1. **Text widget properties**

**main.dart**

**import 'package:flutter/material.dart';  
  
void main() {  
 runApp(MaterialApp(  
 title: 'My flutter app',  
 home: Scaffold(  
 appBar: AppBar(  
 title: Text('Dashboard'.toUpperCase()),  
 backgroundColor: Colors.*indigo*,  
 ),  
 body: Center(  
 child: Text.rich(  
 TextSpan(text: 'First',style: TextStyle(fontSize: 35.0), children: [  
 TextSpan(  
 text: 'flutter',  
 style: TextStyle(fontSize: 60.0, color: Colors.*deepOrange*)),  
 TextSpan(text: 'app', style: TextStyle(fontSize: 40.0,fontWeight: FontWeight.*bold*))  
 ]),  
 ),  
 ),  
 backgroundColor: Colors.*blueGrey*,  
 )));  
}**

1. **Stateless widget**

**main.dart**

**import 'package:flutter/material.dart';  
  
void main() {  
 runApp(const MyApp());  
}  
  
class MyApp extends StatelessWidget {  
 const MyApp({super.key});  
  
 @override  
 Widget build(BuildContext context) {  
 return MaterialApp(  
 title: 'Stateless widgets',  
  
 home: Scaffold(  
 appBar: AppBar(  
 title: Text('Stateless widgets'),  
 backgroundColor: Colors.*cyan*,  
 ),  
 body: Center(  
 child: DecoratedBox(  
 decoration: BoxDecoration(color: Colors.*blue*),  
 child: Padding(  
 padding: EdgeInsets.all(10.0),  
 child: Text('Flutter Stateless widget app'),  
 ),  
 ),  
 ),  
 backgroundColor: Colors.*blueGrey*,  
 ),  
 );  
 }  
}**

1. **column widget**

**main.dart**

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

**void main() => runApp(const DogApp());**

**class DogApp extends StatelessWidget {**

**const DogApp({super.key});**

**@override**

**Widget build(BuildContext context) {**

**return MaterialApp(**

**title: 'My Dog App',**

**home: Scaffold(backgroundColor: Colors.*blueGrey*,**

**appBar: AppBar(backgroundColor: Colors.*cyan*,**

**title: const Text('Yellow lab'),**

**),**

**body: Center(**

**child: Column(**

**crossAxisAlignment: CrossAxisAlignment.stretch ,**

**children: [**

**const DogName('Rocky'),**

**const SizedBox(height: 10.0),**

**const DogName('Jimmy'),**

**const SizedBox(height: 10.0),**

**const DogName('Nico'),**

**],**

**),**

**),**

**floatingActionButton: FloatingActionButton(**

**child: Icon(Icons.*add*),onPressed: (){}),**

**bottomNavigationBar: BottomNavigationBar(**

**items: [**

**BottomNavigationBarItem(icon: Icon(Icons.*home*),label: 'home'),**

**BottomNavigationBarItem(icon: Icon(Icons.*add\_alarm*), label: 'alarm'),**

**],**

**),**

**drawer: Drawer(child: Text('demo'),**

**),**

**),**

**debugShowCheckedModeBanner: false,**

**);**

**}**

**}**

**class DogName extends StatelessWidget {**

**final String name;**

**const DogName(this.name);**

**@override**

**Widget build(BuildContext context) {**

**return DecoratedBox(decoration: const BoxDecoration(color: Colors.*lightBlueAccent*),**

**child: Padding(**

**padding: const EdgeInsets.all(10.0),**

**child: Text(name),**

**),**

**);**

**}**

**}**

1. **Stateful widget**

**main.dart**

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

**void main() {**

**runApp(FavouriteCity());**

***/\*runApp(***

***MaterialApp(***

***title: 'Stateful Application Example',***

***home: FavouriteCity(),***

***)***

***);***

***\*/***

**}**

**class FavouriteCity extends StatefulWidget {**

**@override**

**State<StatefulWidget> createState() {**

**return \_FavoriteCityState();**

**}**

**}**

**class \_FavoriteCityState extends State<FavouriteCity> {**

**String nameCity="";**

**@override**

**Widget build(BuildContext context) {**

**debugPrint('Favorite city widget is created.');**

**return MaterialApp(**

**title: 'Stateful Application Example',**

**home:**

**Scaffold(**

**appBar: AppBar(**

**title: Text('Stateful Application Example'),**

**),**

**body: Container(**

**margin: EdgeInsets.all(20.0),**

**child: Column(**

**children: <Widget>[**

**TextField(onChanged: (String userInput){**

**setState(() {**

**debugPrint('setState is called. This tells framework to redraw the favorite city widget. ');**

**nameCity=userInput;**

**});**

**},),**

**Padding(padding: EdgeInsets.all(30.0),**

**child: Text(**

**'Your best city is $nameCity',style: TextStyle(fontSize: 20.0),**

**)**

**)**

**],**

**),**

**),**

**)**

**);**

**}**

**}**

1. **Stateful widget- changing color**

**main.dart**

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

**void main() => runApp(MyApp());**

**class MyApp extends StatefulWidget {**

**@override**

**\_MyState createState() => \_MyState();**

**}**

**class \_MyState extends State<MyApp> {**

**Color \_containerColor = Colors.*yellow*;**

**void changeColor() {**

**setState(() {**

**if (\_containerColor == Colors.*yellow*) {**

**\_containerColor = Colors.*red*;**

**return;**

**}**

**\_containerColor = Colors.*yellow*;**

**});**

**}**

**@override**

**Widget build(BuildContext context) {**

**return MaterialApp(**

**title: 'Flutter Demo',**

**theme: ThemeData(**

**primarySwatch: Colors.*purple*,**

**),**

**home: Scaffold(**

**appBar: AppBar(title: Text("A Simple App Stateful Widget")),**

**body: Container**

**(**

**decoration: BoxDecoration(color: \_containerColor)**

**),**

**floatingActionButton: FloatingActionButton(**

**onPressed: changeColor,**

**child: Icon(Icons.*add*),**

**tooltip: "Book Here",**

**),**

**));**

**}**

**}**

1. **Rest api- fetch data**

**main.dart**

**import 'dart:async';**

**import 'dart:convert';**

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

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

**void main() {**

**runApp(const MaterialApp(**

**home: HomePage()**

**));**

**}**

**class HomePage extends StatefulWidget {**

**const HomePage({Key? key}) : super(key: key);**

**@override**

**HomePageState createState() => HomePageState();**

**}**

**class HomePageState extends State<HomePage> {**

**late final List data;**

**Future<String> getData() async {**

**var response = await http.get(**

**Uri.*parse*("https://jsonplaceholder.typicode.com/posts"),**

**headers: {**

**"Accept": "application/json"**

**}**

**);**

**setState(() {**

**data = json.decode(response.body);**

**});**

***// ignore: avoid\_print***

***// print(data[1]["title"]);***

**return "Success!";**

**}**

**@override**

***// ignore: must\_call\_super***

**void initState(){**

**getData();**

**}**

**@override**

**Widget build(BuildContext context){**

**return Scaffold(**

**appBar: AppBar(title: const Text("Listview"), backgroundColor: Colors.*blue*),**

**body: ListView.builder(**

***// ignore: unnecessary\_null\_comparison***

**itemCount: data.length,**

**itemBuilder: (BuildContext context, int index){**

**return Card(**

**child: Text(data[index]["title"]),**

**);**

**},**

**),**

**);**

**}**

**}**

**Dependency http: any**

1. **Json serialization and deserialization**

**UserModel.dart**

**class UserModel  
{  
 late String id;  
 late String fullname;  
 late String email;  
  
  
*// Map to Object* UserModel ({required this.id, required this.fullname, required this.email});  
 UserModel.fromMap(Map<String , dynamic> map){  
 this.id = map["id"];  
 this.fullname = map["fullname"];  
 this.email = map["email"];  
 }  
 *// Object to Map*Map <String , dynamic> toMap()  
{  
 return{  
 "id": this.id,  
 "fullname": this.fullname,  
 "email": this.email,  
 };  
}  
}**

**main.dart**

**import 'dart:convert';**

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

**import 'package:jasonserialization/usermodel.dart';**

**void main() {**

**runApp(const MyApp());**

**}**

**class MyApp extends StatelessWidget {**

**const MyApp({Key? key}) : super(key: key);**

**@override**

**Widget build(BuildContext context) {**

**return MaterialApp(**

**title: 'Flutter Demo',**

**theme: ThemeData(**

**primarySwatch: Colors.*blue*,**

**),**

**home: HomePage(),**

**);**

**}**

**}**

**class HomePage extends StatefulWidget {**

**@override**

**\_HomePageState createState() => \_HomePageState();**

**}**

**class \_HomePageState extends State<HomePage> {**

**UserModel userObject = new UserModel(id: "1", fullname: "ABC", email: "abc@gmail.com");**

**String userJSON = '{"id": "1", "fullname": "ABC", "email": "abc@gmail.com"}';**

**@override**

**Widget build(BuildContext context) {**

**return Scaffold(**

**body: Center(**

**child: Row(**

**mainAxisAlignment: MainAxisAlignment.center,**

**children: <Widget>[**

**ElevatedButton(**

**onPressed: (){**

***//Serialization***

**Map<String, dynamic> userMap = userObject.toMap();**

**var json = jsonEncode(userMap);**

**print(json.toString());**

**},**

**child: Text("Serialize"),**

**),**

**SizedBox(width: 20,),**

**ElevatedButton(**

**onPressed: (){**

**var decode = jsonDecode(userJSON);**

**Map<String, dynamic> userMap = decode;**

**UserModel newuser = new UserModel.fromMap(userMap);**

**print(newuser.fullname.toString());**

**print(newuser.id.toString());**

**},**

**child: Text("Deserialize")**

**),**

**],**

**),**

**),**

**);**

**}**

**}**

**8. Navigation**

**main.dart**

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

**void main() {**

**runApp(MaterialApp(**

**title: 'Flutter Navigation',**

**theme: ThemeData(**

***// This is the theme of your application.***

**primarySwatch: Colors.*green*,**

**),**

**home: FirstRoute(),**

**));**

**}**

**class FirstRoute extends StatelessWidget {**

**@override**

**Widget build(BuildContext context) {**

**return Scaffold(**

**appBar: AppBar(**

**title: Text('First Screen'),**

**),**

**body: Center(**

**child: ElevatedButton(**

**child: Text('Click Here'),**

**onPressed: () {**

**Navigator.*push*(**

**context,**

**MaterialPageRoute(builder: (context) => SecondRoute()),**

**);**

**},**

**),**

**),**

**);**

**}**

**}**

**class SecondRoute extends StatelessWidget {**

**@override**

**Widget build(BuildContext context) {**

**return Scaffold(**

**appBar: AppBar(**

**title: Text("Second Screen"),**

**),**

**body: Center(**

**child: ElevatedButton(**

**onPressed: () {**

**Navigator.*pop*(context);**

**},**

**child: Text('Go back'),**

**),**

**),**

**);**

**}**

**}**

1. **Login form**

**login\_screen.dart**

**import 'package:flutter/material.dart';  
  
class LoginPage extends StatelessWidget {  
 @override  
 Widget build(BuildContext context) {  
 return SafeArea(  
 child: Scaffold(  
 body: Container(  
 margin: EdgeInsets.all(24),  
 child: Column(  
 mainAxisAlignment: MainAxisAlignment.spaceEvenly,  
 children: [  
 \_header(context),  
 \_inputField(context),  
 \_forgotPassword(context),  
 \_signup(context),  
 ],  
 ),  
 ),  
 ),  
 );  
 }  
  
 \_header(context) {  
 return Column(  
 children: [  
 Text(  
 "Welcome Back",  
 style: TextStyle(fontSize: 40, fontWeight: FontWeight.*bold*),  
 ),  
 Text("Enter your credential to login"),  
 ],  
 );  
 }  
  
 \_inputField(context) {  
 return Column(  
 crossAxisAlignment: CrossAxisAlignment.stretch,  
 children: [  
 TextField(  
 decoration: InputDecoration(  
 hintText: "Username",  
 border: OutlineInputBorder(  
 borderRadius: BorderRadius.circular(18),  
 borderSide: BorderSide.*none*),  
 fillColor: Theme.*of*(context).primaryColor.withOpacity(0.1),  
 filled: true,  
 prefixIcon: Icon(Icons.*person*)),  
 ),  
 SizedBox(height: 10),  
 TextField(  
 decoration: InputDecoration(  
 hintText: "Password",  
 border: OutlineInputBorder(  
 borderRadius: BorderRadius.circular(18),  
 borderSide: BorderSide.*none*),  
 fillColor: Theme.*of*(context).primaryColor.withOpacity(0.1),  
 filled: true,  
 prefixIcon: Icon(Icons.*person*),  
 ),  
 obscureText: true,  
 ),  
 SizedBox(height: 10),  
 ElevatedButton(  
 onPressed: () {},  
 child: Text(  
 "Login",  
 style: TextStyle(fontSize: 20),  
 ),  
 style: ElevatedButton.*styleFrom*(  
 shape: StadiumBorder(),  
 padding: EdgeInsets.symmetric(vertical: 16),  
 ),  
 ),  
  
 ],  
 );  
 }  
  
 \_forgotPassword(context) {  
 return TextButton(onPressed: () {}, child: Text("Forgot password?"));  
 }  
  
 \_signup(context) {  
 return Row(  
 mainAxisAlignment: MainAxisAlignment.center,  
 children: [  
 Text("Dont have an account? "),  
 TextButton(onPressed: () {}, child: Text("Sign Up"))  
 ],  
 );  
 }  
}**

**main.dart**

**import 'package:flutter/material.dart';  
import 'package:login/login\_screen.dart';  
  
void main() => runApp(MyApp());  
  
class MyApp extends StatelessWidget {  
 *// This widget is the root of your application.* @override  
 Widget build(BuildContext context) {  
 return MaterialApp(  
 title: 'Flutter Login UI',  
 debugShowCheckedModeBanner: false,  
 home: LoginPage(),  
 );  
 }  
}**