10) Implement navigation with named routes using Dart Language.

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

void main() {
  runApp(MyApp());
}

class MyApp extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    return MaterialApp(
      title: 'Named Routes Example',

      // Define the named routes here
      routes: {
        '/': (context) => HomeScreen(),
        '/second': (context) => SecondScreen(),
      },

      // The first screen that loads
      initialRoute: '/',
    );
  }
}

class HomeScreen extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    return Scaffold(
      appBar: AppBar(title: Text('Home Screen')),
```

```
      body: Center(
        child: ElevatedButton(
          child: Text('Go to Second Screen'),
          onPressed: () {
            // Navigate using the route name
            Navigator.pushNamed(context, '/second');
          },
        ),
      ),
    );
  }
}

class SecondScreen extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    return Scaffold(
      appBar: AppBar(title: Text('Second Screen')),
      body: Center(
        child: ElevatedButton(
          child: Text('Back to Home'),
          onPressed: () {
            // Go back to previous screen
            Navigator.pop(context);
          },
        ),
      ),
    );
  }
}
```

13) Write a Dart Program to implement different types of animations like fade, slide.

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

void main() => runApp(EasyAnimation());

class EasyAnimation extends StatefulWidget {
 @override
 State<EasyAnimation> createState() => _EasyAnimationState();
}

class _EasyAnimationState extends State<EasyAnimation> {
 bool show = true;

 @override
 void initState() {
  super.initState();
  Future.delayed(Duration(seconds: 1), toggle);
 }

 void toggle() {
  setState(() => show = !show);
  Future.delayed(Duration(seconds: 1), toggle);
 }

 @override
 Widget build(BuildContext context) {
  return MaterialApp( // ☜ added here
   home: Scaffold(
    appBar: AppBar(title: Text("Auto Fade & Slide Animation")),
```

```
      body: Center(
        child: AnimatedSlide(
          offset: show ? Offset(0, 0) : Offset(0, -1),
          duration: Duration(seconds: 1),
          child: AnimatedOpacity(
            opacity: show ? 1 : 0,
            duration: Duration(seconds: 1),
            child: Container(
              width: 120,
              height: 120,
              color: Colors.purple,
              alignment: Alignment.center,
              child: Text("Hello",
                  style: TextStyle(color: Colors.white, fontSize: 22)),
            ),
          ),
        ),
      ),
    ),
  );
 }
}
```

14) Implements media queries and breakpoints for responsiveness of different Screens using Dart Language.

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

void main() => runApp(MaterialApp(home: MyApp()));
```

```
class MyApp extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    double width = MediaQuery.of(context).size.width;
    String screenType = '';

    if (width < 600) {
      screenType = '📱 Mobile Screen';
    } else if (width < 1200) {
      screenType = '💻 Tablet Screen';
    } else {
      screenType = '🖥 Desktop Screen';
    }
    return Scaffold(
      appBar: AppBar(title: Text("Responsive Layout")),
      body: Center(
        child: Container(
          width: width * 0.8,
          height: 150,
          color: Colors.blue,
          alignment: Alignment.center,
          child: Text(
            screenType,
            style: TextStyle(fontSize: 22, color: Colors.white),
          ),
        ),
      ),
    );
  }
}
```

12) Implement Form Validation and error handling using Dart Language.

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

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

class MyApp extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    return MaterialApp(home: SimpleForm());
  }
}

class SimpleForm extends StatefulWidget {
  @override
  State<SimpleForm> createState() => _SimpleFormState();
}

class _SimpleFormState extends State<SimpleForm> {
  final name = TextEditingController();
  final email = TextEditingController();
  final password = TextEditingController();

  bool validate = true; // is form valid or not
  bool submitted = false; // has user pressed the button

  @override
  Widget build(BuildContext context) {
    return Scaffold(
      appBar: AppBar(title: Text("Simple Form Validation")),
```

```
      body: Padding(
        padding: EdgeInsets.all(16),
        child: Column(
          children: [
            TextField(controller: name, decoration: InputDecoration(labelText: "Name")),
            TextField(controller: email, decoration: InputDecoration(labelText: "Email")),
            TextField(controller: password, decoration: InputDecoration(labelText: "Password"),
obscureText: true),
            SizedBox(height: 20),
            ElevatedButton(
              child: Text("Submit"),
              onPressed: () {
                setState(() {
                  submitted = true;
                  if (name.text.isEmpty ||
                      !email.text.contains('@') ||
                      password.text.length < 6) {
                    validate = false;
                  } else {
                    validate = true;
                  }
                });
              },
            ),
            SizedBox(height: 20),

            // show message only after button pressed
            if (submitted)
              Text(
                validate
                    ? "✅ Form Submitted Successfully!"
```

```
              : "❌ Please fill all fields correctly!",
            style: TextStyle(
              color: validate ? Colors.green : Colors.red,
              fontSize: 16,
            ),
          ),
        ],
      ),
    ),
  );
 }
}
```

9) Write a Dart program to implement different layout structures using Row, Column and Stack Widgets.

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

void main() {
 runApp(MyApp());
}

class MyApp extends StatelessWidget {
 @override
 Widget build(BuildContext context) {
  return MaterialApp(
   title: 'Layout Example',
   home: Scaffold(
    appBar: AppBar(
     title: Text('Row, Column, and Stack Example'),
```

```
        centerTitle: true,
      ),
      body: LayoutDemo(),
    ),
  );
 }
}

class LayoutDemo extends StatelessWidget {
 @override
 Widget build(BuildContext context) {
  return SingleChildScrollView( // allows scrolling if content overflows
   child: Padding(
    padding: const EdgeInsets.all(16.0),
    child: Column( // main column holding all layout demos
     crossAxisAlignment: CrossAxisAlignment.start,
     children: [
      // ---------- ROW WIDGET ----------
      Text('1️⃣ Row Widget Example', style: TextStyle(fontSize: 18, fontWeight: FontWeight.bold)),
      SizedBox(height: 10),
      Row(
       mainAxisAlignment: MainAxisAlignment.spaceAround,
       children: [
        Container(width: 60, height: 60, color: Colors.red),
        Container(width: 60, height: 60, color: Colors.green),
        Container(width: 60, height: 60, color: Colors.blue),
       ],
      ),

      SizedBox(height: 30),
```

```
      // ---------- COLUMN WIDGET ----------
      Text('2️⃣ Column Widget Example', style: TextStyle(fontSize: 18, fontWeight: FontWeight.bold)),
      SizedBox(height: 10),
      Column(
        crossAxisAlignment: CrossAxisAlignment.center,
        children: [
          Container(width: 100, height: 40, color: Colors.orange),
          Container(width: 100, height: 40, color: Colors.purple),
          Container(width: 100, height: 40, color: Colors.teal),
        ],
      ),

      SizedBox(height: 30),

      // ---------- STACK WIDGET ----------
      Text('3️⃣ Stack Widget Example', style: TextStyle(fontSize: 18, fontWeight: FontWeight.bold)),
      SizedBox(height: 10),
      Center(
        child: Stack(
          alignment: Alignment.center,
          children: [
            Container(width: 150, height: 150, color: Colors.yellow),
            Container(width: 100, height: 100, color: Colors.orange),
            Container(width: 50, height: 50, color: Colors.red),
          ],
        ),
      ),
    ],
  ),
 ),
);
```

```
  }
}
```