Faculty of Technology and Engineering

Chandubhai S. Patel Institute of Technology
Department of Computer Science & Engineering

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Laboratory Manual Performa

Academic Year	:	2024-25	Semester	:	5TH
Course code	:	CSE309	Course name	:	Mobile Application and Development

Practical - 3

Create a Mini Calculator App using 2 Text field and +-*/ button. On the button click event display the answer on next screen.

Introduction of relevant concepts used:

• **StatefulWidget**: A type of widget in Flutter that maintains mutable state, allowing the UI to rebuild when the state changes, which is essential for interactive applications like a calculator.
• **Navigator**: A widget that manages a stack of routes (screens) in a Flutter app, enabling navigation between different screens and passing data (like results) between them.

```
main.dart
import 'package:flutter/material.dart';
import 'screens/calculator_screen.dart';

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

class MyApp extends StatelessWidget {
 @override
 Widget build(BuildContext context) {
  return MaterialApp(
   title: 'Mini  Calculator',
   theme: ThemeData(
   primarySwatch: Colors.blue,
   ),
   home: CalculatorScreen(),
  );
 }
}
```

```dart
import 'package:flutter/material.dart';
import 'result_screen.dart';
class CalculatorScreen extends StatefulWidget {
 @override
 _CalculatorScreenState createState() => _CalculatorScreenState();
}

class _CalculatorScreenState extends State<CalculatorScreen> {
 final TextEditingController num1Controller = TextEditingController();
 final TextEditingController num2Controller = TextEditingController();

 void _calculate(String operator) {
  final num1 = double.tryParse(num1Controller.text);
  final num2 = double.tryParse(num2Controller.text);

  if (num1 == null || num2 == null) {
   _showErrorDialog("Please enter valid numbers");
   return;
  }
  double result;
  switch (operator) {
  case '+':
    result = num1 + num2;
    break;
   case '-':
    result = num1 - num2;
    break;
   case '*':
    result = num1 * num2;
    break;
   case '/':
    if (num2 == 0) {
     _showErrorDialog("Cannot divide by zero");
     return;
    }
    result = num1 / num2;
    break;
   default:
    result = 0;
  }
  Navigator.push(
   context,
   MaterialPageRoute(
    builder: (context) => ResultScreen(result: result),
   ),
  );
 }

 void _showErrorDialog(String message) {
  showDialog(
   context: context,
   builder: (context) => AlertDialog(
```

```dart
        title: Text('Error'),
        content: Text(message),
        actions: [
          TextButton(
            onPressed: () {
              Navigator.of(context).pop();
            },
            child: Text('OK'),
          ),
        ],
      ),
    );
  }

  @override
  Widget build(BuildContext context) {
    return Scaffold(
      appBar: AppBar(
        title: Text('Mini Calculator'),
      ),
      body: Padding(
        padding: const EdgeInsets.all(16.0),
        child: Column(
          children: [
            TextField(
              controller: num1Controller,
              keyboardType: TextInputType.number,
              decoration: InputDecoration(
              labelText: 'Enter first number',
              ),
            ),
            TextField(
              controller: num2Controller,
              keyboardType: TextInputType.number,
              decoration: InputDecoration(
              labelText: 'Enter second number',
              ),
            ),
            SizedBox(height: 20),
            Row(
              mainAxisAlignment: MainAxisAlignment.spaceEvenly,
              children: [
                ElevatedButton(
                  onPressed: () => _calculate('+'),
                  child: Text('+'),
                ),
                ElevatedButton(
                  onPressed: () => _calculate('-'),
                  child: Text('-'),
                ),
                ElevatedButton(
                  onPressed: () => _calculate('*'),
                  child: Text('*'),
```

```
        ),
        ElevatedButton(
          onPressed: () => _calculate('/'),
          child: Text('/'),
        ),
      ],
    ),
   ],
  ),
 ),
);
}
}
```

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

class ResultScreen extends StatelessWidget {
 final double result;

 ResultScreen({required this.result});

 @override
 Widget build(BuildContext context) {
  return Scaffold(
    appBar: AppBar(
     title: Text('Result'),
    ),
    body: Center(
     child: Text(
     'Result: $result',
      style: TextStyle(fontSize: 24),
     ),
    ),
  );
 }
}
```

Output (Screenshot)

Mini Calculator

Enter first number
10
Enter second number
10

+   -   *   /
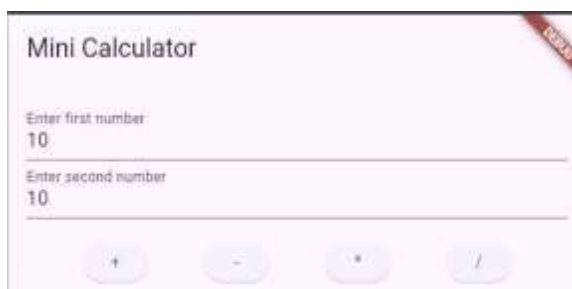
Result: 20   Result: 100

Result: 0   Result: 1

Grade/Marks   **Sign of Lab Teacher with Date**
(_____ / 10)