Flutter Fundamentals

Mobile Dev Guide · Module 2 of 8 · CHERIEDU Dev Series

1. Everything is a Widget

In Flutter, every visual element is a widget — text, buttons, images, containers, even padding and alignment are widgets. You compose UIs by nesting widgets inside widgets.

2. Your First Flutter Screen

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

class HomeScreen extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    return Scaffold(
      appBar: AppBar(title: Text("CHERI SMS")),
      body: Center(
        child: Column(children: [
          Text("Welcome", style: TextStyle(fontSize: 24)),
          SizedBox(height: 16),
          ElevatedButton(
            onPressed: () => print("Tapped!"),
            child: Text("View Dashboard"),
          ),
        ]),
      ),
    );
  }
}
```

3. StatelessWidget vs StatefulWidget

Type	When to Use	Example
StatelessWidget	UI that never changes	A static header, logo, info card
StatefulWidget	UI that can update	A counter, form, loading state

4. setState — Updating the UI

```dart
class FeeCounter extends StatefulWidget {
  @override _FeeCounterState createState() => _FeeCounterState();
}
class _FeeCounterState extends State<FeeCounter> {
  int paid = 0;
  void markPaid() => setState(() => paid++);
  @override Widget build(BuildContext context) {
```

```
return Column(children: [
```

```
Text("Fees Paid: $paid"),
```

```
ElevatedButton(onPressed: markPaid, child: Text("Mark Paid")),
```

```
]);
```

}

}

5. Common Layout Widgets

Widget	Purpose
Column	Stack widgets vertically
Row	Stack widgets horizontally
Container	Box with padding, margin, colour, border
Expanded	Fill available space in a Row or Column
ListView.builder	Scrollable list of dynamic items
GridView.builder	Scrollable grid of items

PROJECT
Build a Flutter screen showing a list of students with name, grade, and fee status. Use ListView.builder with a custom StudentCard widget for each row.