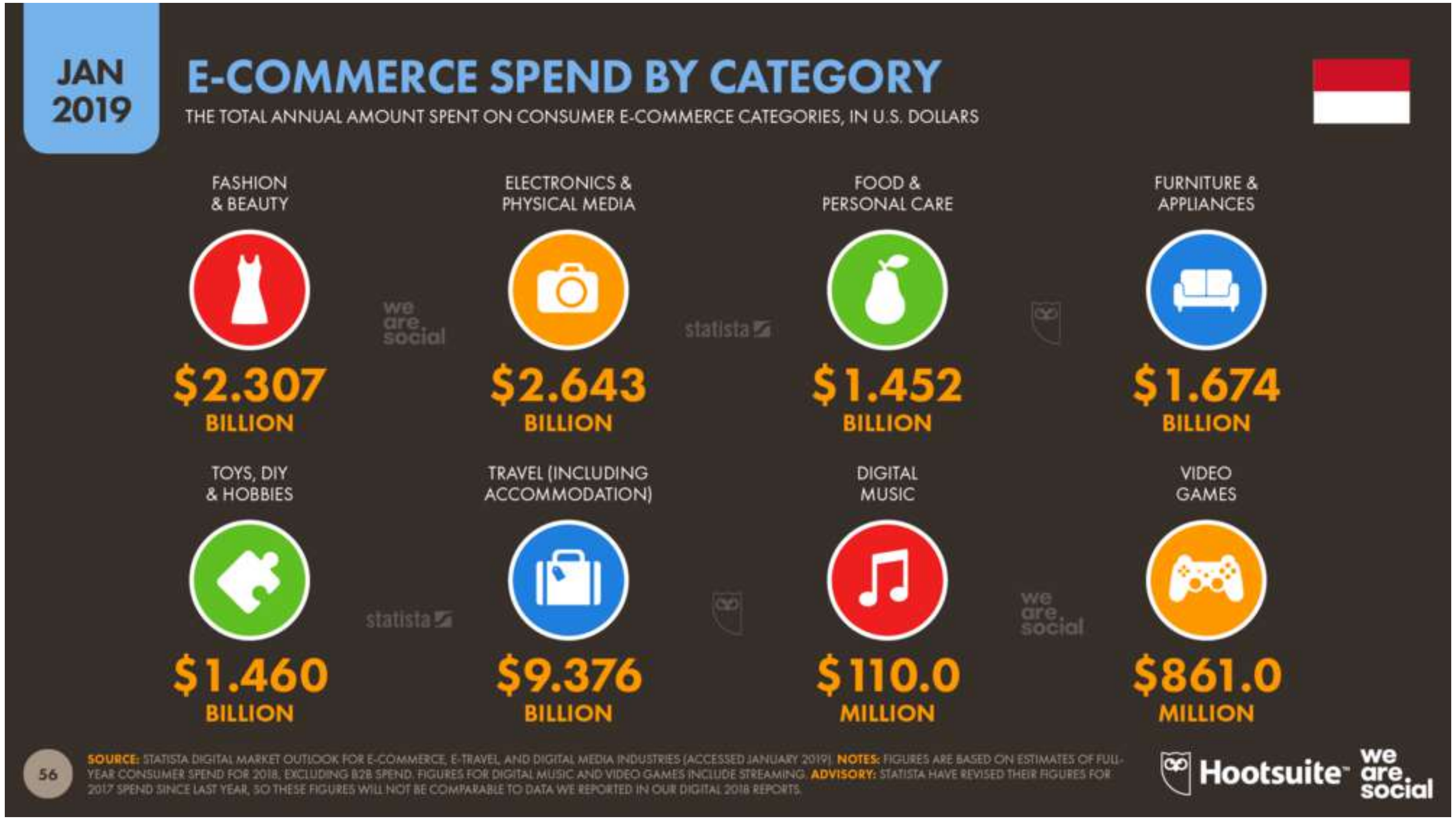
# PEMBUATAN MOBILE APPS DI REACT NATIVE DAN FLUTTER

M. OCTAVIANO PRATAMA, S.KOM., M.KOM

# E-COMMERCE STATISTICS



JAN 2019

## E-COMMERCE SPEND BY CATEGORY

THE TOTAL ANNUAL AMOUNT SPENT ON CONSUMER E-COMMERCE CATEGORIES, IN U.S. DOLLARS

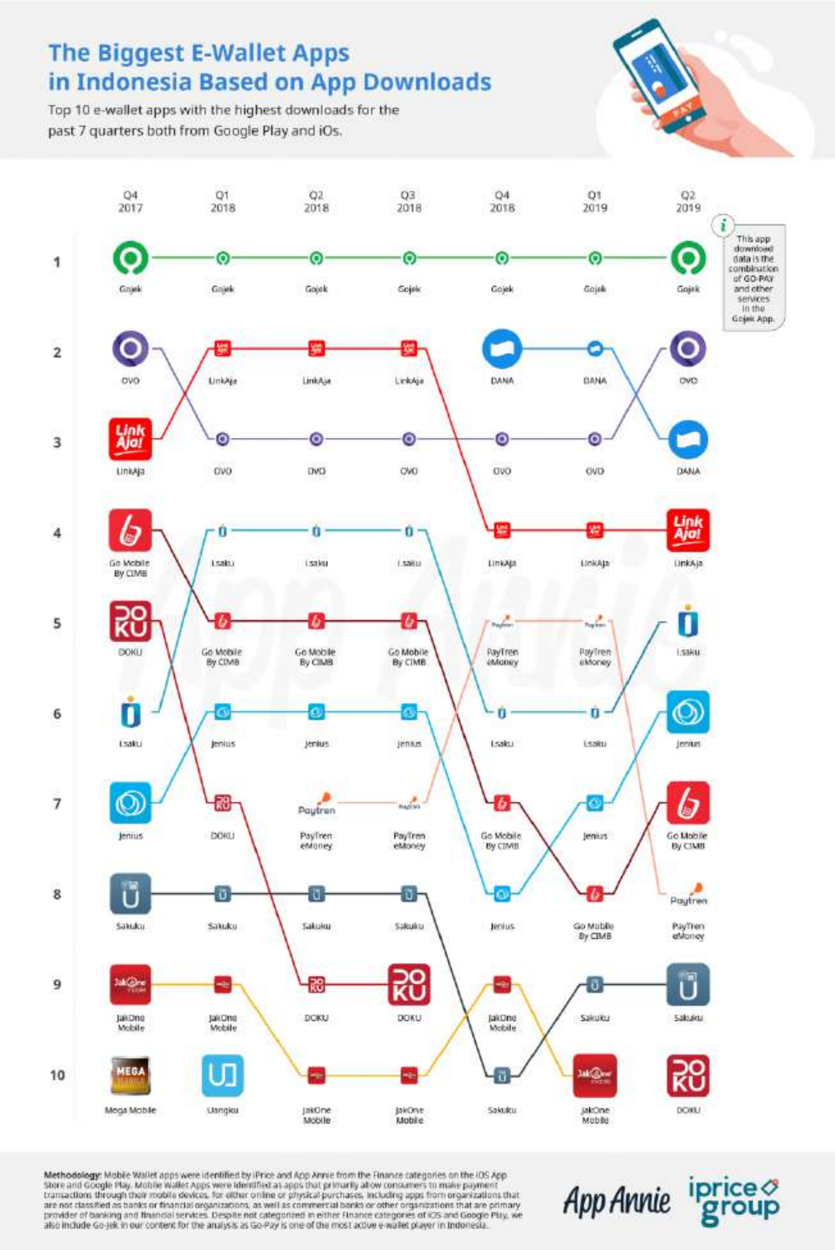
| FASHION & BEAUTY | ELECTRONICS & PHYSICAL MEDIA | FOOD & PERSONAL CARE | FURNITURE & APPLIANCES |
|---|---|---|---|
| $2.307 BILLION | $2.643 BILLION | $1.452 BILLION | $1.674 BILLION |

| TOYS, DIY & HOBBIES | TRAVEL (INCLUDING ACCOMMODATION) | DIGITAL MUSIC | VIDEO GAMES |
|---|---|---|---|
| $1.460 BILLION | $9.376 BILLION | $110.0 MILLION | $861.0 MILLION |

56

**SOURCE:** STATISTA DIGITAL MARKET OUTLOOK FOR E-COMMERCE, E-TRAVEL, AND DIGITAL MEDIA INDUSTRIES (ACCESSED JANUARY 2019). **NOTES:** FIGURES ARE BASED ON ESTIMATES OF FULL-YEAR CONSUMER SPEND FOR 2018, EXCLUDING B2B SPEND. FIGURES FOR DIGITAL MUSIC AND VIDEO GAMES INCLUDE STREAMING. **ADVISORY:** STATISTA HAVE REVISED THEIR FIGURES FOR 2017 SPEND SINCE LAST YEAR, SO THESE FIGURES WILL NOT BE COMPARABLE TO DATA WE REPORTED IN OUR DIGITAL 2018 REPORTS.

# WALLET APP DOWNLOAD



## The Biggest E-Wallet Apps in Indonesia Based on App Downloads

Top 10 e-wallet apps with the highest downloads for the past 7 quarters both from Google Play and iOs.

| | Q4 2017 | Q1 2018 | Q2 2018 | Q3 2018 | Q4 2018 | Q1 2019 | Q2 2019 |
|---|---|---|---|---|---|---|---|
| 1 | Gojek | Gojek | Gojek | Gojek | Gojek | Gojek | Gojek |
| 2 | OVO | LinkAja | LinkAja | LinkAja | DANA | DANA | OVO |
| 3 | LinkAja | OVO | OVO | OVO | OVO | OVO | DANA |
| 4 | Go Mobile By CIMB | i.saku | i.saku | i.saku | LinkAja | LinkAja | LinkAja |
| 5 | DOKU | Go Mobile By CIMB | Go Mobile By CIMB | Go Mobile By CIMB | PayTren eMoney | PayTren eMoney | i.saku |
| 6 | i.saku | Jenius | Jenius | Jenius | i.saku | i.saku | Jenius |
| 7 | Jenius | DOKU | PayTren eMoney | PayTren eMoney | Go Mobile By CIMB | Jenius | Go Mobile By CIMB |
| 8 | Sakuku | Sakuku | Sakuku | Sakuku | Jenius | Go Mobile By CIMB | PayTren eMoney |
| 9 | JakOne Mobile | JakOne Mobile | DOKU | DOKU | JakOne Mobile | Sakuku | Sakuku |
| 10 | Mega Mobile | Uangku | JakOne Mobile | JakOne Mobile | Sakuku | JakOne Mobile | DOKU |

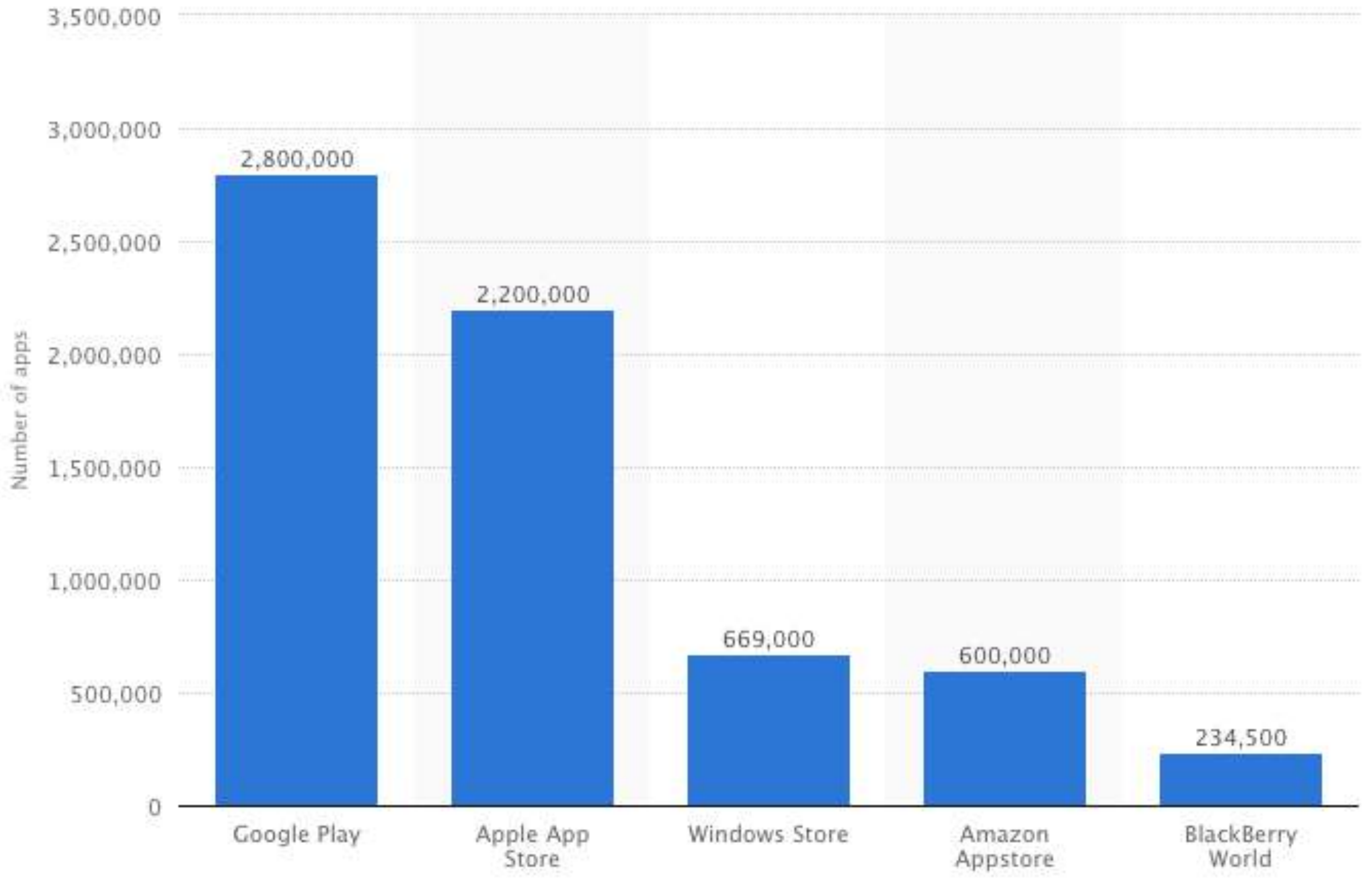
This app download data is the combination of GO-PAY and other services in the Gojek App.

**Methodology:** Mobile Wallet apps were identified by iPrice and App Annie from the Finance categories on the iOS App Store and Google Play. Mobile Wallet Apps were identified as apps that primarily allow consumers to make payment transactions through their mobile devices, for either online or physical purchases, including apps from organizations that are not classified as banks or financial organizations, as well as commercial banks or other organizations that are primary provider of banking and financial services. Despite not categorized in either Finance categories of iOS and Google Play, we also include Go-jek in our content for the analysis as Go-Pay is one of the most active e-wallet player in Indonesia.

App Annie iprice group

# BANYAK TRANSAKSI DILAKUKAN MELALUI MOBILE DEVICE / APPS

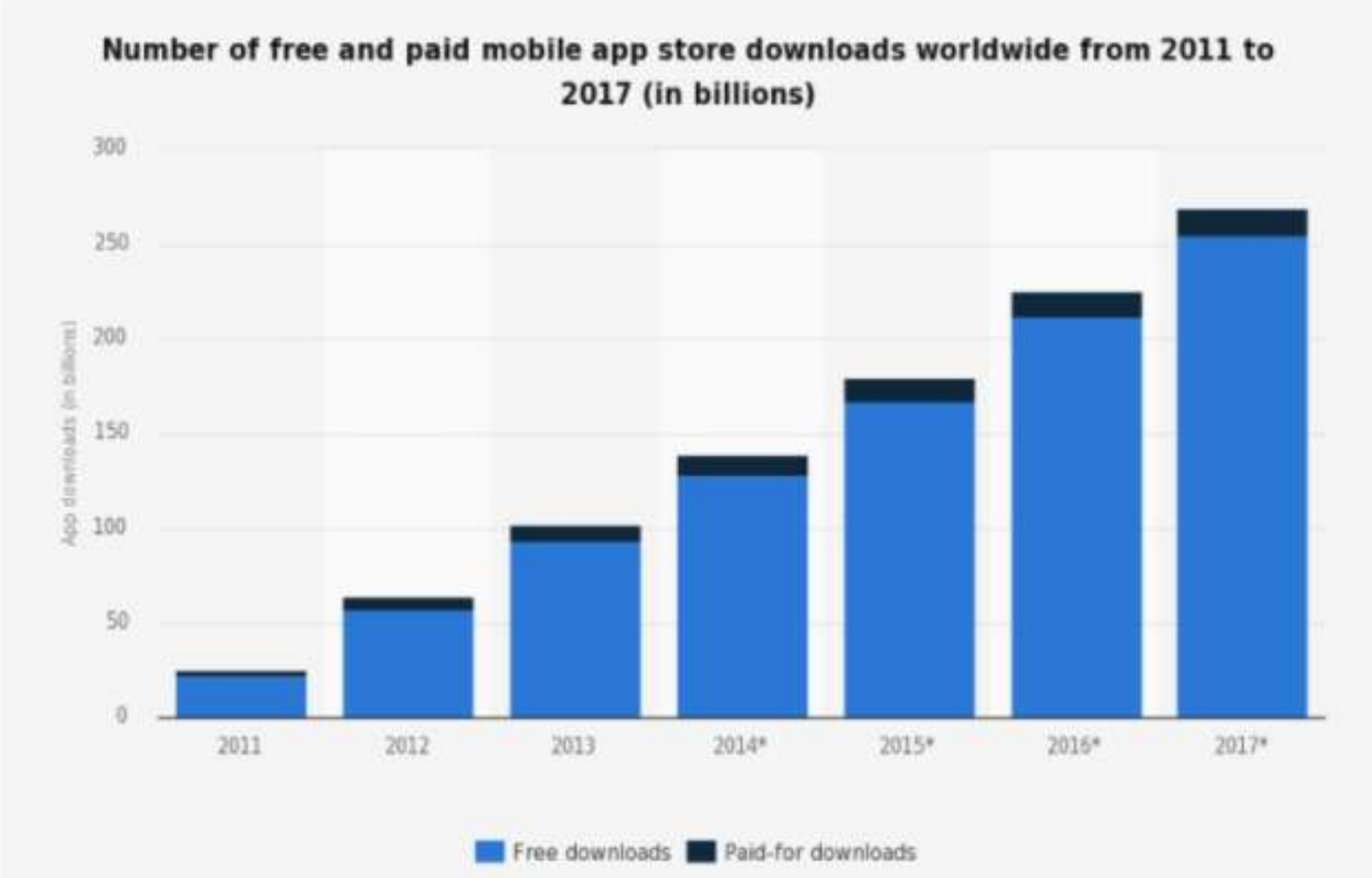
# MENGAPA MENJADI MOBILE APPS DEVELOPER



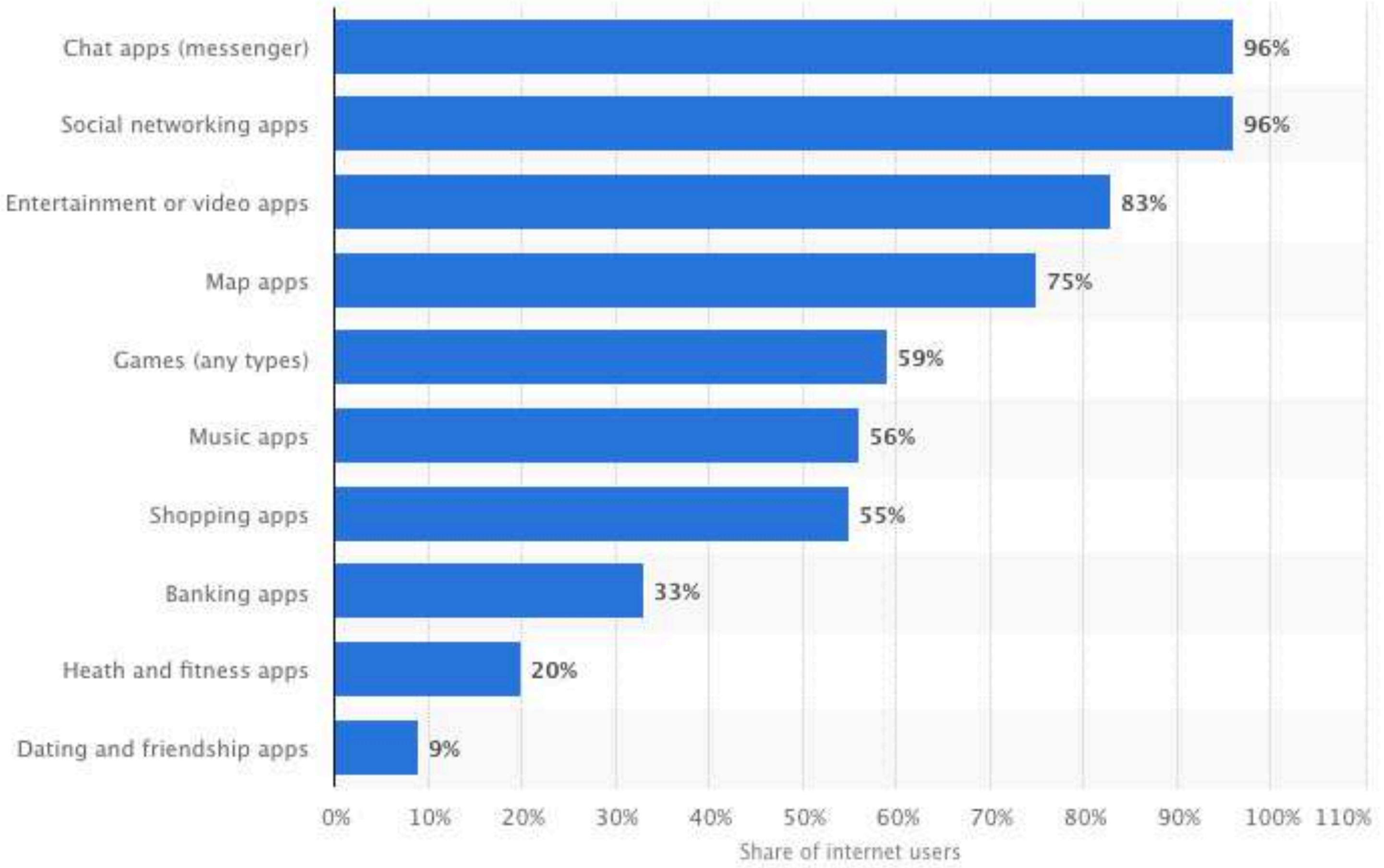
Data visualized by +ableau

© Statista 2017

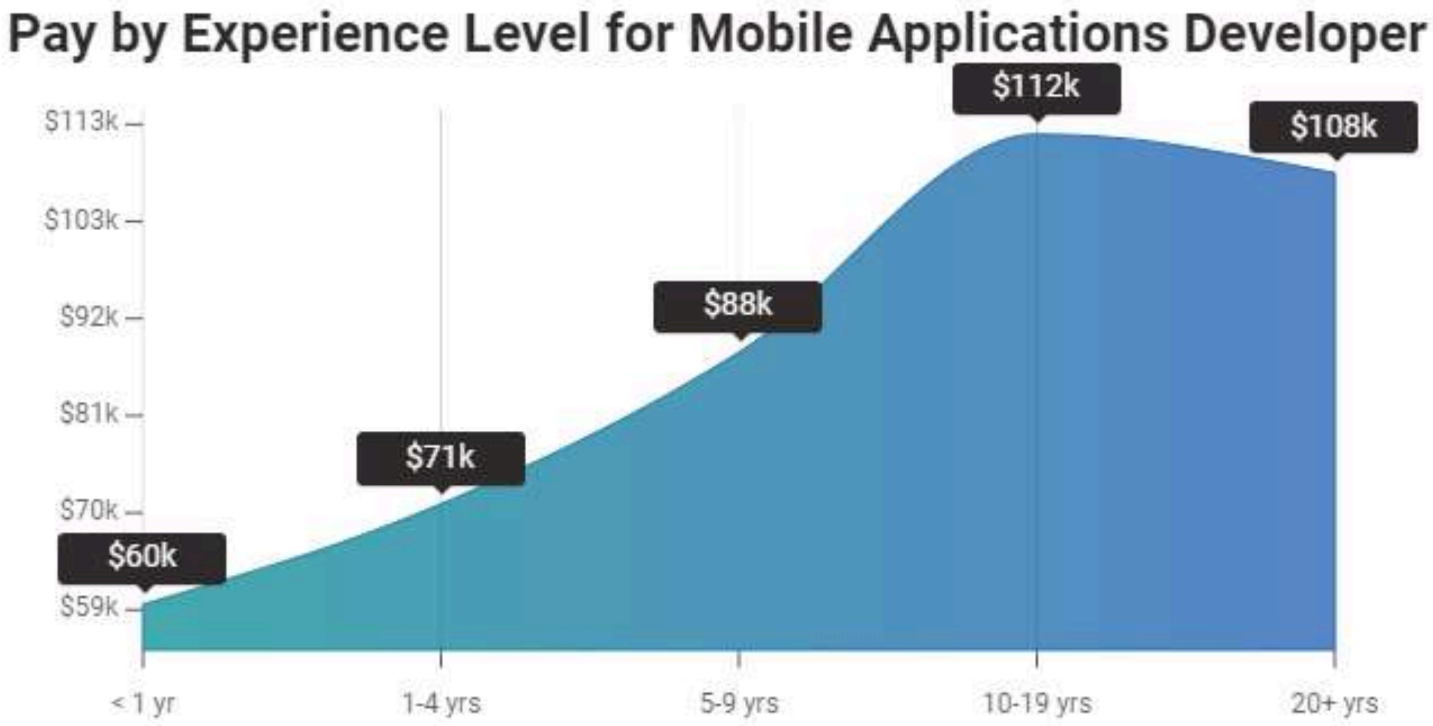
# JUMLAH APLIKASI DIUNDUH



# JENIS APLIKASI



# MOBILE APPS DEVELOPER SALARY



# SUDAH SIAP MEMBANGUN MOBILE APPS?

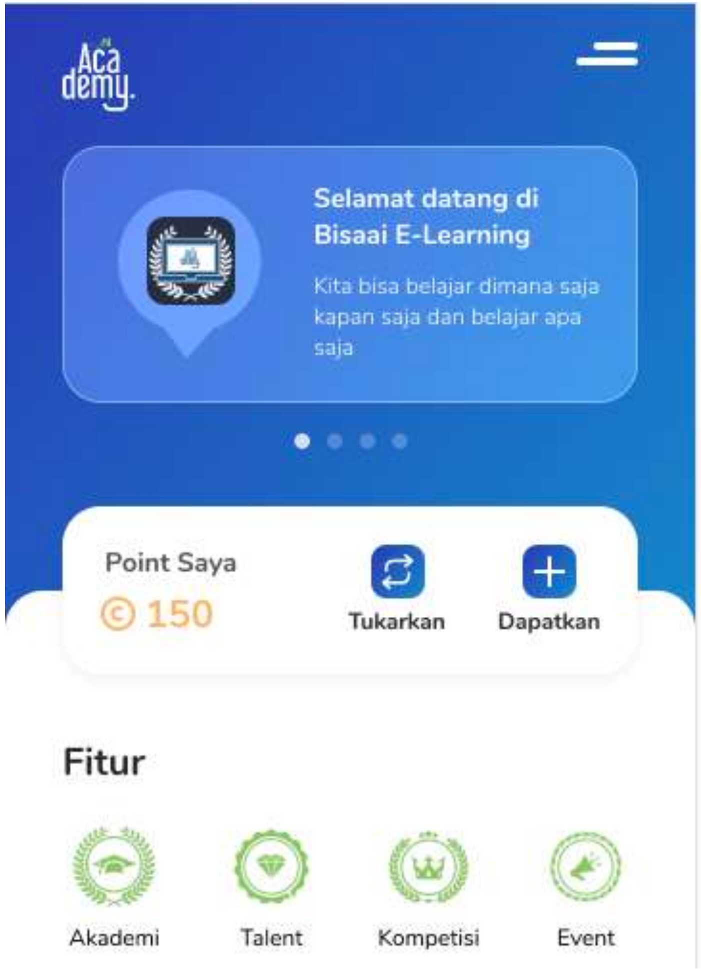
# FRAMEWORK MEMBANGUN MOBILE APPS

- Discovery, Market Research, And Mobile App Development Tech-stack.
- Establishing Mobile App Goals and Objectives
- Wireframes and Storyboards
- Defining the Backend of Your Mobile App
- Finalize Your Wireframe and Test Your Prototype
- Developing the App
- Test and Test Again
- Preparing for Launch

# DISCOVERY, MARKET RESEARCH, AND MOBILE APP DEVELOPMENT TECH-STACK.

- What do you want your mobile app to accomplish? Where does it fit in your mobile marketing plans?
- Who is your target audience?
- How do you want your customers to use your app?
- What platform (or platforms) will you use?
- Which mobile app development language and framework should you use?
- What are your competitors doing? Do they have apps? If so, what features do they offer?
- What is your overall app development budget?
- What is your timeline for development? When will you launch your app?
- How will you market and promote your app?

# DISCOVERY, MARKET RESEARCH, AND MOBILE APP DEVELOPMENT TECH-STACK.



Selamat datang di Bisaai E-Learning

Kita bisa belajar dimana saja kapan saja dan belajar apa saja

- What do you want your mobile app to accomplish? Where does it fit in your mobile marketing plans?
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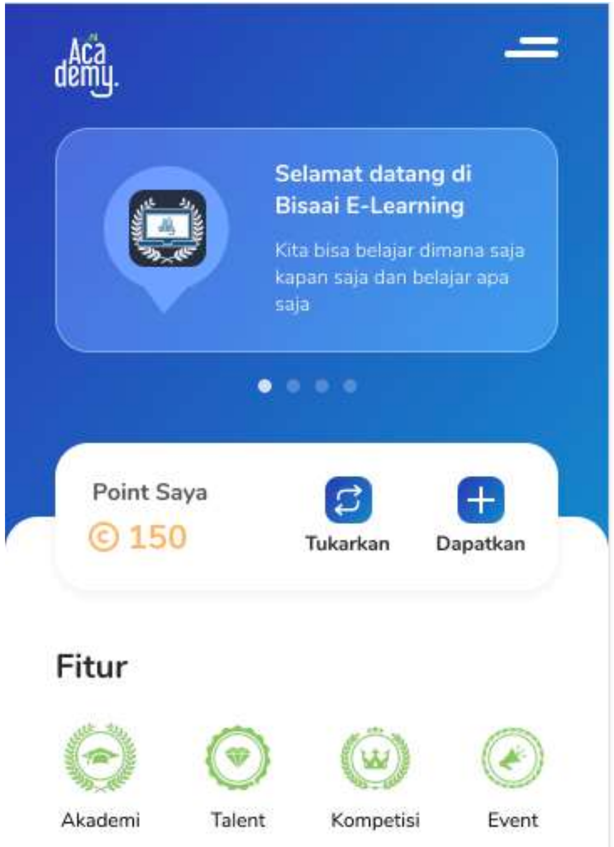
# ESTABLISHING MOBILE APP GOALS AND OBJECTIVES

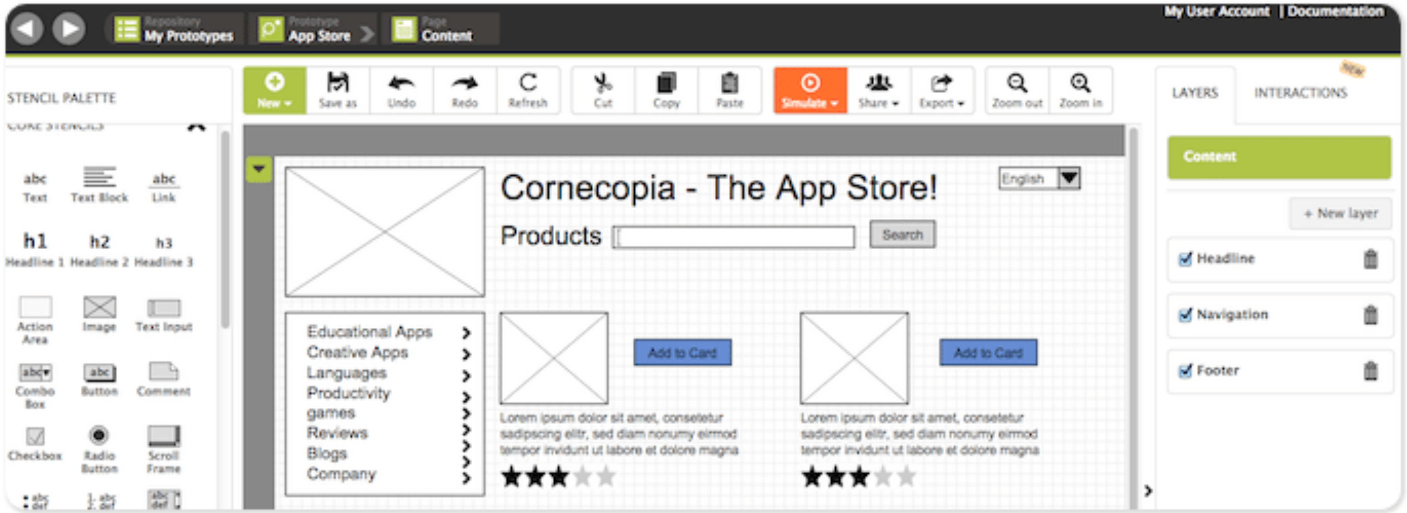


Selamat datang di Bisaai E-Learning

Kita bisa belajar dimana saja kapan saja dan belajar apa saja

- What problem (or problems) will your app solve for your customers?
- What features will it include?
- What is your app’s core appeal?

# WIREFRAMES AND STORYBOARDS

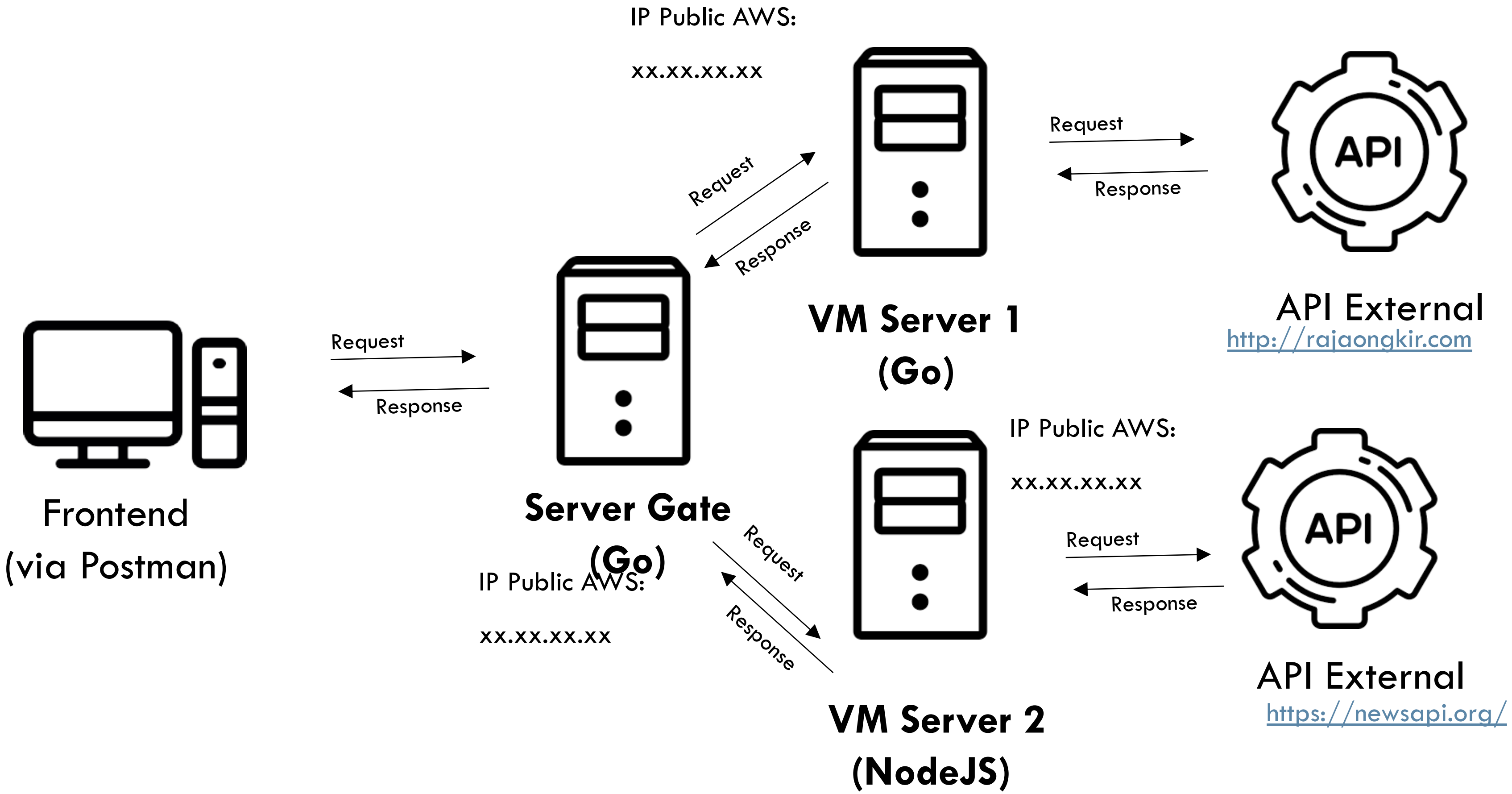


Lorem ipsum dolor sit amet, consetetur sadipscing elitr, sed diam nonumy eirmod tempor invidunt ut labore et dolore magna

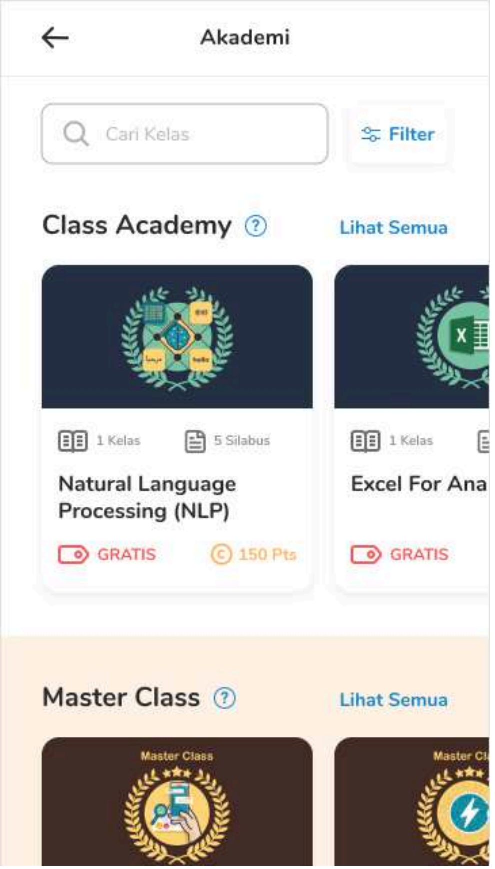
Lorem ipsum dolor sit amet, consetetur sadipscing elitr, sed diam nonumy eirmod tempor invidunt ut labore et dolore magna

- Look for opportunities to incorporate your brand.
- Focus on the user experience.
- Consider the differences in the way people use a mobile app versus a mobile website.

# DEFINING THE BACKEND OF YOUR MOBILE APP



# FINALIZE YOUR WIREFRAME AND TEST YOUR PROTOTYPE



Akademi

Cari Kelas

Filter

Class Academy

Lihat Semua

1 Kelas 5 Silabus

Natural Language Processing (NLP)

GRATIS 150 Pts

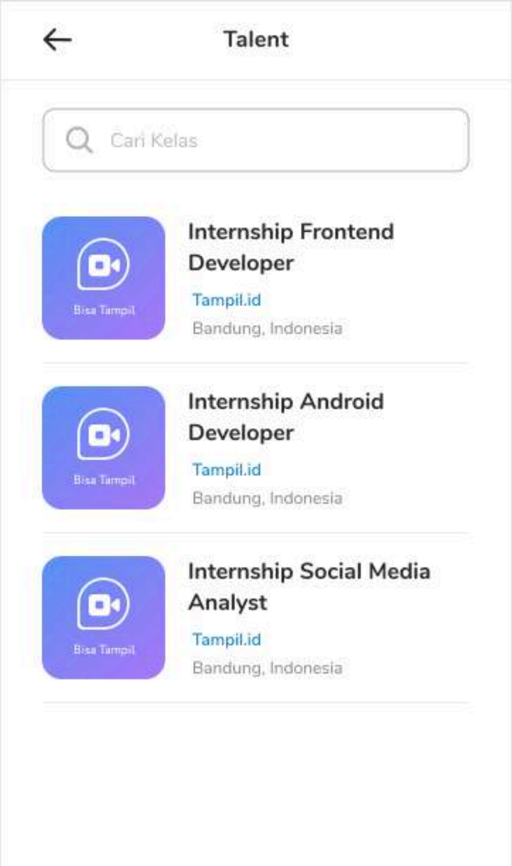
1 Kelas

Excel For Ana

GRATIS

Master Class

Lihat Semua



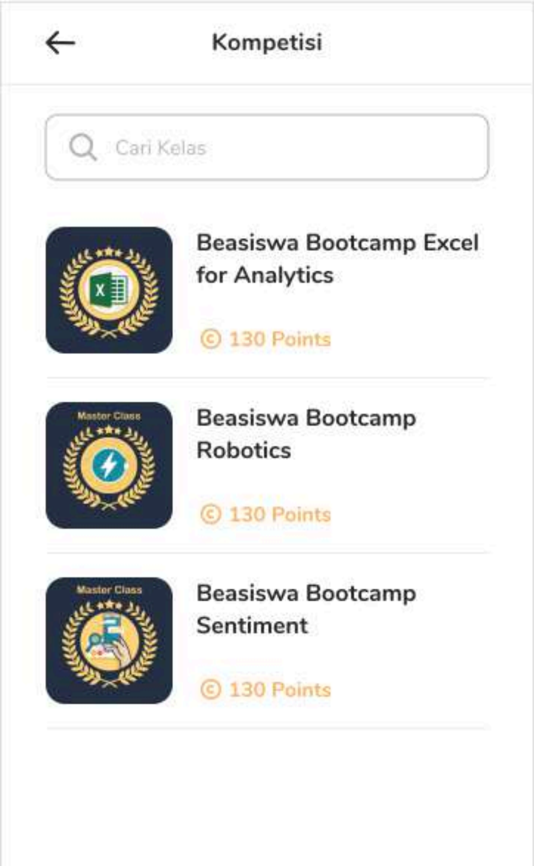
Talent

Cari Kelas

Internship Frontend Developer
Tampil.id
Bandung, Indonesia

Internship Android Developer
Tampil.id
Bandung, Indonesia

Internship Social Media Analyst
Tampil.id
Bandung, Indonesia



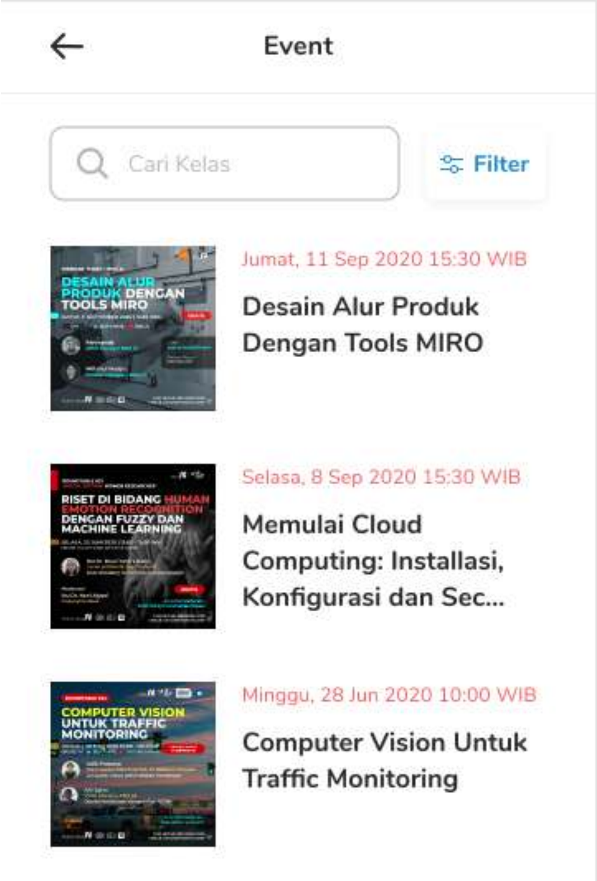
Kompetisi

Cari Kelas

Beasiswa Bootcamp Excel for Analytics
130 Points

Beasiswa Bootcamp Robotics
130 Points

Beasiswa Bootcamp Sentiment
130 Points



Event

Cari Kelas

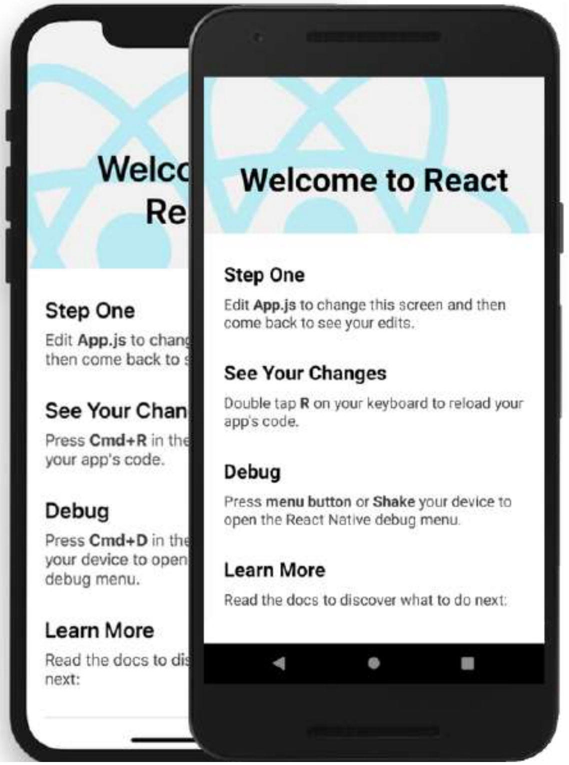
Filter

Jumat, 11 Sep 2020 15:30 WIB
Desain Alur Produk Dengan Tools MIRO

Selasa, 8 Sep 2020 15:30 WIB
Memulai Cloud Computing: Installasi, Konfigurasi dan Sec...

Minggu, 28 Jun 2020 10:00 WIB
Computer Vision Untuk Traffic Monitoring

# DEVELOPING THE APP


Welcome to React

Step One

Edit **App.js** to change this screen and then come back to see your edits.

See Your Changes

Double tap **R** on your keyboard to reload your app's code.

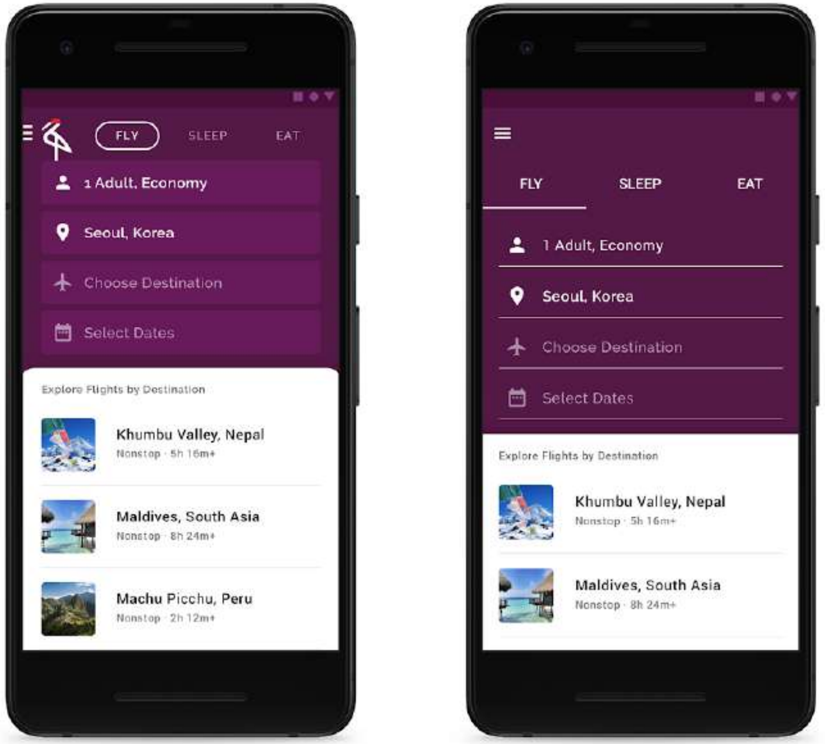
Debug

Press **menu button** or **Shake** your device to open the React Native debug menu.

Learn More

Read the docs to discover what to do next:

React Native



1 Adult, Economy

Seoul, Korea

Choose Destination

Select Dates

Explore Flights by Destination

Khumbu Valley, Nepal
Nonstop · 5h 16m+

Maldives, South Asia
Nonstop · 8h 24m+

Machu Picchu, Peru
Nonstop · 2h 12m+

Flutter

**Lainnya:**

- Android Java dan Kotlin
- IoS Objective C
- Ionic
- Xamarin
- etc

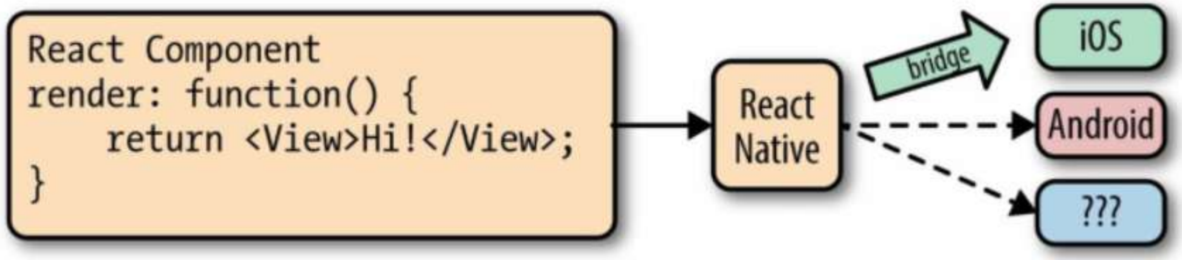
# PREPARING FOR LAUNCH

- your app’s name and icon
- badges and names of the stores where your app can be downloaded
- screenshots and your promotional video
- a mailing list/subscription form (pre-launch) and download links (post launch)
- contact and support information
- links to your social media accounts
- a press kit
- testimonials and user reviews (post launch)

# MEMULAI REACT NATIVE

# REACT NATIVE

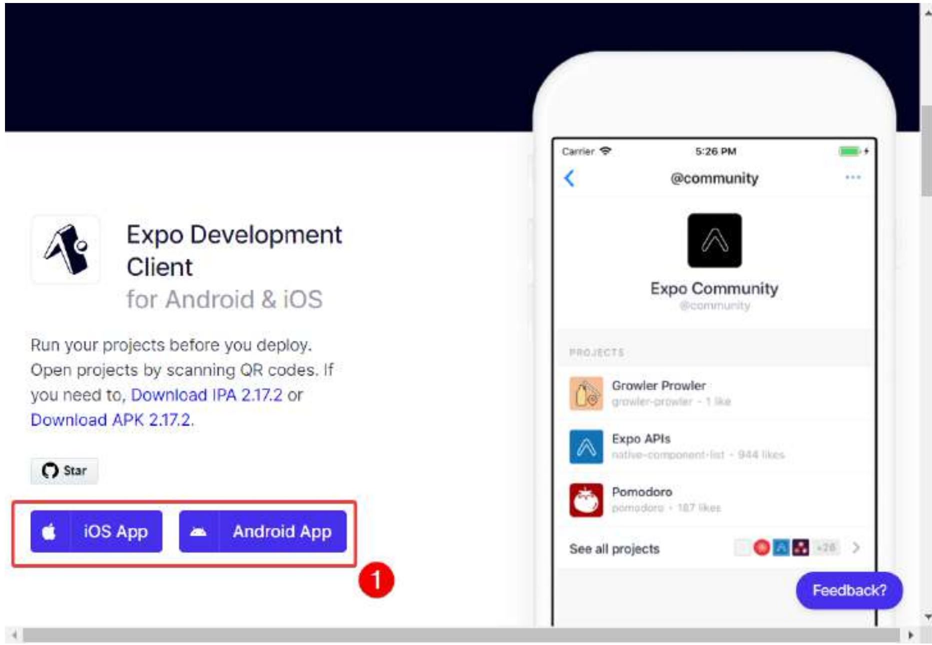
- Framework Javascript berbasis ReactJS yang dikembangkan oleh Facebook untuk membuat aplikasi Andrid dan IOS
- Mengkompilasi kode program javascript menjadi native kode Android dan IOS
- Digunakan oleh beberapa perusahaan besar di dunia seperti Facebook, Tesla, Walmart, hingga Instagram, Airbnb, Baidu, Gyroscope *



```
React Component
render: function() {
    return <View>Hi!</View>;
}
```

# INSTALL

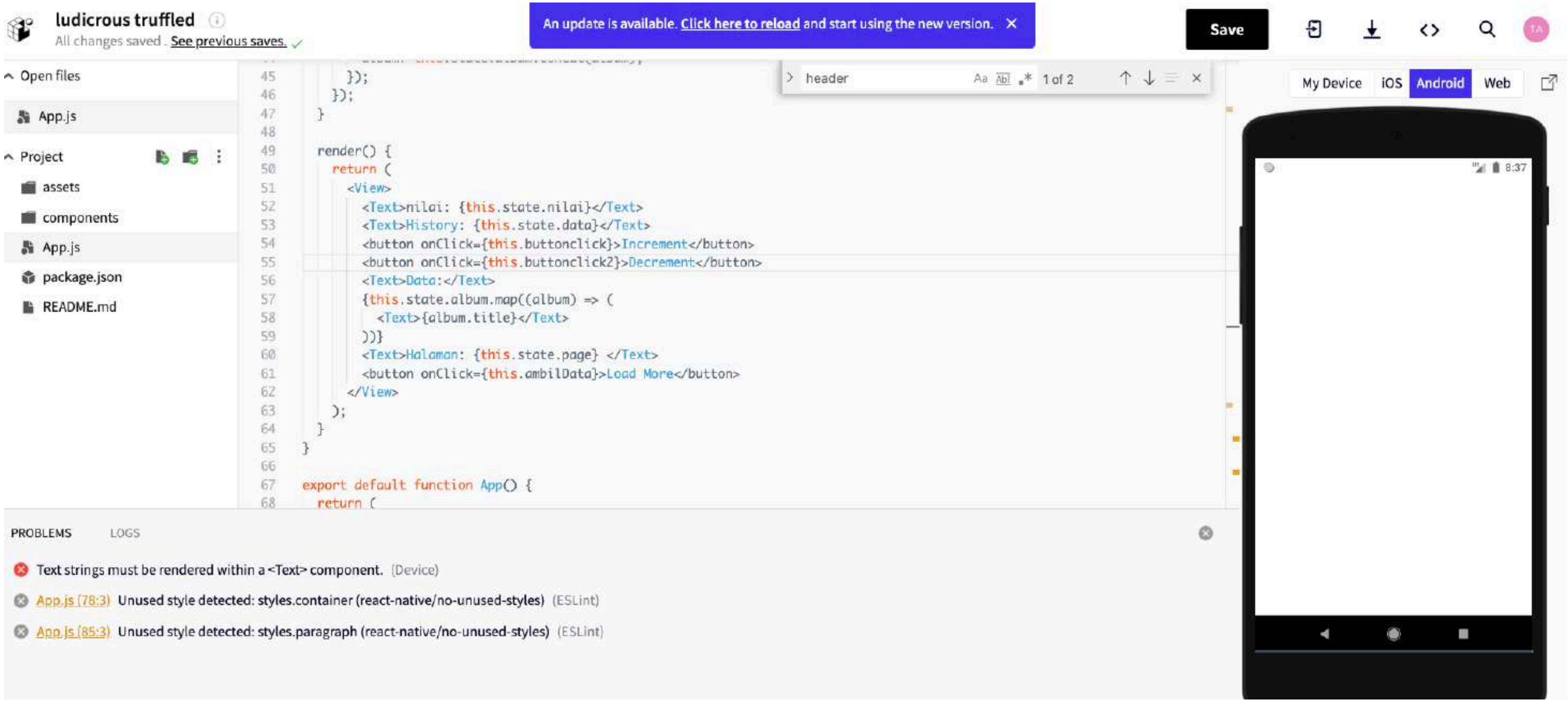
- Install Expo https://expo.io/tools
- Install Sublime https://www.sublimetext.com/3
- Atau buat aplikasi Online di https://snack.expo.io/



Expo Development Client for Android & iOS

Run your projects before you deploy. Open projects by scanning QR codes. If you need to, Download IPA 2.17.2 or Download APK 2.17.2.

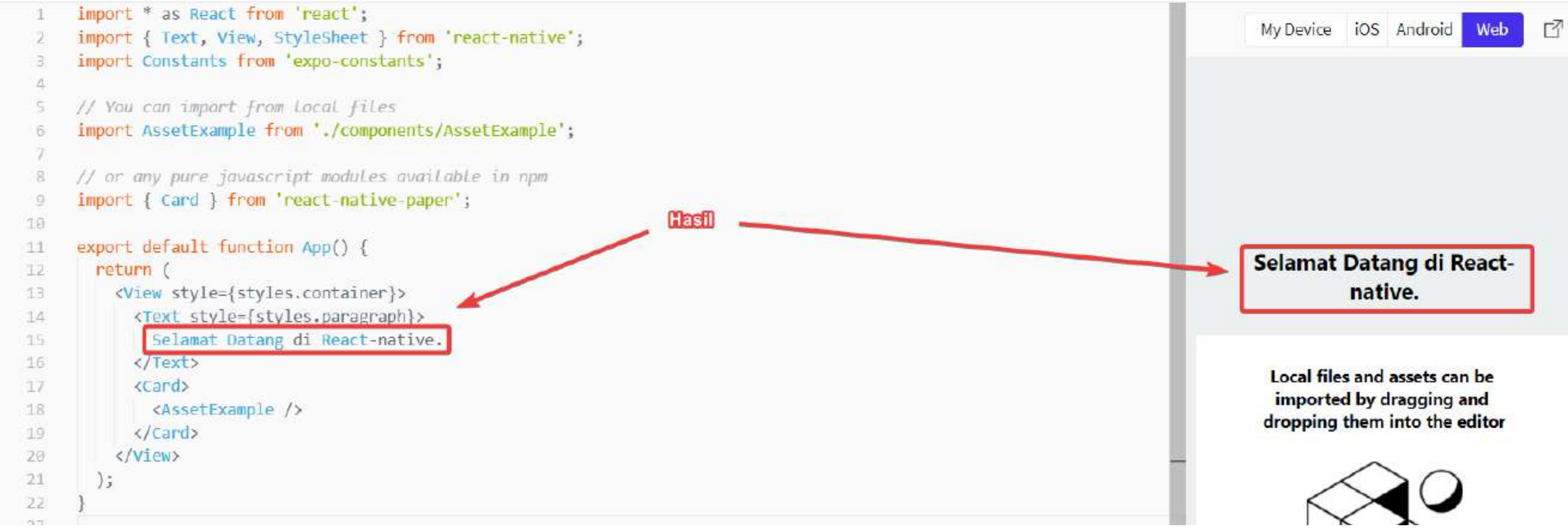
# REACT NATIVE WORKSPACE



```
      });
    });
  }

  render() {
    return (
      <View>
        <Text>nilai: {this.state.nilai}</Text>
        <Text>History: {this.state.data}</Text>
        <button onClick={this.buttonclick}>Increment</button>
        <button onClick={this.buttonclick2}>Decrement</button>
        <Text>Data:</Text>
        {this.state.album.map((album) => (
          <Text>{album.title}</Text>
        ))}
        <Text>Halaman: {this.state.page} </Text>
        <button onClick={this.ambilData}>Load More</button>
      </View>
    );
  }
}

export default function App() {
  return (
```

```
Text strings must be rendered within a <Text> component. (Device)
App.js (78:3) Unused style detected: styles.container (react-native/no-unused-styles) (ESLint)
App.js (85:3) Unused style detected: styles.paragraph (react-native/no-unused-styles) (ESLint)
```

# PROJECT PERTAMA

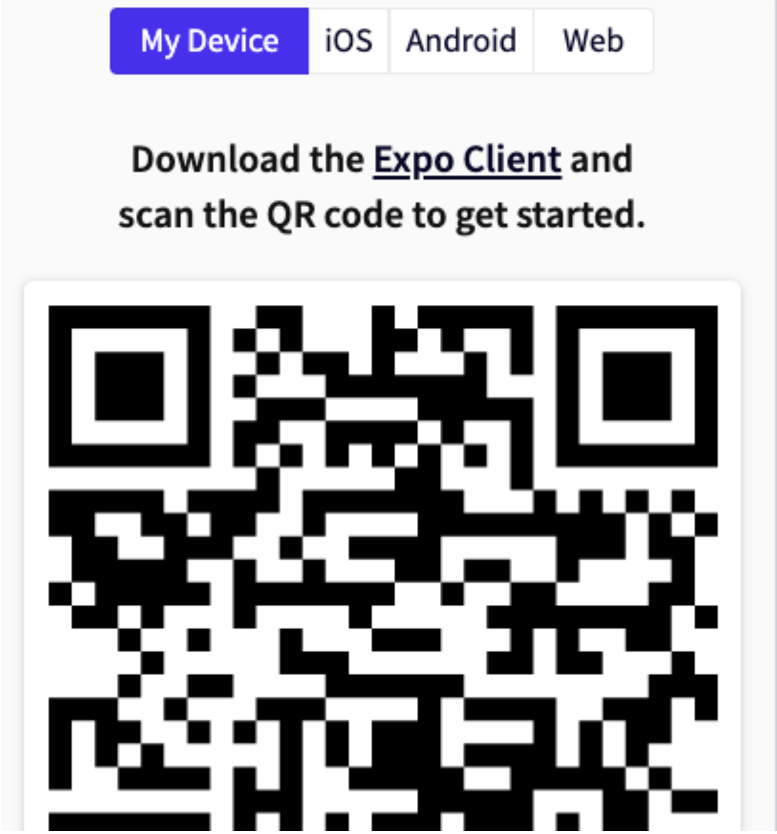


```
import * as React from 'react';
import { Text, View, StyleSheet } from 'react-native';
import Constants from 'expo-constants';

// You can import from local files
import AssetExample from './components/AssetExample';

// or any pure javascript modules available in npm
import { Card } from 'react-native-paper';

export default function App() {
  return (
    <View style={styles.container}>
      <Text style={styles.paragraph}>
        Selamat Datang di React-native.
      </Text>
      <Card>
        <AssetExample />
      </Card>
    </View>
  );
}
```

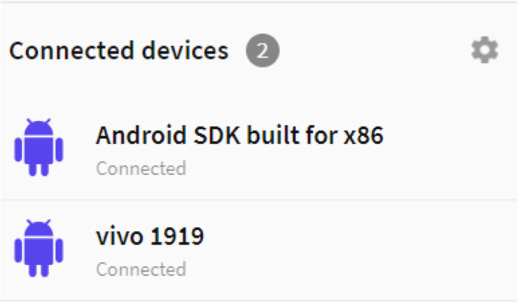
Selamat Datang di React-native.

Local files and assets can be imported by dragging and dropping them into the editor

# JALANKAN DI DEVICE



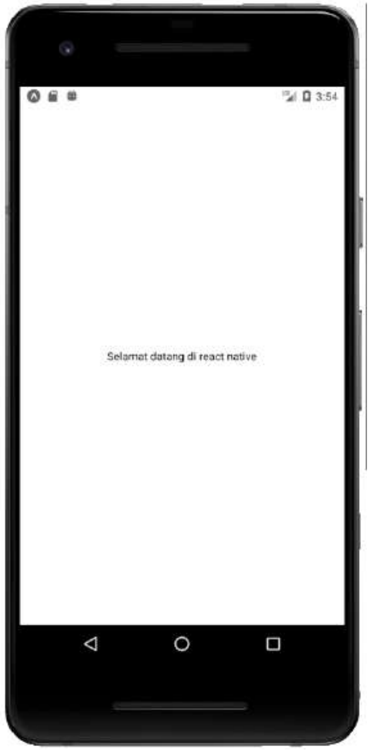
Download the Expo Client and scan the QR code to get started.



Connected devices 2

Android SDK built for x86
Connected

vivo 1919
Connected



Selamat datang di react native

# MATERI INTI DI REACT NATIVE

- Component
- State dan Props
- Styling
- Flexbox
- UI Component: Text, View, etc
- Button and Action
- Http

# LIVE CODING SESSION

HTTPS://WWW.TUTORIALSPOINT.COM/REACT_NATIVE/

# MEMULAI FLUTTER

# FLUTTER BASIC

- Flutter adalah **Cross-Platform Mobile App SDK** (Software Development Kit) untuk membuat aplikasi Android dan iOS dari satu codebase (shared) **dengan performa tinggi**.
- Saat ini flutter dapat digunakan untuk mengembangkan aplikasi Web, Linux dan MacOS. Namun fitur ini masih dalam tahap beta.
- Flutter dikembangkan oleh google dengan tujuan utama mempermudah pengembangan aplikasi mobile.
- Penggunaan flutter 100% gratis (Open Source).
- Dart merupakan bahasa pemrograman yang digunakan untuk mengembangkan aplikasi Flutter.

# INSTALLASI

1. ii. Download Flutter SDK Stable channel (Windows) versi terbaru:
   a. **Link: https://flutter.dev/docs/development/tools/sdk/releases**
   b. **Extract, dan simpan folder Flutter di tempat yang diinginkan. (Disarankan untuk menyimpan di C:/Flutter agar mudah ditemukan)**
2. **Update path agar dapat mengeksekusi perintah-perintah flutter pada command prompt**
4. Install Android Studio: https://developer.android.com/studio
5. Install Android Emulator:
   Ikuti Langkah-Langkah di link berikut: https://developer.android.com/studio/run/managing-avds
6. Cek instalasi flutter
   - **Pada CMD, input command Flutter Doctor.**
   - **Cek apakah semua persyaratan sudah dipenuhi (ceklis).**
   - **Ikuti perintah yang tertera agar tanda “X” atau “!” menjadi ceklis.**

# INSTALLASI

7. Install aplikasi text editor

   Untuk mengembangkan aplikasi, tentunya dibutuhkan text editor. Text Editor yang paling umum digunakan untuk mengembangkan aplikasi dengan Flutter adalah VSCode.

   i. **Download dan install VSCode melalui link berikut: https://code.visualstudio.com/docs?dv=win**

   ii. **Install Flutter plugin di VSCode:**

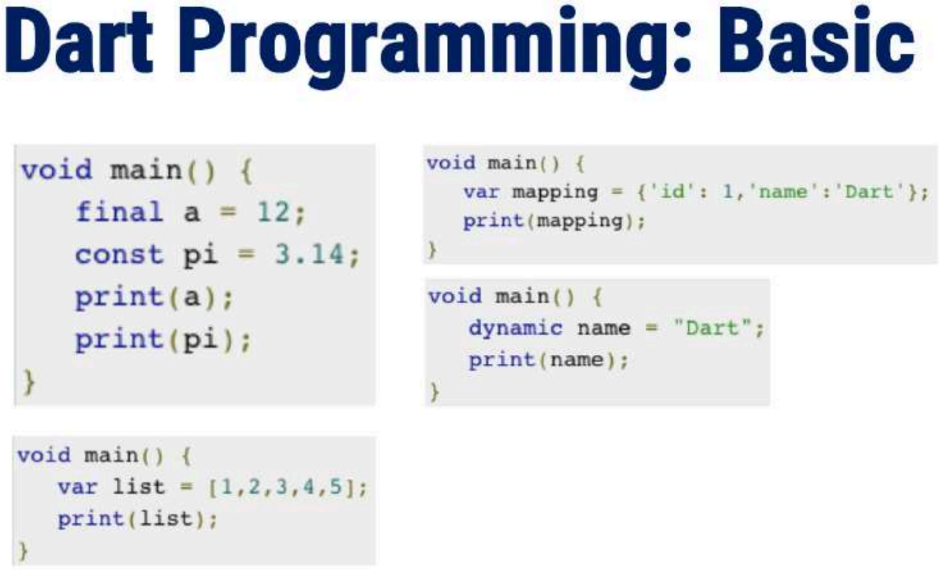
      - **Buka VSCode**
      - **Klik menu extension atau tekan ctrl+shift+x pada keyboard**
      - **Pada menu search, ketik Dart & Flutter. Install kedua plugin tersebut**

# BUAT APLIKASI FLUTTER

1. Pada windows explorer, buatlah folder untuk menyimpan Flutter project
2. Pada folder tersebut, klik kanan sambal menekan tombol shift
3. Pada dialog yang muncul, klik “Open Windows PowerShell here”
4. Masukkan Perintah: flutter create nama_aplikasi

   ***nama aplikasi harus menggunakan huruf kecil, setiap kata dipisahkan oleh underscore, dan dimulai dengan huruf**
5. Pindah ke directory flutter yang telah dibuat dengan perintah:
   cd nama_aplikasi
6. Masukkan perintah code .
   → VSCode akan otomatis terbuka

# DART PROGRAMMING



## Dart Programming: Basic

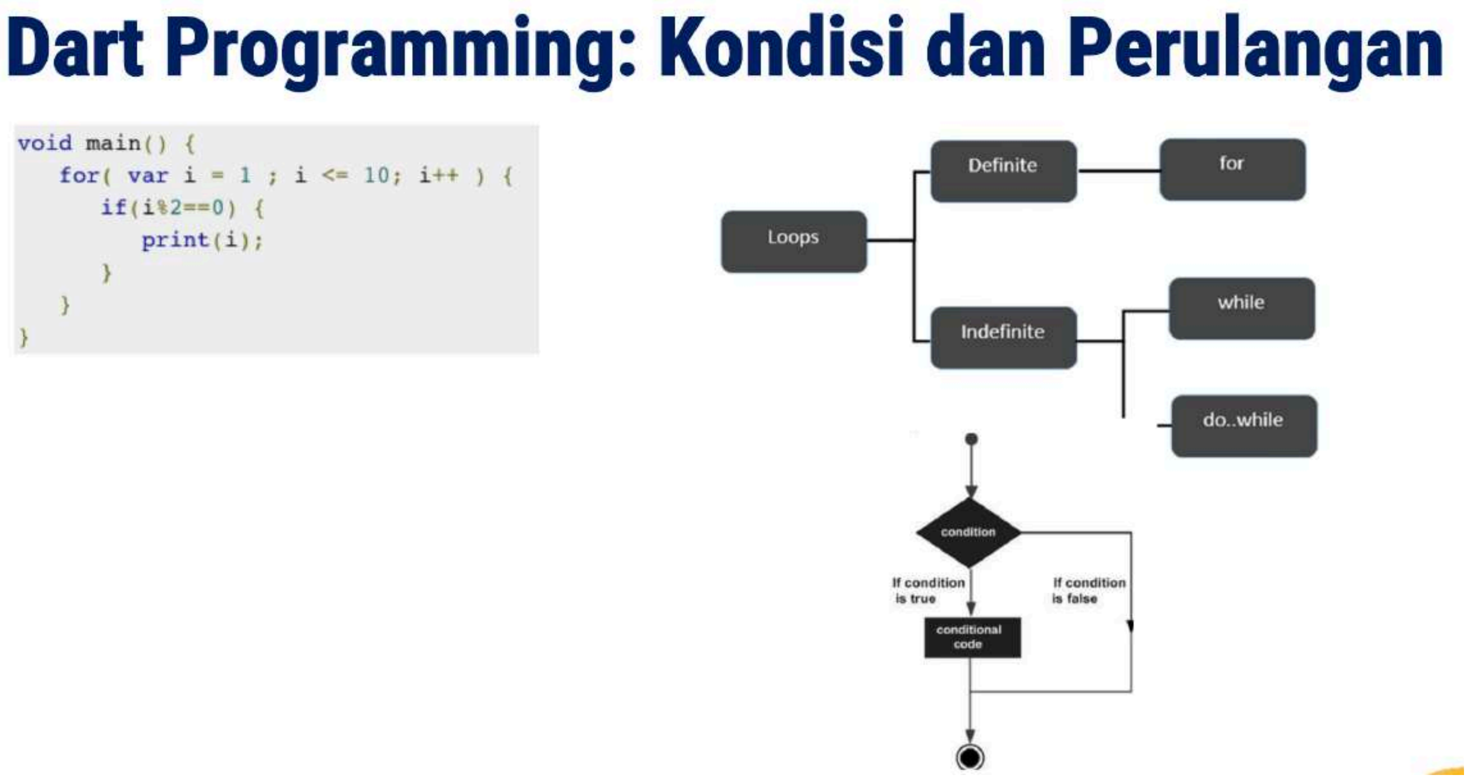
```dart
void main() {
   final a = 12;
   const pi = 3.14;
   print(a);
   print(pi);
}
```

```dart
void main() {
   var mapping = {'id': 1,'name':'Dart'};
   print(mapping);
}
```

```dart
void main() {
   dynamic name = "Dart";
   print(name);
}
```

```dart
void main() {
   var list = [1,2,3,4,5];
   print(list);
}
```

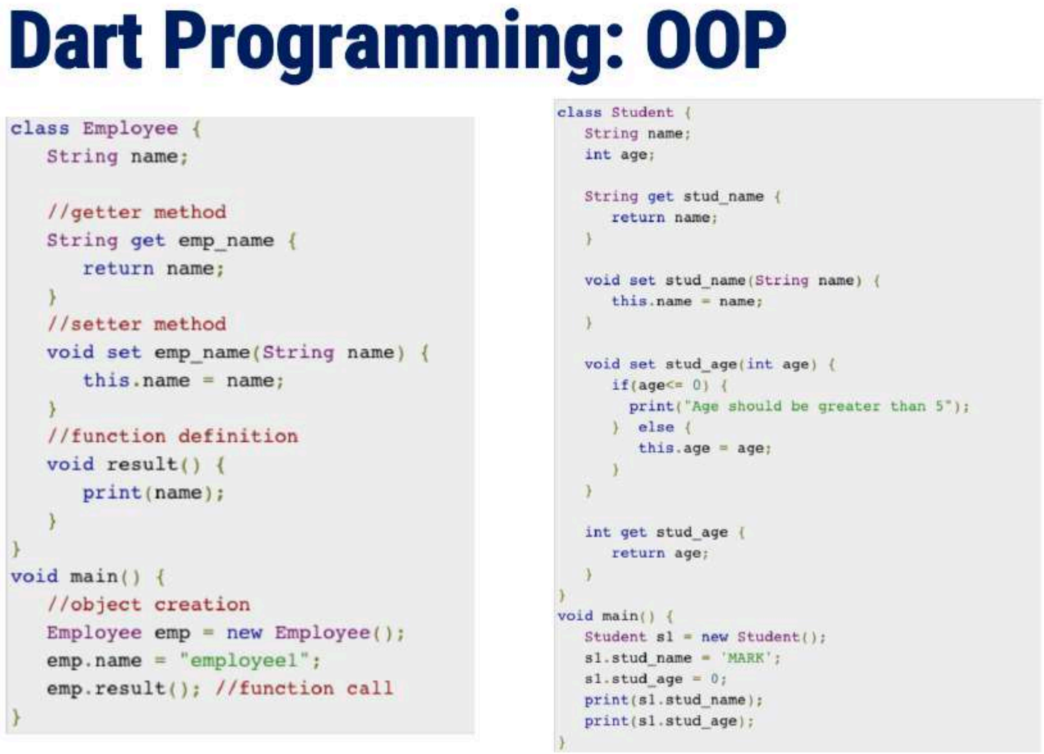
# DART PROGRAMMING



## Dart Programming: Kondisi dan Perulangan

```
void main() {
   for( var i = 1 ; i <= 10; i++ ) {
      if(i%2==0) {
         print(i);
      }
   }
}
```

# DART PROGRAMMING



## Dart Programming: OOP

```
class Employee {
   String name;

   //getter method
   String get emp_name {
      return name;
   }
   //setter method
   void set emp_name(String name) {
      this.name = name;
   }
   //function definition
   void result() {
      print(name);
   }
}
void main() {
   //object creation
   Employee emp = new Employee();
   emp.name = "employee1";
   emp.result(); //function call
}
```

```
class Student {
   String name;
   int age;

   String get stud_name {
      return name;
   }

   void set stud_name(String name) {
      this.name = name;
   }

   void set stud_age(int age) {
      if(age<= 0) {
        print("Age should be greater than 5");
      }  else {
         this.age = age;
      }
   }

   int get stud_age {
      return age;
   }
}
void main() {
   Student s1 = new Student();
   s1.stud_name = 'MARK';
   s1.stud_age = 0;
   print(s1.stud_name);
   print(s1.stud_age);
}
```

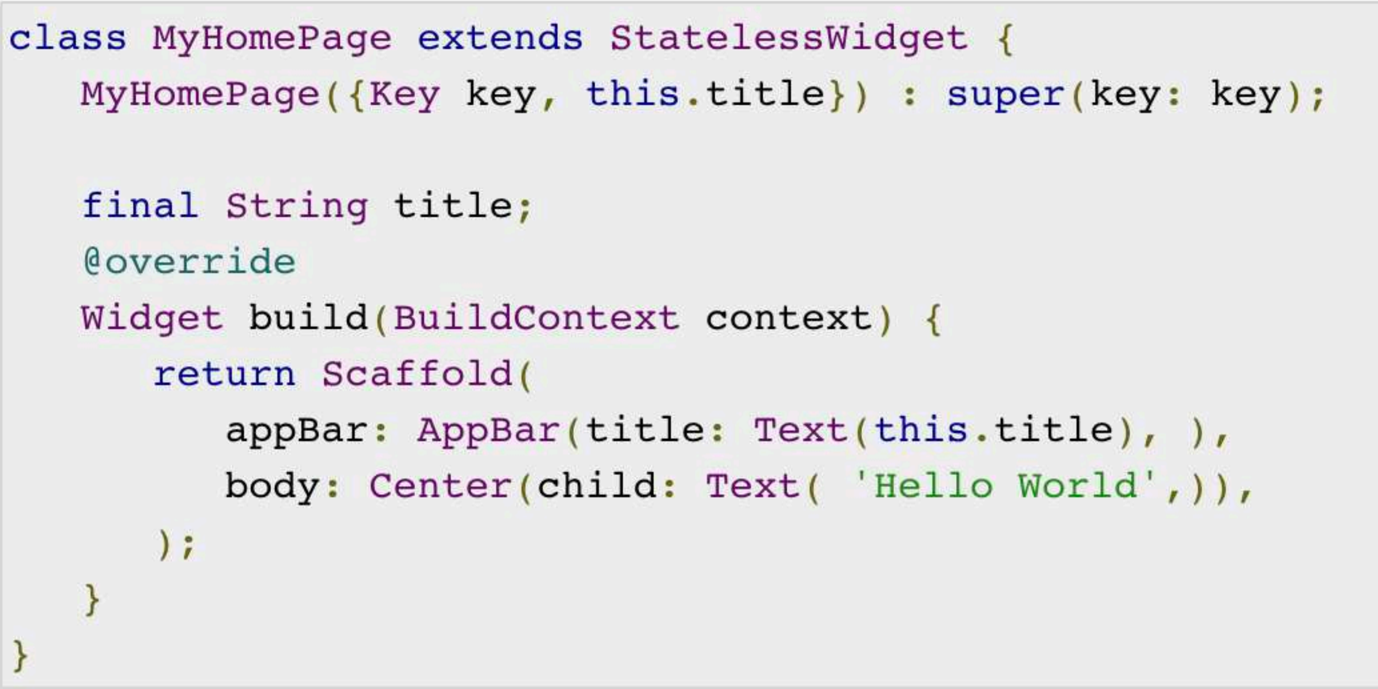
# MENJALANKAN EMULATOR

1. Pastikan Sistem Operasi HP anda Android
2. Pastikan HP ada sudah masuk ke dalam Developer Mode, jika belum silahkan baca artikel ini
3. Pastikan komputer yang anda pakai sudah terinstall driver Android Debug Bridge (adb), jika belum silahkan baca artikel ini
4. Jika ketiga poin tersebut sudah terpenuhi, silahkan lanjut ke slide berikut

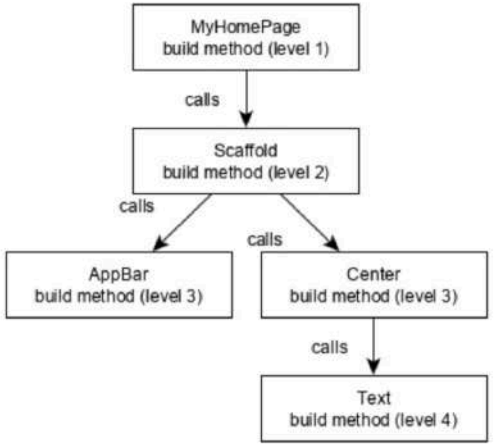
# STRUKTUR FLUTTER

- 📁 android berisi source code untuk aplikasi android;
- 📁 ios berisi source code untuk aplikasi iOS;
- 📁 **lib berisi source code Dart, di sini kita akan menulis kode aplikasi;**
- 📁 test berisi source code Dart untuk testing aplikasi;
- 📄 .gitignore adalah file Git;
- 📄 .metadata merupakan file yang berisi metadata project yang di-generate otomatis;
- 📄 .packages merupakan file yang berisi alamat path package yang dibuat oleh pub;
- 📄 flutter_app.iml merupakan file XML yang berisi keterangan project;
- 📄 pubspec.lock merupakan file yang berisi versi-versi library atau package. File ini dibuat oleh pub. Fungsinya untuk mengunci versi package.
- 📄 **pubspec.yaml merupakan file yang berisi informasi tentang project dan libraray yang dibutuhkan;**
- 📄 README.md merupakan file markdown yang berisi penjelasan tentang source code.

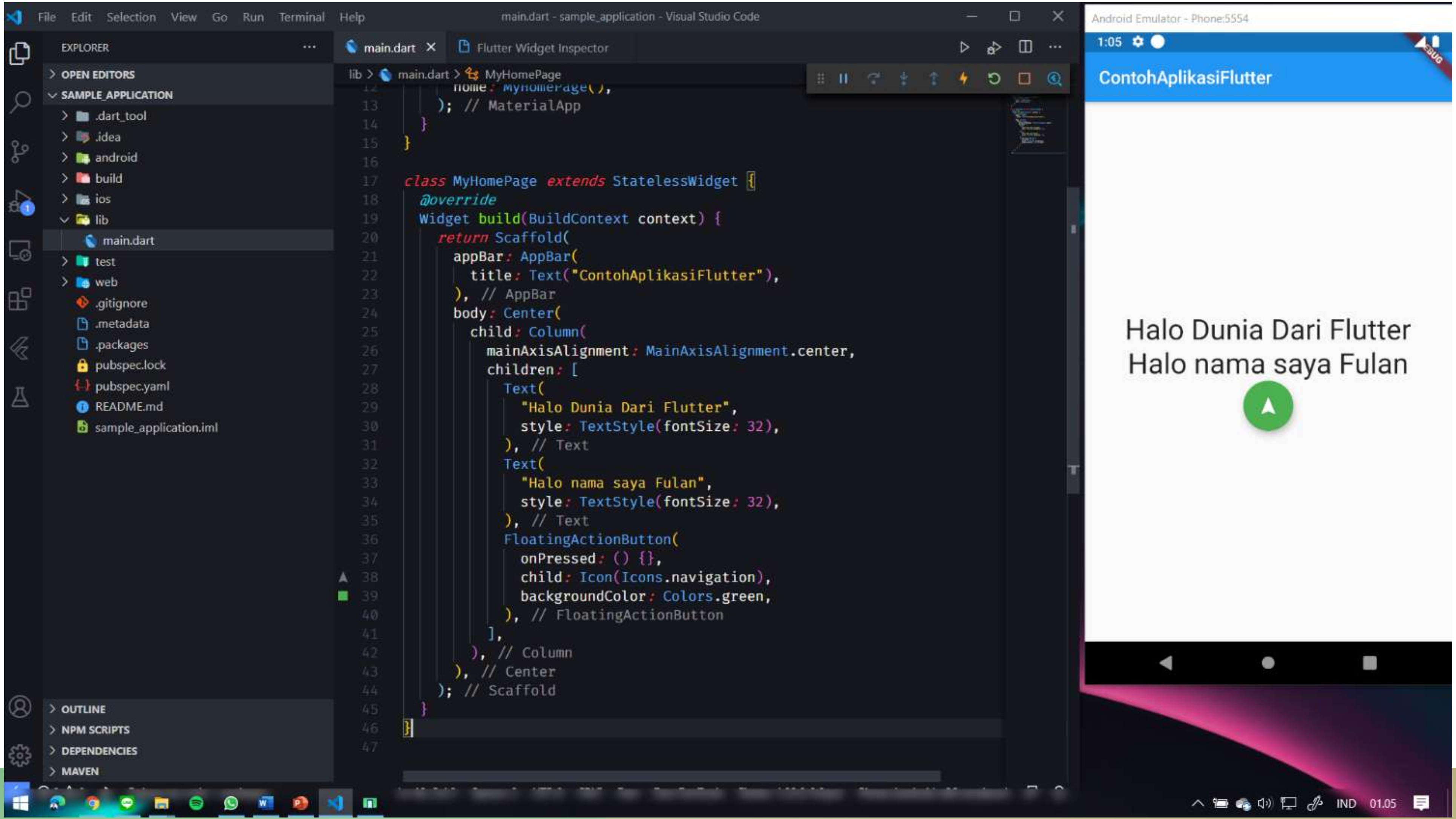
# WIDGET



```
class MyHomePage extends StatelessWidget {
   MyHomePage({Key key, this.title}) : super(key: key);

   final String title;
   @override
   Widget build(BuildContext context) {
      return Scaffold(
         appBar: AppBar(title: Text(this.title), ),
         body: Center(child: Text( 'Hello World',)),
      );
   }
}
```



# WIDGET

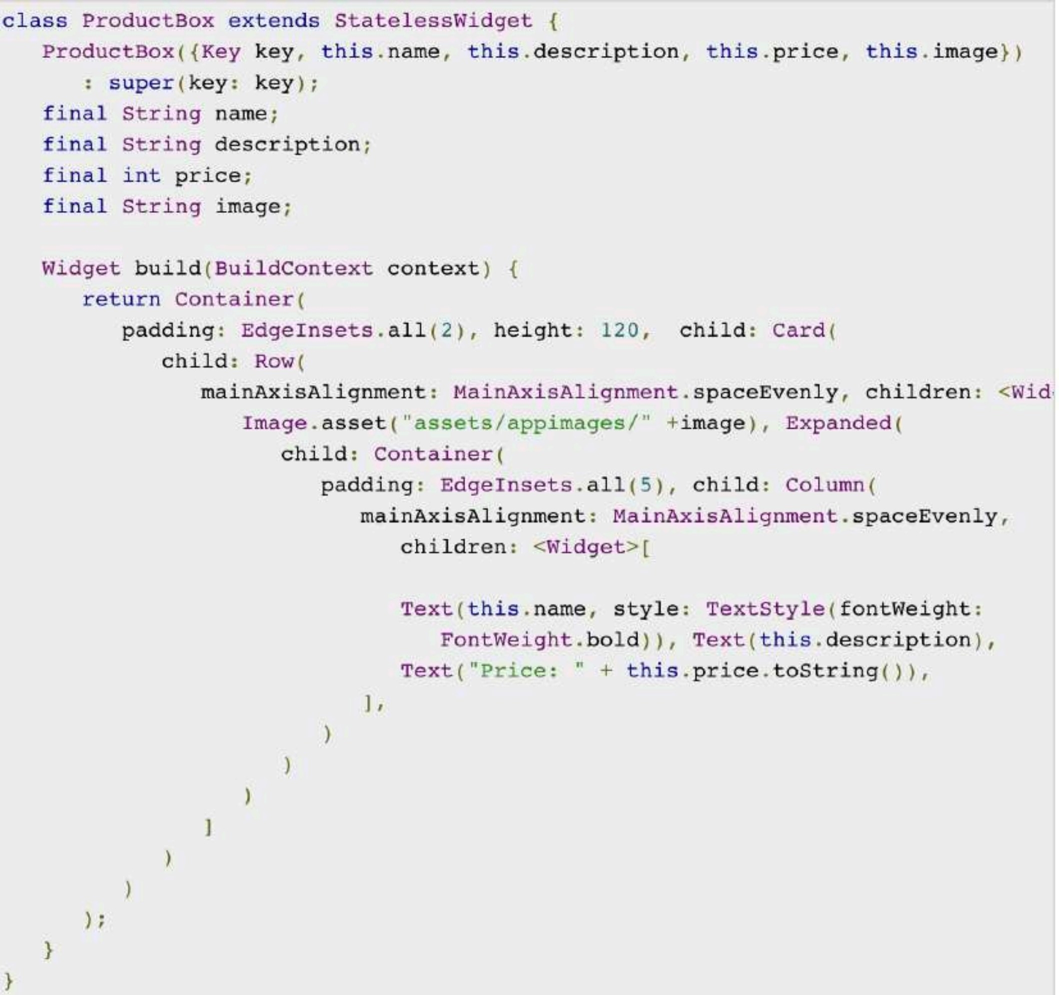


```dart
      home: MyHomePage(),
    ); // MaterialApp
  }
}

class MyHomePage extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    return Scaffold(
      appBar: AppBar(
        title: Text("ContohAplikasiFlutter"),
      ), // AppBar
      body: Center(
        child: Column(
          mainAxisAlignment: MainAxisAlignment.center,
          children: [
            Text(
              "Halo Dunia Dari Flutter",
              style: TextStyle(fontSize: 32),
            ), // Text
            Text(
              "Halo nama saya Fulan",
              style: TextStyle(fontSize: 32),
            ), // Text
            FloatingActionButton(
              onPressed: () {},
              child: Icon(Icons.navigation),
              backgroundColor: Colors.green,
            ), // FloatingActionButton
          ],
        ), // Column
      ), // Center
    ); // Scaffold
  }
}
```

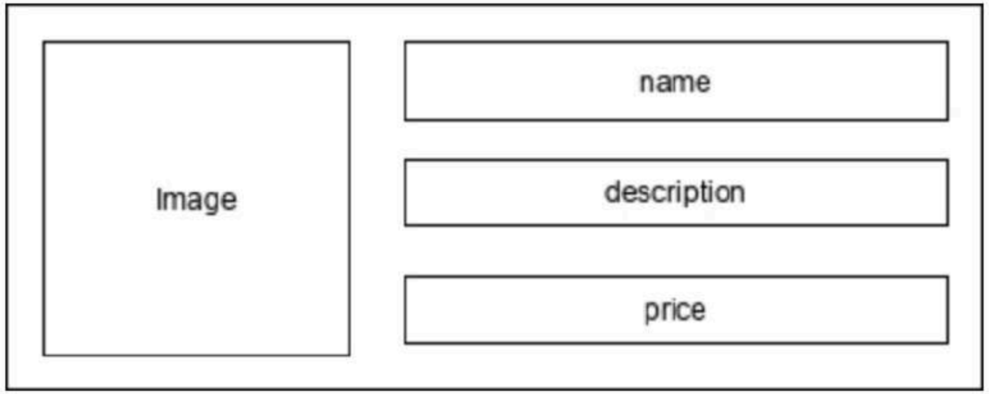
ContohAplikasiFlutter

Halo Dunia Dari Flutter
Halo nama saya Fulan

# LAYOUT WIDGET



```
class ProductBox extends StatelessWidget {
   ProductBox({Key key, this.name, this.description, this.price, this.image})
      : super(key: key);
   final String name;
   final String description;
   final int price;
   final String image;

   Widget build(BuildContext context) {
      return Container(
         padding: EdgeInsets.all(2), height: 120,  child: Card(
            child: Row(
               mainAxisAlignment: MainAxisAlignment.spaceEvenly, children: <Wid
                  Image.asset("assets/appimages/" +image), Expanded(
                     child: Container(
                        padding: EdgeInsets.all(5), child: Column(
                           mainAxisAlignment: MainAxisAlignment.spaceEvenly,
                              children: <Widget>[

                              Text(this.name, style: TextStyle(fontWeight:
                                 FontWeight.bold)), Text(this.description),
                              Text("Price: " + this.price.toString()),
                           ],
                        )
                     )
                  )
               ]
            )
         )
      );
   }
}
```



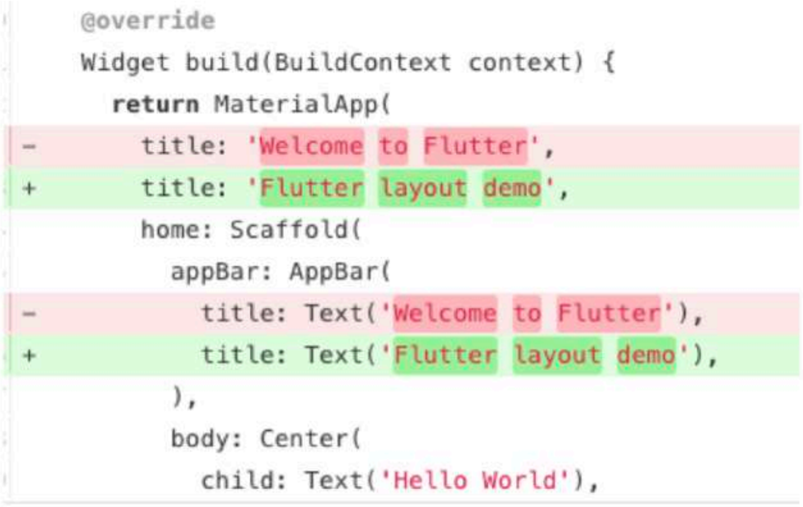
# LAYOUT WIDGET

## Building Layout

- Step 0: Create the app base code
- Step 1: Diagram the layout
- Step 2: Implement the title row
- Step 3: Implement the button row
- Step 4: Implement the text section
- Step 5: Implement the image section
- Step 6: Final touch

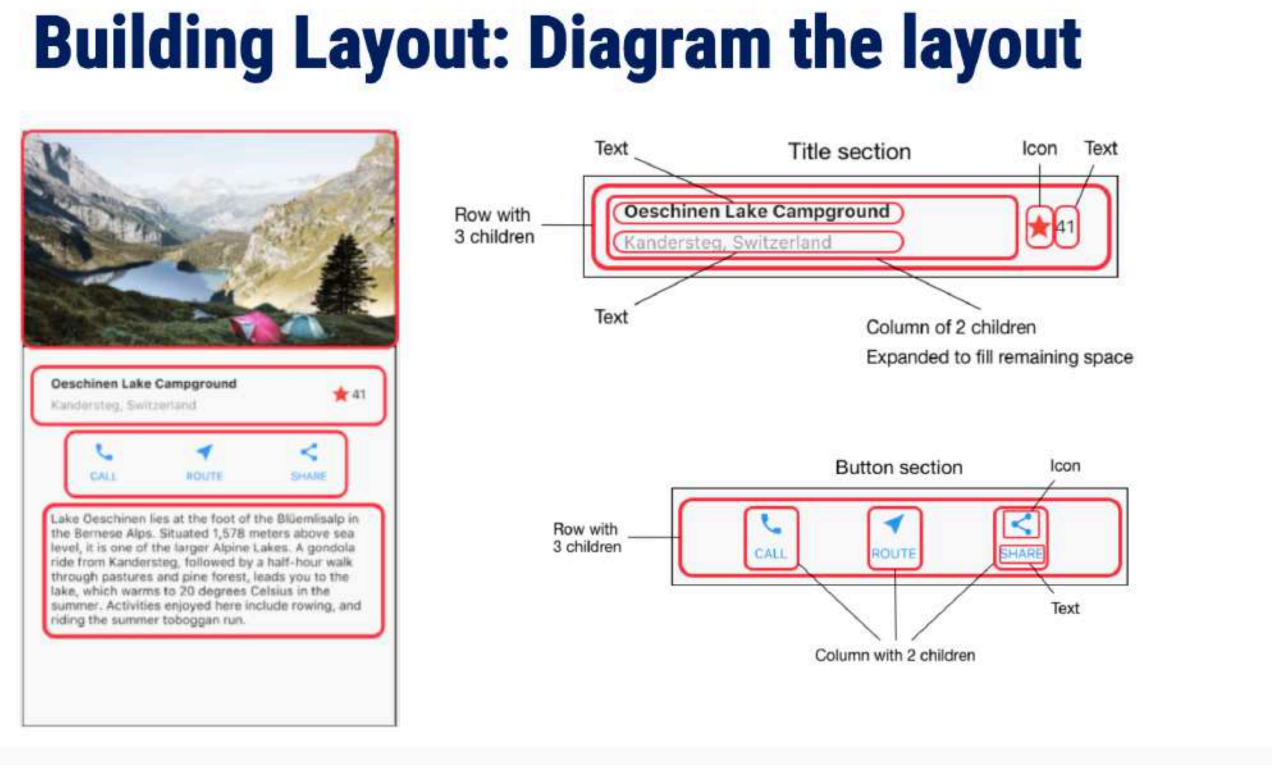
# LAYOUT WIDGET

## Building Layout: Create the app base code



```
    @override
    Widget build(BuildContext context) {
      return MaterialApp(
-       title: 'Welcome to Flutter',
+       title: 'Flutter layout demo',
        home: Scaffold(
          appBar: AppBar(
-           title: Text('Welcome to Flutter'),
+           title: Text('Flutter layout demo'),
          ),
          body: Center(
            child: Text('Hello World'),
```

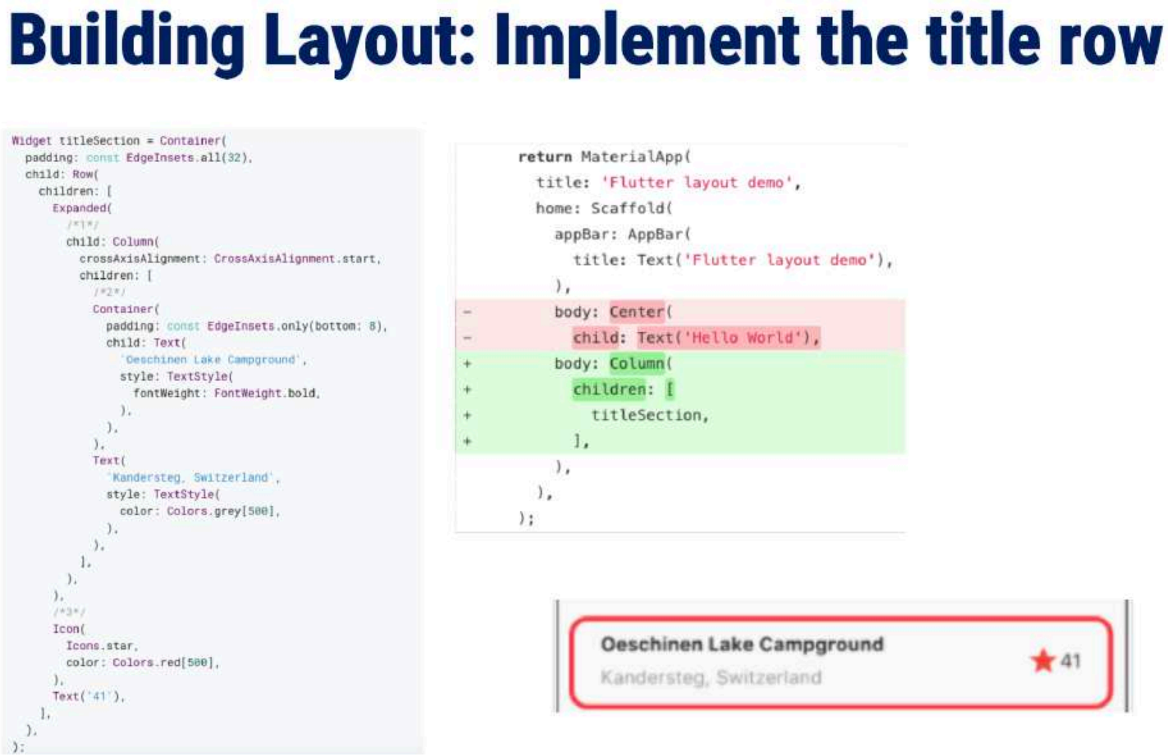
# LAYOUT WIDGET



## Building Layout: Diagram the layout

Lake Oeschinen lies at the foot of the Blüemlisalp in the Bernese Alps. Situated 1,578 meters above sea level, it is one of the larger Alpine Lakes. A gondola ride from Kandersteg, followed by a half-hour walk through pastures and pine forest, leads you to the lake, which warms to 20 degrees Celsius in the summer. Activities enjoyed here include rowing, and riding the summer toboggan run.

# LAYOUT WIDGET



## Building Layout: Implement the title row

```
Widget titleSection = Container(
  padding: const EdgeInsets.all(32),
  child: Row(
    children: [
      Expanded(
        /*1*/
        child: Column(
          crossAxisAlignment: CrossAxisAlignment.start,
          children: [
            /*2*/
            Container(
              padding: const EdgeInsets.only(bottom: 8),
              child: Text(
                'Oeschinen Lake Campground',
                style: TextStyle(
                  fontWeight: FontWeight.bold,
                ),
              ),
            ),
            Text(
              'Kandersteg, Switzerland',
              style: TextStyle(
                color: Colors.grey[500],
              ),
            ),
          ],
        ),
      ),
      /*3*/
      Icon(
        Icons.star,
        color: Colors.red[500],
      ),
      Text('41'),
    ],
  ),
);
```

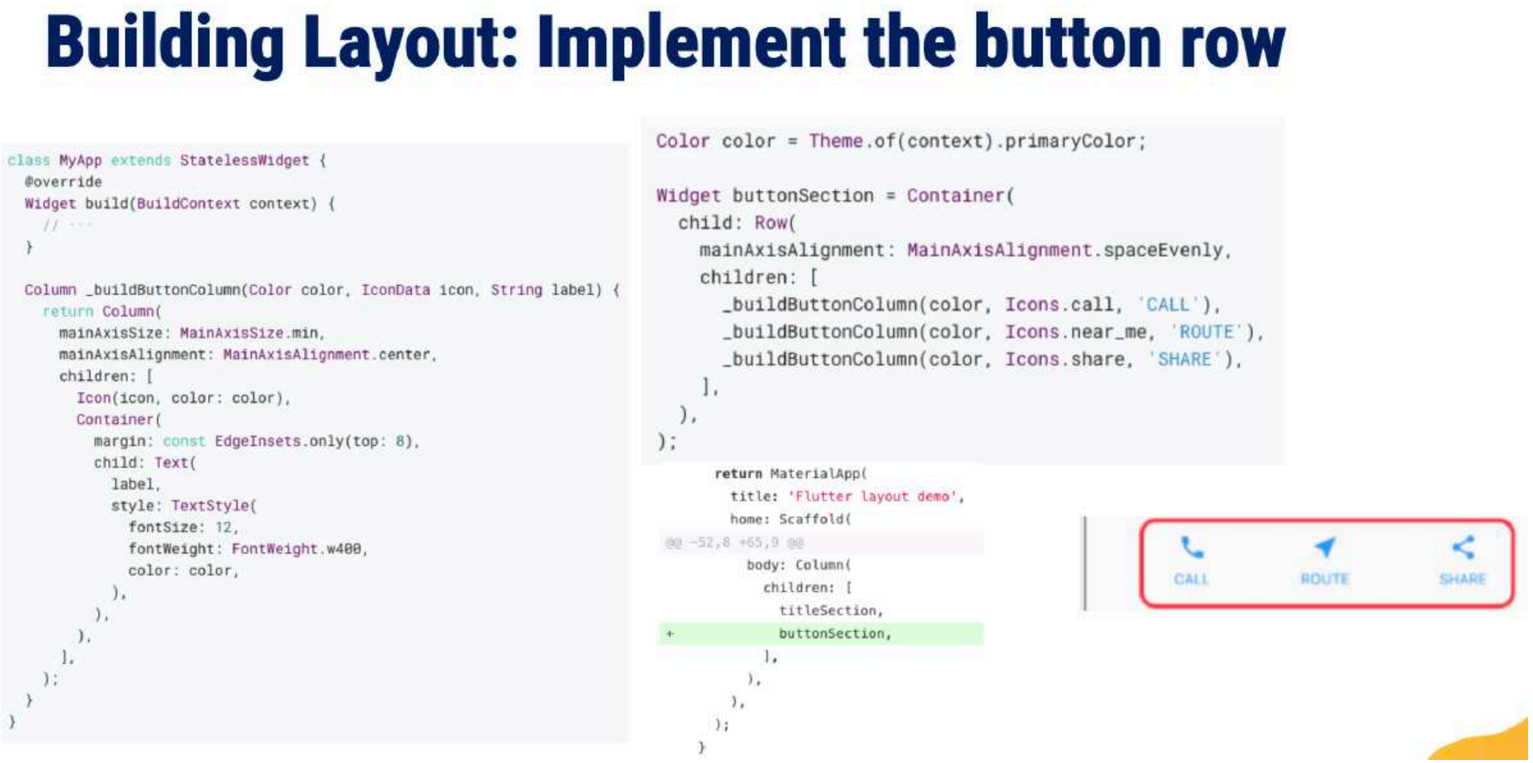
```
    return MaterialApp(
      title: 'Flutter layout demo',
      home: Scaffold(
        appBar: AppBar(
          title: Text('Flutter layout demo'),
        ),
-       body: Center(
-         child: Text('Hello World'),
+       body: Column(
+         children: [
+           titleSection,
+         ],
        ),
      ),
    );
```

Oeschinen Lake Campground

Kandersteg, Switzerland

★ 41

# LAYOUT WIDGET



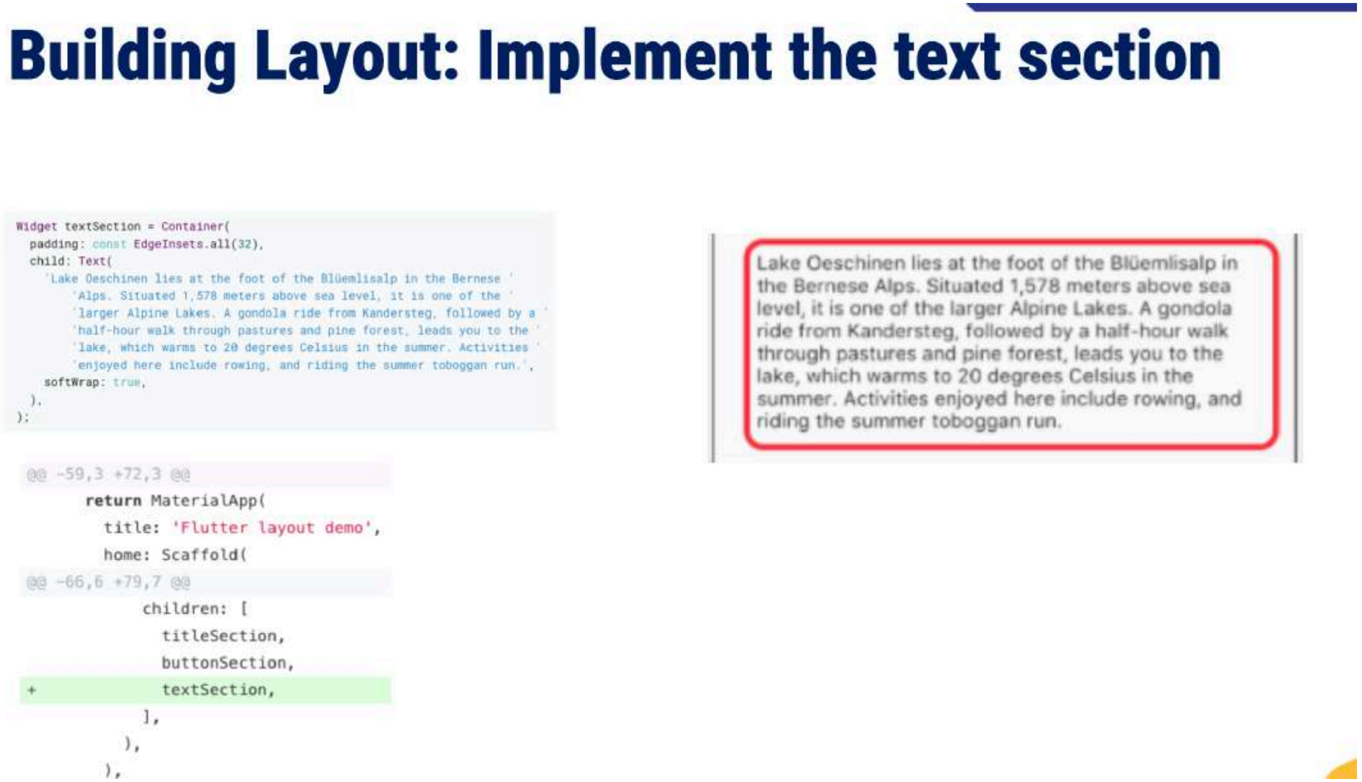
## Building Layout: Implement the button row

```
class MyApp extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    // ···
  }

  Column _buildButtonColumn(Color color, IconData icon, String label) {
    return Column(
      mainAxisSize: MainAxisSize.min,
      mainAxisAlignment: MainAxisAlignment.center,
      children: [
        Icon(icon, color: color),
        Container(
          margin: const EdgeInsets.only(top: 8),
          child: Text(
            label,
            style: TextStyle(
              fontSize: 12,
              fontWeight: FontWeight.w400,
              color: color,
            ),
          ),
        ),
      ],
    );
  }
}
```

```
Color color = Theme.of(context).primaryColor;

Widget buttonSection = Container(
  child: Row(
    mainAxisAlignment: MainAxisAlignment.spaceEvenly,
    children: [
      _buildButtonColumn(color, Icons.call, 'CALL'),
      _buildButtonColumn(color, Icons.near_me, 'ROUTE'),
      _buildButtonColumn(color, Icons.share, 'SHARE'),
    ],
  ),
);
```

```
      return MaterialApp(
        title: 'Flutter layout demo',
        home: Scaffold(
@@ -52,8 +65,9 @@
          body: Column(
            children: [
              titleSection,
+             buttonSection,
            ],
          ),
        ),
      );
    }
```

# LAYOUT WIDGET



## Building Layout: Implement the text section

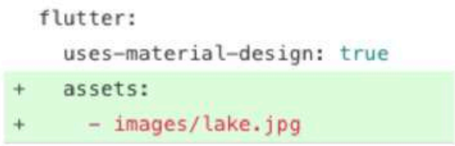
```
Widget textSection = Container(
  padding: const EdgeInsets.all(32),
  child: Text(
    'Lake Oeschinen lies at the foot of the Blüemlisalp in the Bernese '
        'Alps. Situated 1,578 meters above sea level, it is one of the '
        'larger Alpine Lakes. A gondola ride from Kandersteg, followed by a '
        'half-hour walk through pastures and pine forest, leads you to the '
        'lake, which warms to 20 degrees Celsius in the summer. Activities '
        'enjoyed here include rowing, and riding the summer toboggan run.',
    softWrap: true,
  ),
);
```

```
@@ -59,3 +72,3 @@
      return MaterialApp(
        title: 'Flutter layout demo',
        home: Scaffold(
@@ -66,6 +79,7 @@
            children: [
              titleSection,
              buttonSection,
+             textSection,
            ],
          ),
        ),
```

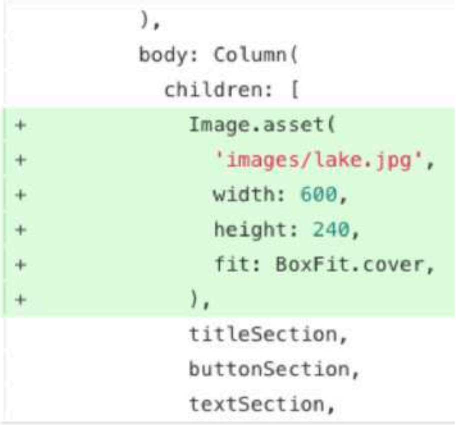
Lake Oeschinen lies at the foot of the Blüemlisalp in the Bernese Alps. Situated 1,578 meters above sea level, it is one of the larger Alpine Lakes. A gondola ride from Kandersteg, followed by a half-hour walk through pastures and pine forest, leads you to the lake, which warms to 20 degrees Celsius in the summer. Activities enjoyed here include rowing, and riding the summer toboggan run.

# LAYOUT WIDGET

## Building Layout: Implement the image section

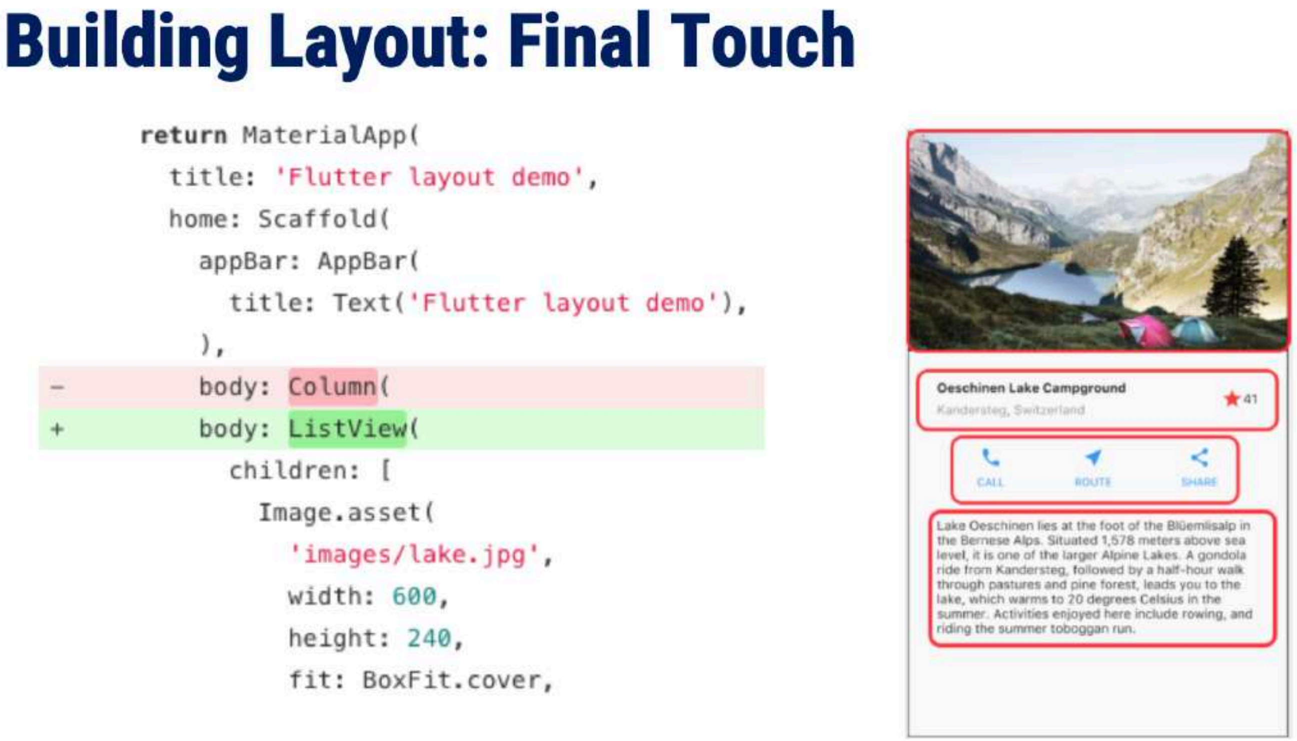


```
  flutter:
    uses-material-design: true
+   assets:
+     - images/lake.jpg
```



```
          ),
          body: Column(
            children: [
+             Image.asset(
+               'images/lake.jpg',
+               width: 600,
+               height: 240,
+               fit: BoxFit.cover,
+             ),
              titleSection,
              buttonSection,
              textSection,
```

# LAYOUT WIDGET



## Building Layout: Final Touch

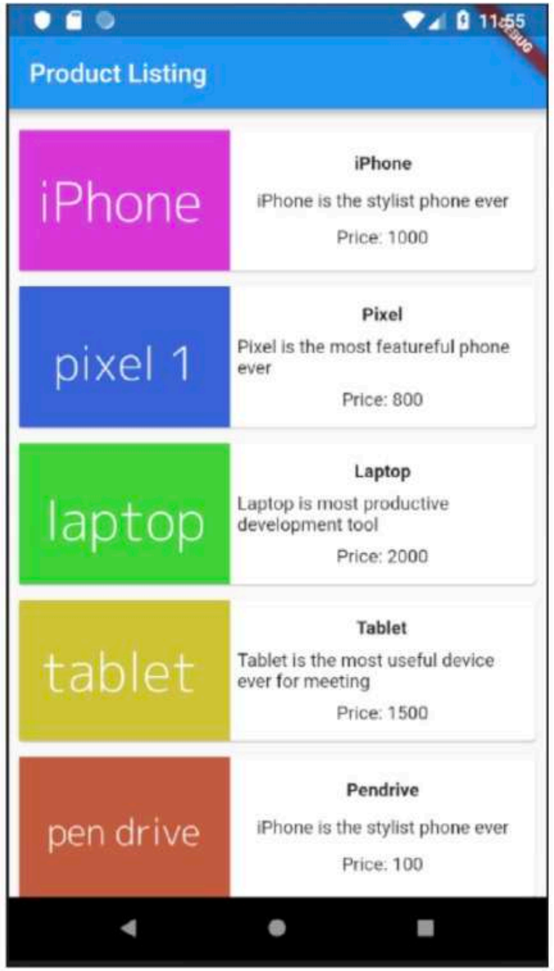
```
return MaterialApp(
  title: 'Flutter layout demo',
  home: Scaffold(
    appBar: AppBar(
      title: Text('Flutter layout demo'),
    ),
-   body: Column(
+   body: ListView(
      children: [
        Image.asset(
          'images/lake.jpg',
          width: 600,
          height: 240,
          fit: BoxFit.cover,
```

Oeschinen Lake Campground

Kandersteg, Switzerland

Lake Oeschinen lies at the foot of the Blüemlisalp in the Bernese Alps. Situated 1,578 meters above sea level, it is one of the larger Alpine Lakes. A gondola ride from Kandersteg, followed by a half-hour walk through pastures and pine forest, leads you to the lake, which warms to 20 degrees Celsius in the summer. Activities enjoyed here include rowing, and riding the summer toboggan run.

# LAYOUT WIDGET



Product Listing

**iPhone**

iPhone is the stylist phone ever

Price: 1000

**Pixel**

Pixel is the most featureful phone ever

Price: 800

**Laptop**

Laptop is most productive development tool

Price: 2000

**Tablet**

Tablet is the most useful device ever for meeting

Price: 1500

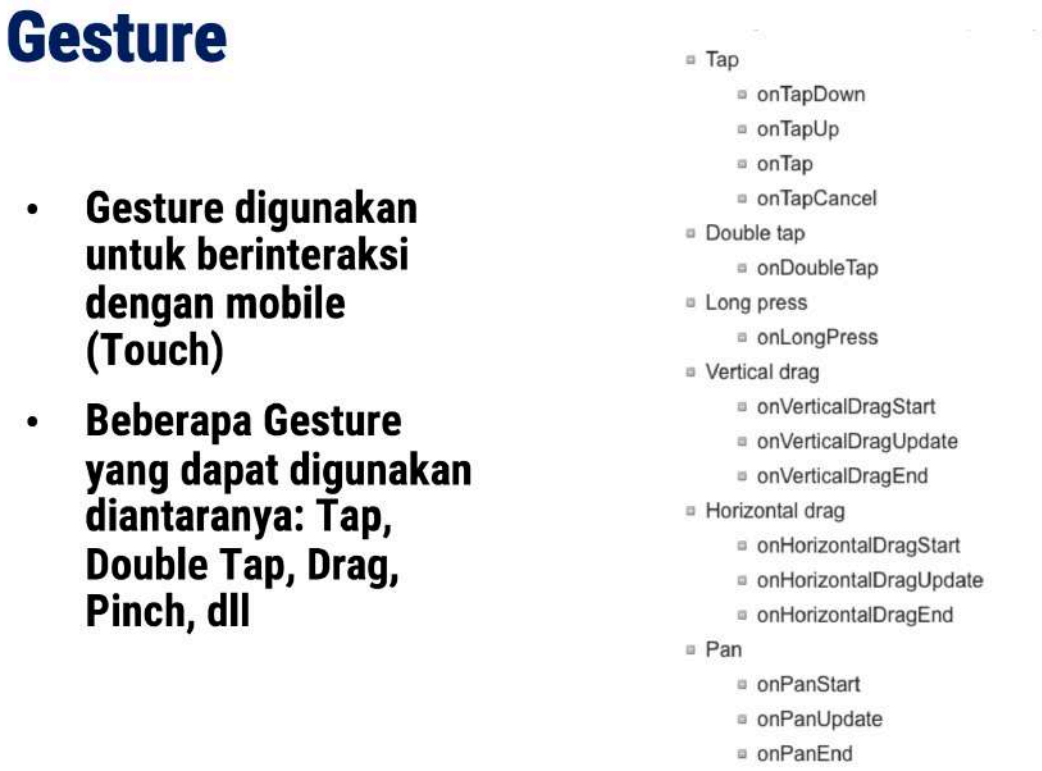
**Pendrive**

iPhone is the stylist phone ever

Price: 100

https://www.tutorialspoint.com/flutter/flutter_introduction_to_layouts.htm

# GESTURE



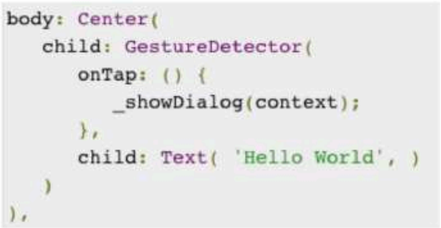
## Gesture

- Gesture digunakan untuk berinteraksi dengan mobile (Touch)
- Beberapa Gesture yang dapat digunakan diantaranya: Tap, Double Tap, Drag, Pinch, dll

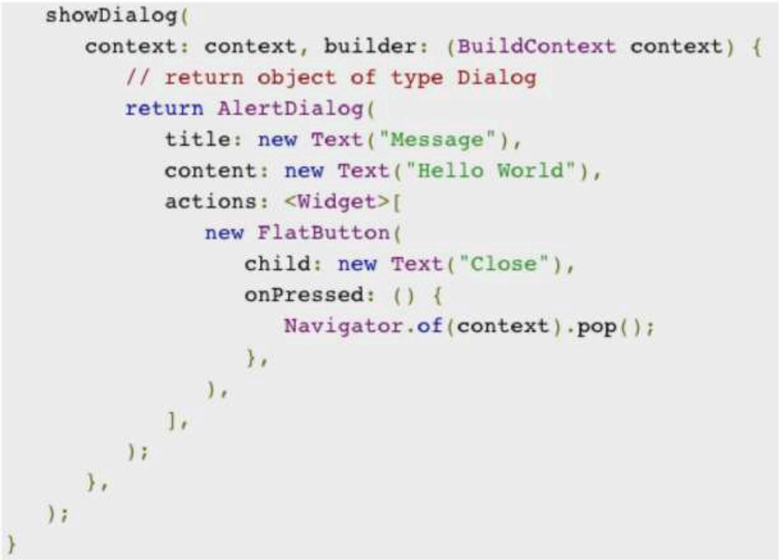
- Tap
  - onTapDown
  - onTapUp
  - onTap
  - onTapCancel
- Double tap
  - onDoubleTap
- Long press
  - onLongPress
- Vertical drag
  - onVerticalDragStart
  - onVerticalDragUpdate
  - onVerticalDragEnd
- Horizontal drag
  - onHorizontalDragStart
  - onHorizontalDragUpdate
  - onHorizontalDragEnd
- Pan
  - onPanStart
  - onPanUpdate
  - onPanEnd

# GESTURE

## Gesture

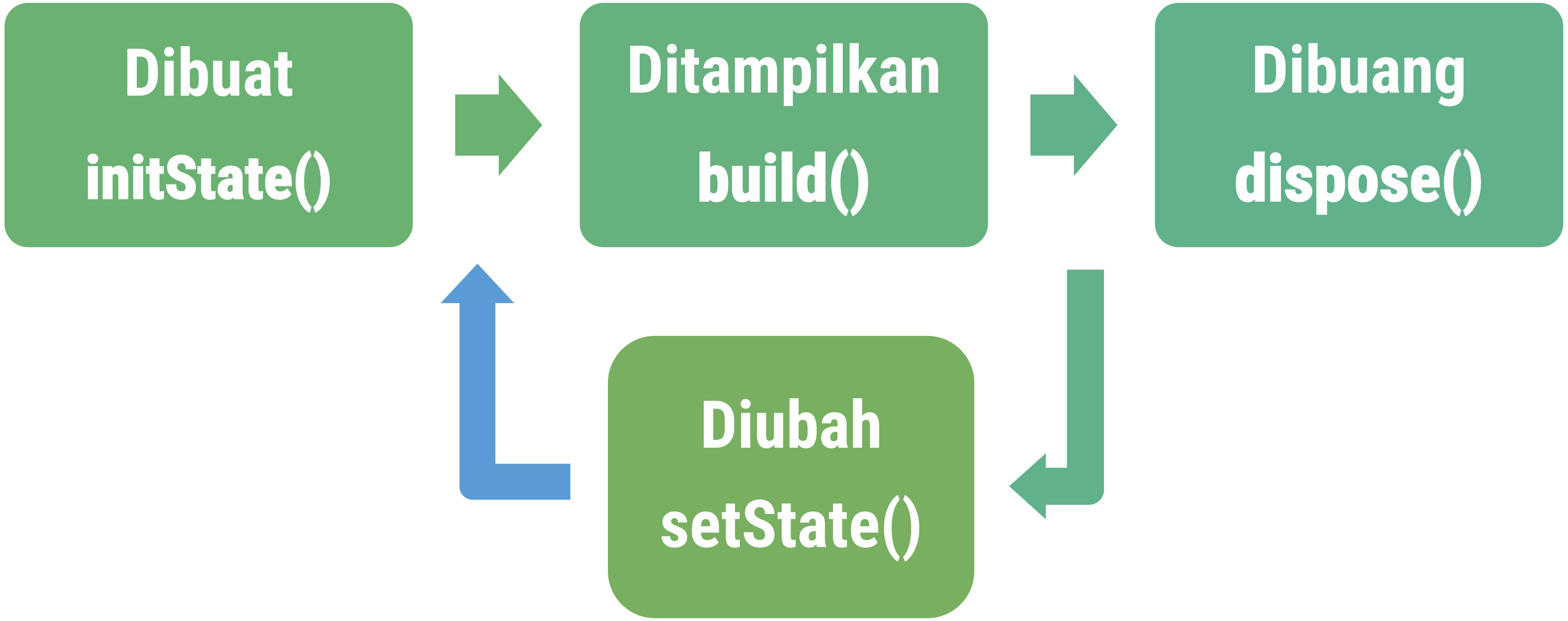


```
body: Center(
   child: GestureDetector(
      onTap: () {
         _showDialog(context);
      },
      child: Text( 'Hello World', )
   )
),
```



```
   showDialog(
      context: context, builder: (BuildContext context) {
         // return object of type Dialog
         return AlertDialog(
            title: new Text("Message"),
            content: new Text("Hello World"),
            actions: <Widget>[
               new FlatButton(
                  child: new Text("Close"),
                  onPressed: () {
                     Navigator.of(context).pop();
                  },
               ),
            ],
         );
      },
   );
}
```

# Siklus hidup sebuah widget



Dibuat

initState()

Ditampilkan

build()

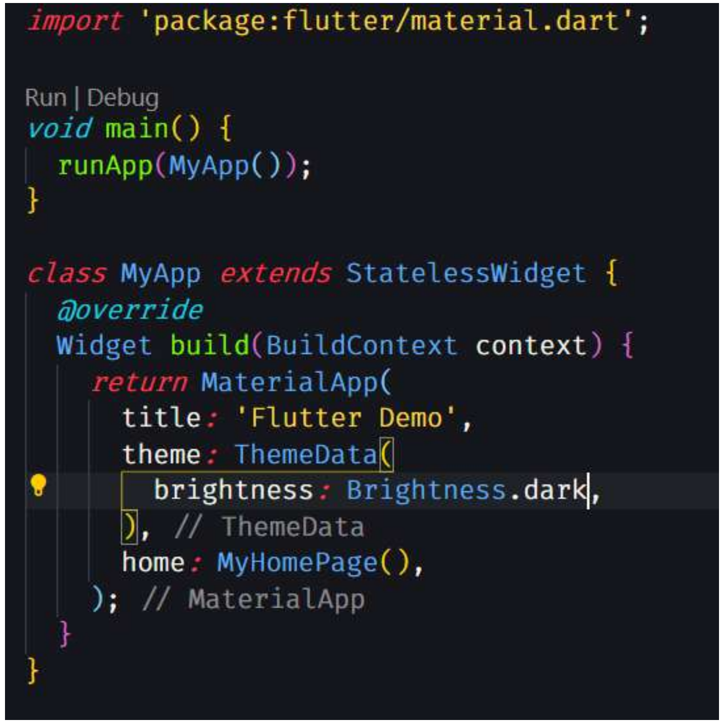
Dibuang

dispose()

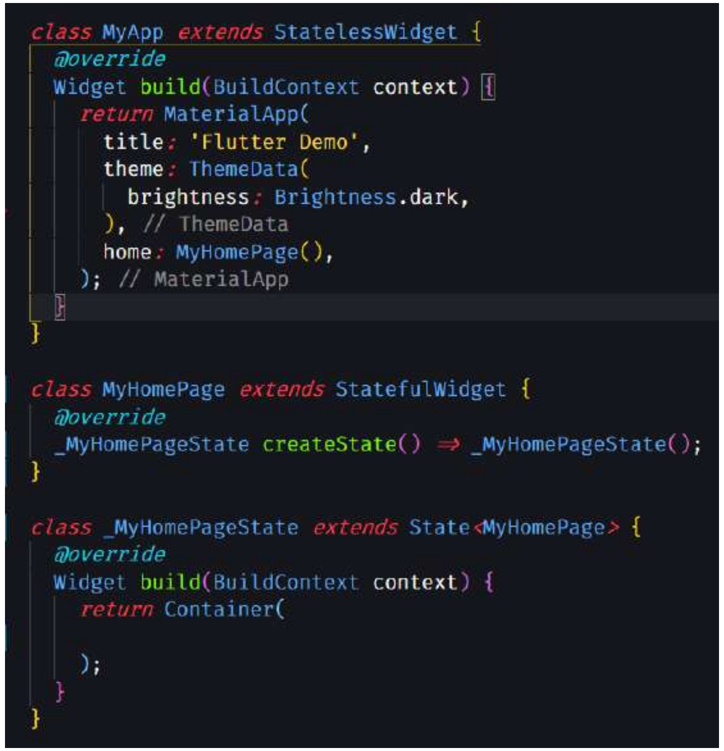
Diubah

setState()

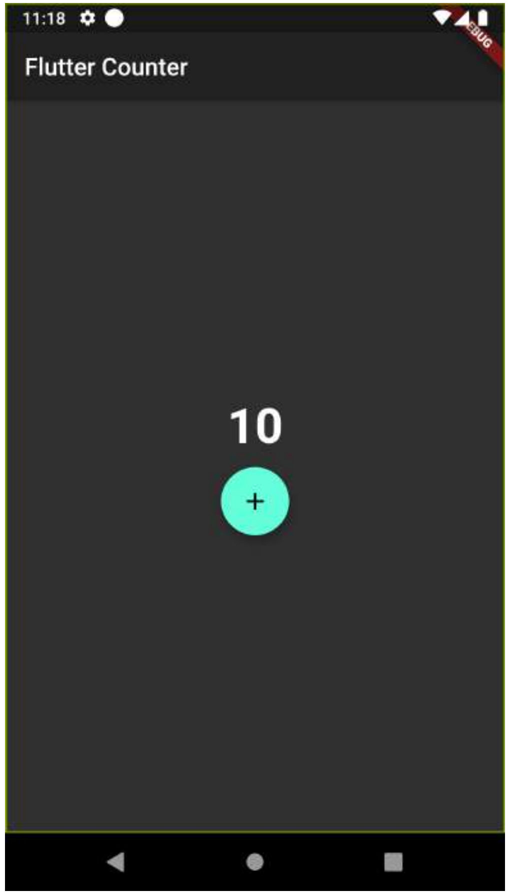
# STATEFULL WIDGET



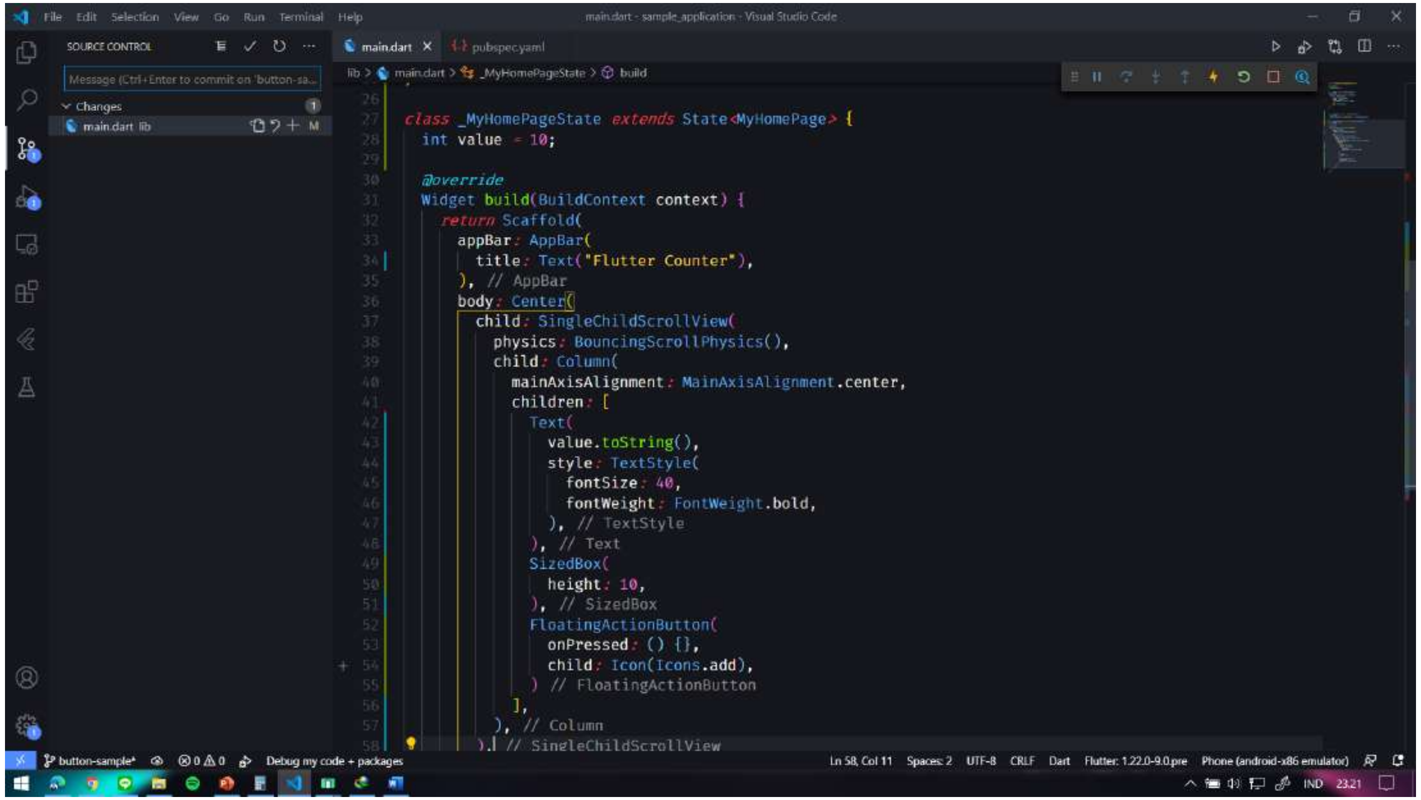
```
import 'package:flutter/material.dart';

Run | Debug
void main() {
  runApp(MyApp());
}

class MyApp extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    return MaterialApp(
      title: 'Flutter Demo',
      theme: ThemeData(
        brightness: Brightness.dark,
      ), // ThemeData
      home: MyHomePage(),
    ); // MaterialApp
  }
}
```



```
class MyApp extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    return MaterialApp(
      title: 'Flutter Demo',
      theme: ThemeData(
        brightness: Brightness.dark,
      ), // ThemeData
      home: MyHomePage(),
    ); // MaterialApp
  }
}

class MyHomePage extends StatefulWidget {
  @override
  _MyHomePageState createState() => _MyHomePageState();
}

class _MyHomePageState extends State<MyHomePage> {
  @override
  Widget build(BuildContext context) {
    return Container(

    );
  }
}
```

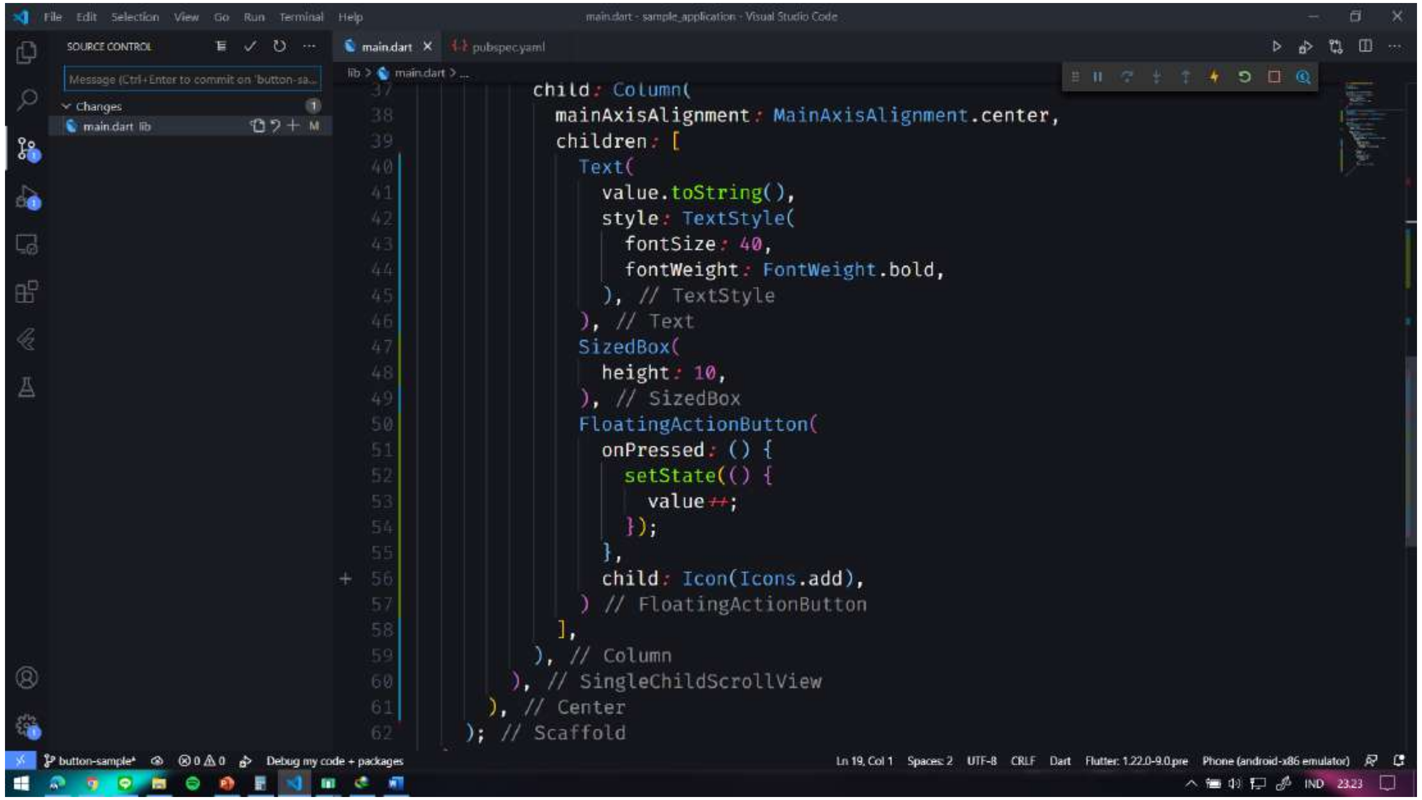


# STATEFULL WIDGET


File Edit Selection View Go Run Terminal Help
main.dart - sample_application - Visual Studio Code
SOURCE CONTROL
Message (Ctrl+Enter to commit on 'button-sa...
Changes
main.dart lib
main.dart
pubspec.yaml
lib > main.dart > _MyHomePageState > build
button-sample*
Debug my code + packages
Ln 58, Col 11 Spaces: 2 UTF-8 CRLF Dart Flutter: 1.22.0-9.0.pre Phone (android-x86 emulator)
IND 23.21

```dart
class _MyHomePageState extends State<MyHomePage> {
  int value = 10;

  @override
  Widget build(BuildContext context) {
    return Scaffold(
      appBar: AppBar(
        title: Text("Flutter Counter"),
      ), // AppBar
      body: Center(
        child: SingleChildScrollView(
          physics: BouncingScrollPhysics(),
          child: Column(
            mainAxisAlignment: MainAxisAlignment.center,
            children: [
              Text(
                value.toString(),
                style: TextStyle(
                  fontSize: 40,
                  fontWeight: FontWeight.bold,
                ), // TextStyle
              ), // Text
              SizedBox(
                height: 10,
              ), // SizedBox
              FloatingActionButton(
                onPressed: () {},
                child: Icon(Icons.add),
              ) // FloatingActionButton
            ],
          ), // Column
        ), // SingleChildScrollView
```

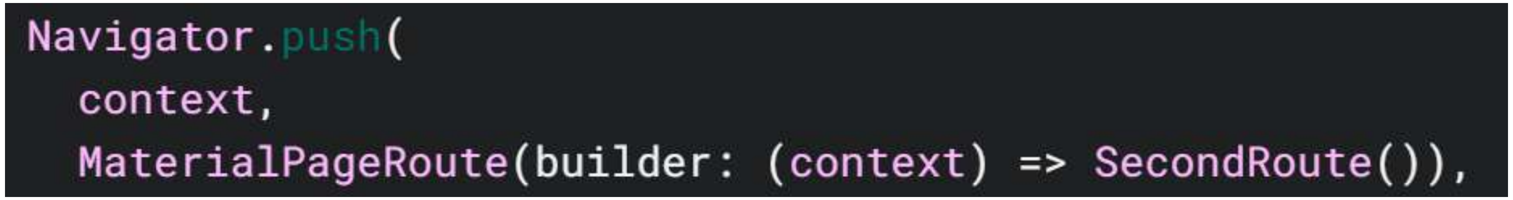
# STATEFULL WIDGET



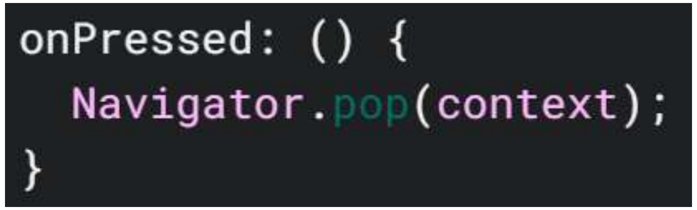
File Edit Selection View Go Run Terminal Help
main.dart - sample_application - Visual Studio Code
SOURCE CONTROL
Message (Ctrl+Enter to commit on 'button-sa...
Changes
main.dart lib
main.dart
pubspec.yaml
lib > main.dart > ...
button-sample*
Debug my code + packages
Ln 19, Col 1 Spaces: 2 UTF-8 CRLF Dart Flutter: 1.22.0-9.0.pre Phone (android-x86 emulator)
IND 23.23

```dart
          child: Column(
            mainAxisAlignment: MainAxisAlignment.center,
            children: [
              Text(
                value.toString(),
                style: TextStyle(
                  fontSize: 40,
                  fontWeight: FontWeight.bold,
                ), // TextStyle
              ), // Text
              SizedBox(
                height: 10,
              ), // SizedBox
              FloatingActionButton(
                onPressed: () {
                  setState(() {
                    value++;
                  });
                },
                child: Icon(Icons.add),
              ) // FloatingActionButton
            ],
          ), // Column
        ), // SingleChildScrollView
      ), // Center
    ); // Scaffold
```

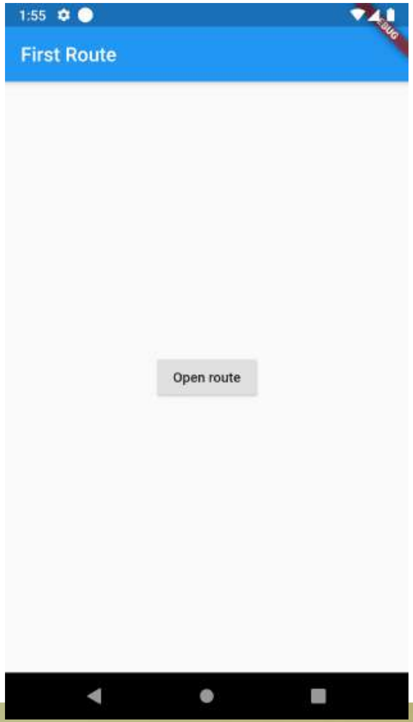
# NAVIGATOR PUSH DAN POP

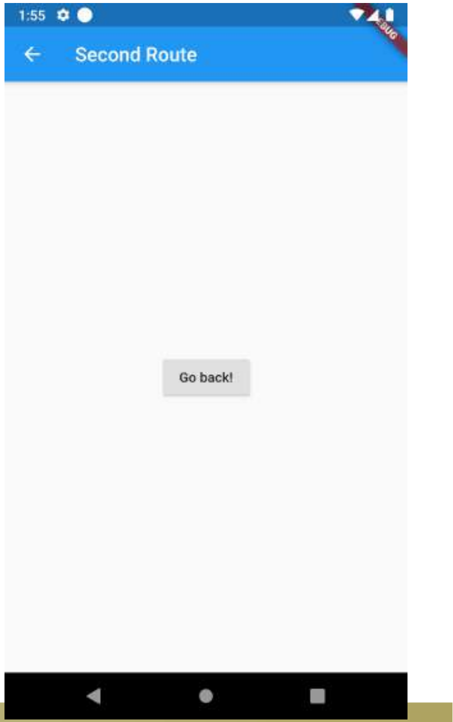


```
Navigator.push(
  context,
  MaterialPageRoute(builder: (context) => SecondRoute()),
```

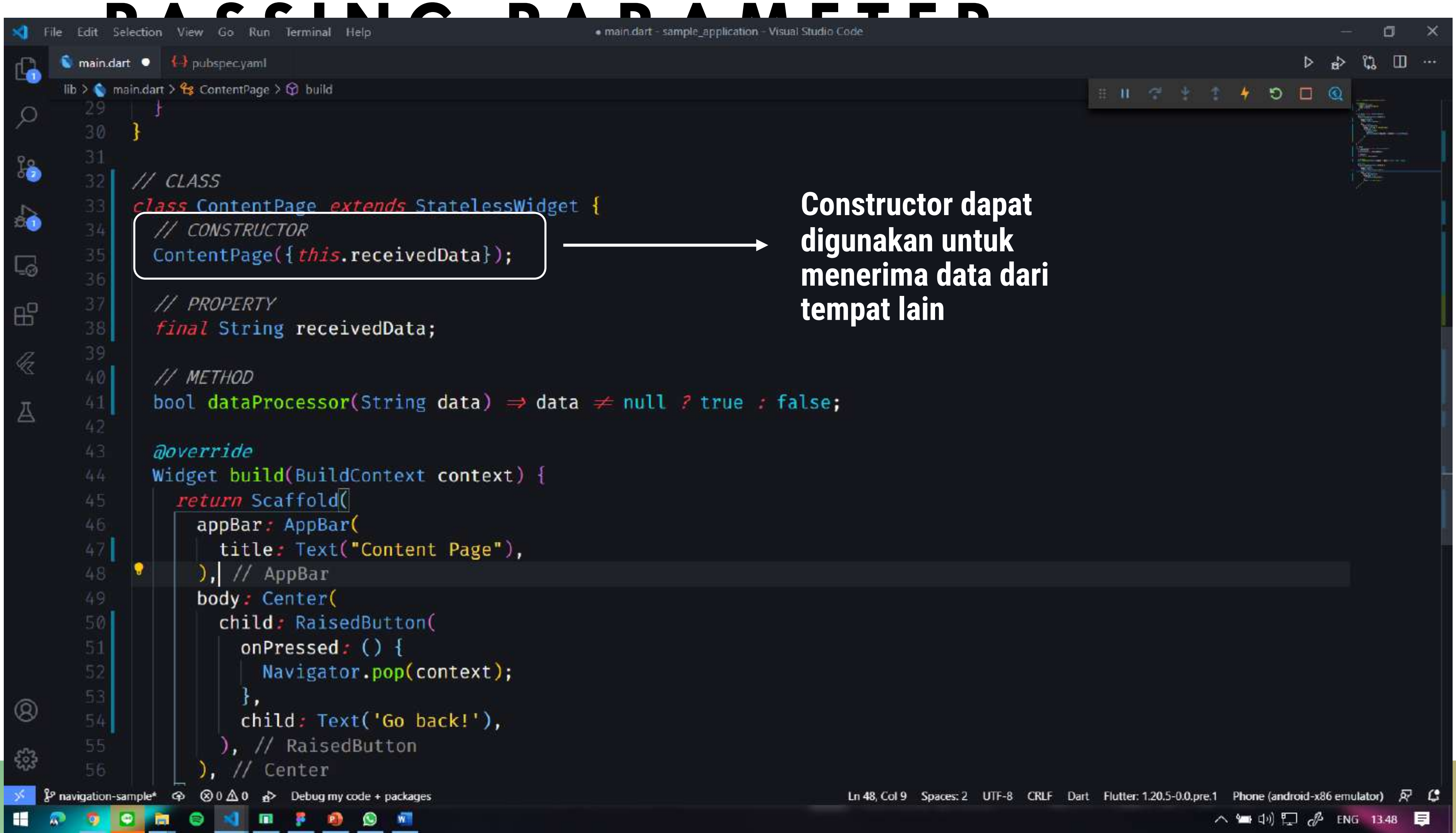


```
onPressed: () {
  Navigator.pop(context);
}
```





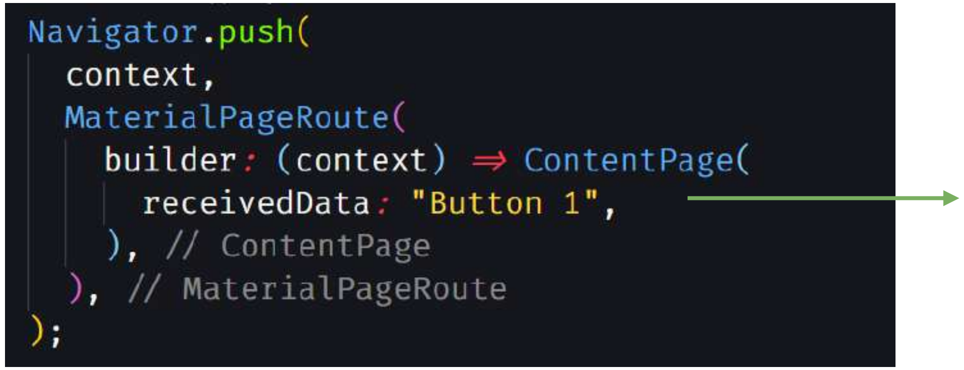
# PASSING PARAMETER



```dart
    }
  }

// CLASS
class ContentPage extends StatelessWidget {
  // CONSTRUCTOR
  ContentPage({this.receivedData});

  // PROPERTY
  final String receivedData;

  // METHOD
  bool dataProcessor(String data) => data != null ? true : false;

  @override
  Widget build(BuildContext context) {
    return Scaffold(
      appBar: AppBar(
        title: Text("Content Page"),
      ), // AppBar
      body: Center(
        child: RaisedButton(
          onPressed: () {
            Navigator.pop(context);
          },
          child: Text('Go back!'),
        ), // RaisedButton
      ), // Center
```

**Constructor dapat digunakan untuk menerima data dari tempat lain**

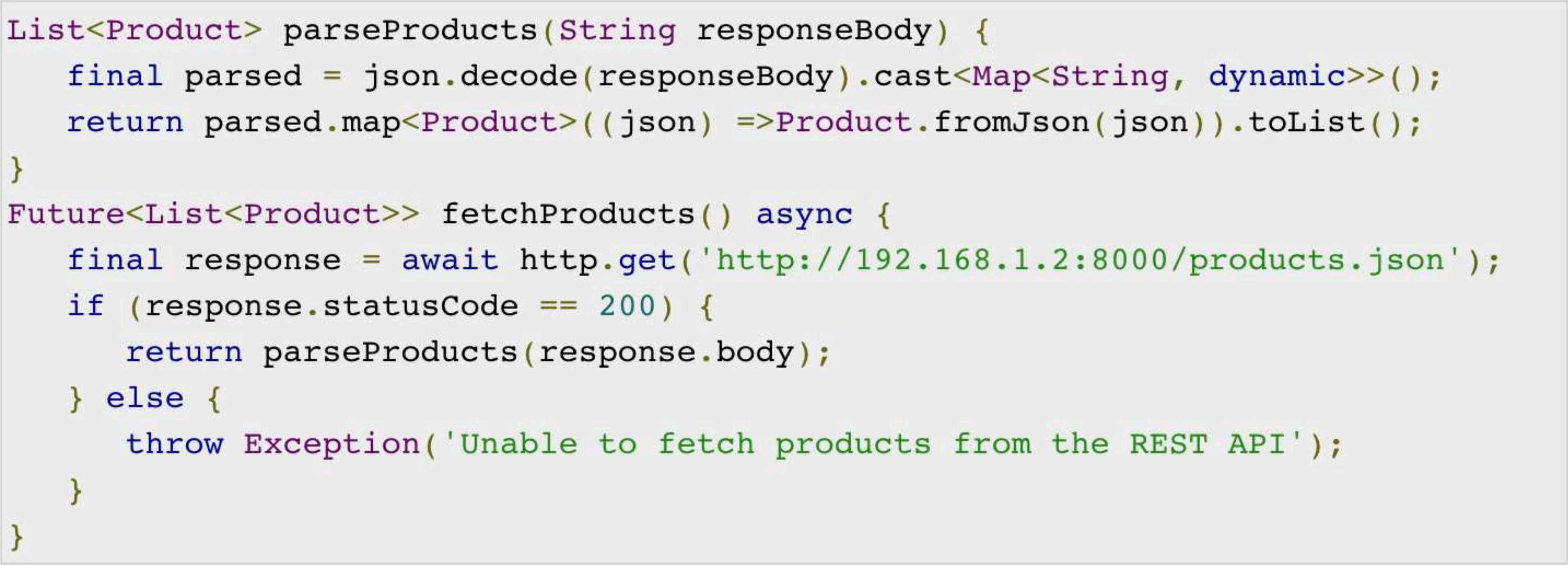
# PASSING PARAMETER



```
Navigator.push(
  context,
  MaterialPageRoute(
    builder: (context) => ContentPage(
      receivedData: "Button 1",
    ), // ContentPage
  ), // MaterialPageRoute
);
```

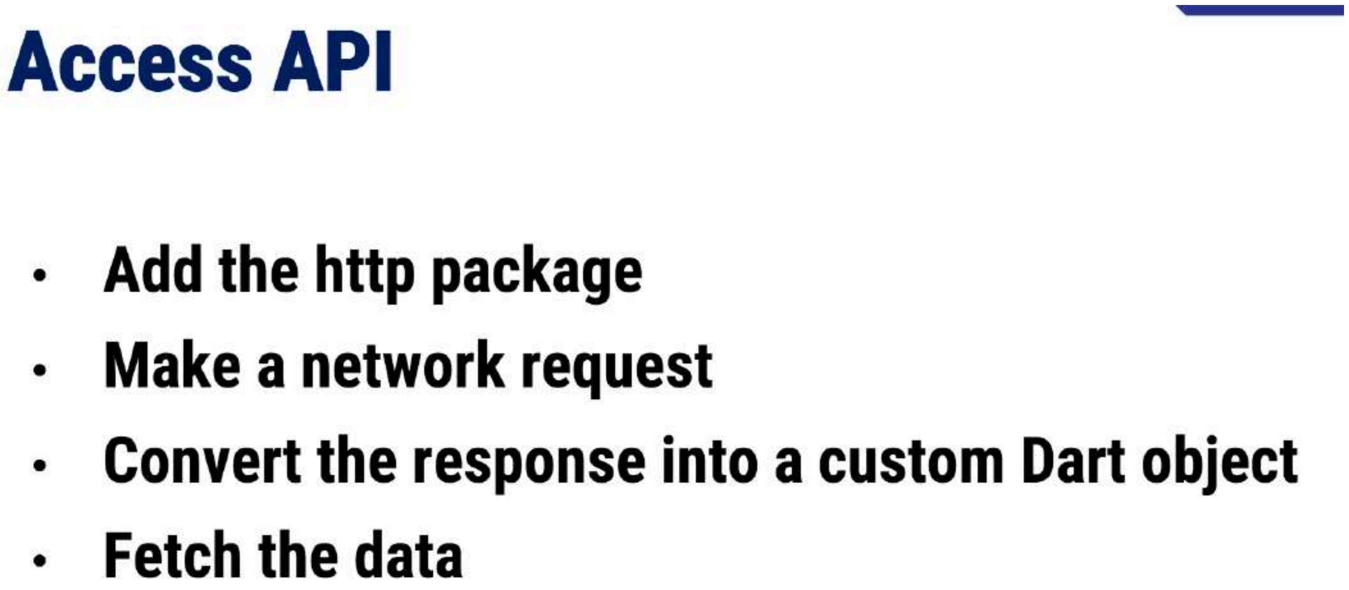
Data yang ingin dikirim

# CONNECT KE API



```
List<Product> parseProducts(String responseBody) {
   final parsed = json.decode(responseBody).cast<Map<String, dynamic>>();
   return parsed.map<Product>((json) =>Product.fromJson(json)).toList();
}
Future<List<Product>> fetchProducts() async {
   final response = await http.get('http://192.168.1.2:8000/products.json');
   if (response.statusCode == 200) {
      return parseProducts(response.body);
   } else {
      throw Exception('Unable to fetch products from the REST API');
   }
}
```

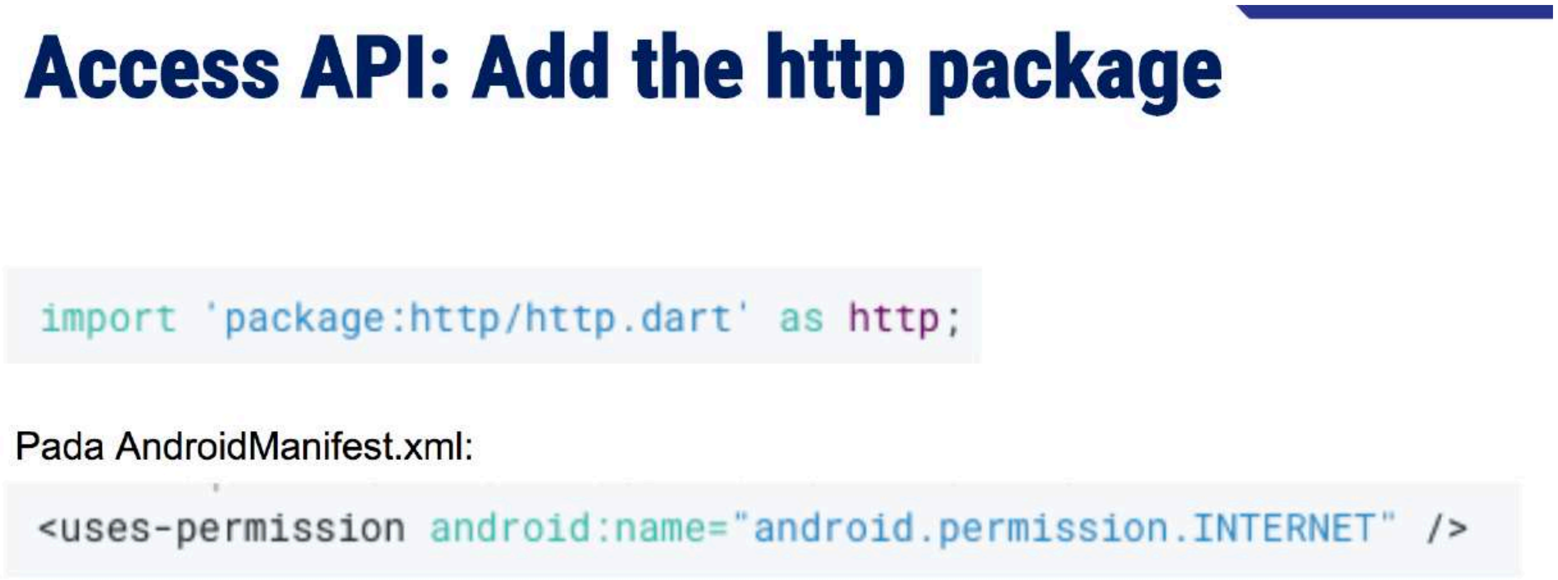
# CONNECT



## Access API

- Add the http package
- Make a network request
- Convert the response into a custom Dart object
- Fetch the data

# CONNECT



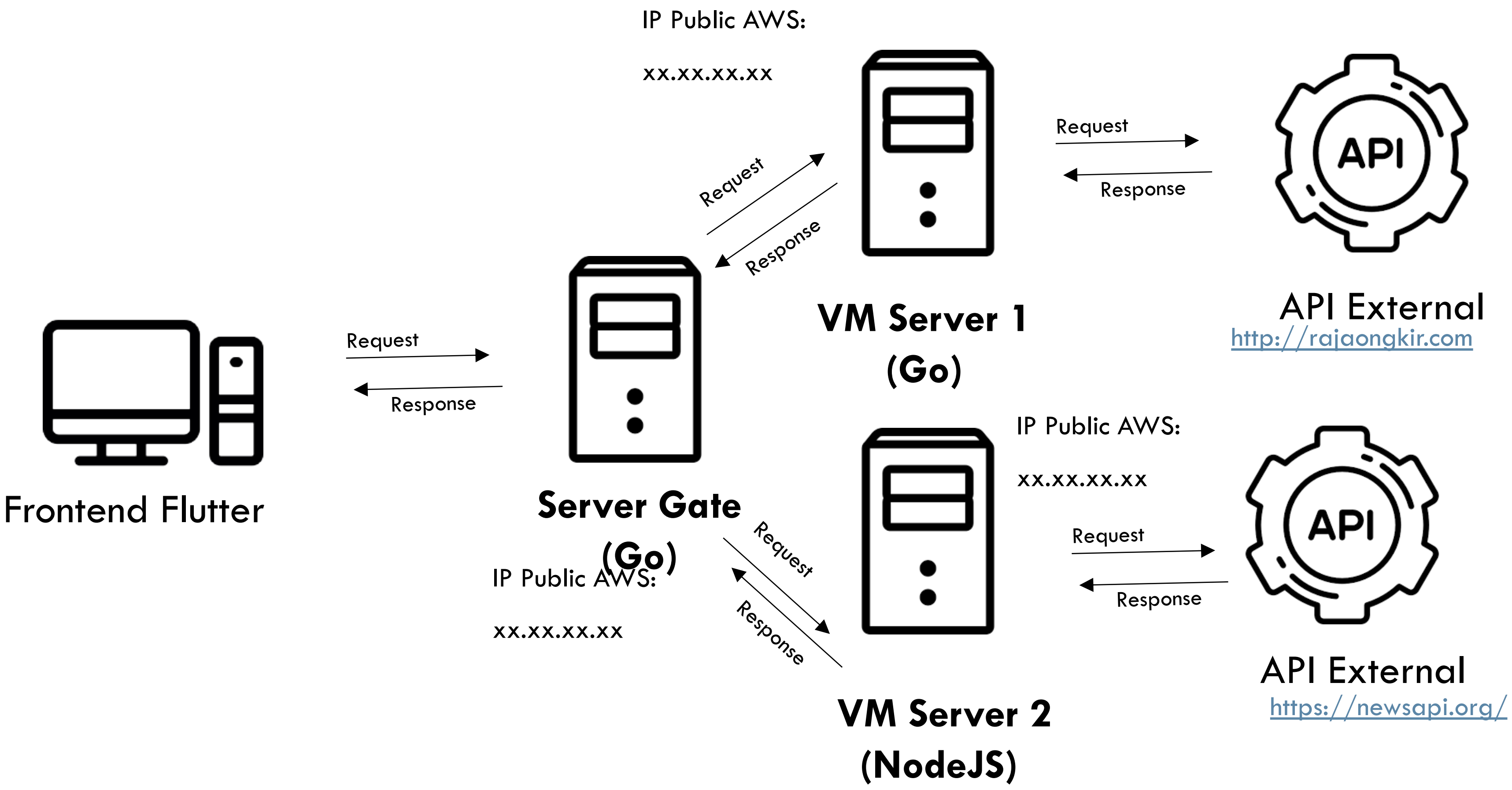
## Access API: Add the http package

```
import 'package:http/http.dart' as http;
```

Pada AndroidManifest.xml:

```
<uses-permission android:name="android.permission.INTERNET" />
```

# Deploy



IP Public AWS:

xx.xx.xx.xx

Request

Response

Request

Response

VM Server 1
(Go)

API External
http://rajaongkir.com

Frontend Flutter

Request

Response

Server Gate
(Go)

IP Public AWS:

xx.xx.xx.xx

Request

Response

IP Public AWS:

xx.xx.xx.xx

Request

Response

VM Server 2
(NodeJS)

API External
https://newsapi.org/

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