# Faculty of Technology and Engineering

## Chandubhai S. Patel Institute of Technology

## Department of Computer Science & Engineering

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### Laboratory Manual Performa

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| 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(),
    );
  }
}
```

Calculator_screen.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(
```

```
      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('/'),
            ),
          ],
        ),
      ],
    ),
   ),
  );
 }
}
```

Result_screen.dart

```
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)**