		Marwadi University **Faculty of Technology** **Department of Information and Communication Technology**
Subject: Cross-Platform Mobile Application Development (01CT1517)		**Aim:** To create an interactive Form using the form widget, Create a Loan Calculator(EMI based on simple as well as compound.
Experiment No:- 04	**Date:-** 01-10-2024	**Enrollment No:-** 92200133030

Objective:- To create an interactive Form using the form widget, Create a Loan Calculator(EMI based on simple as well as compound.

Code :-

```dart
import 'package:flutter/material.dart';
import 'dart:math'; // Import math package to use pow() for compound interest calculation

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

// Main class for the app
class MyApp extends StatelessWidget {
  const MyApp({super.key});

  @override
  Widget build(BuildContext context) {
    return MaterialApp(
      theme: ThemeData(
        brightness: Brightness.light,
        primaryColor: Colors.blue, // Light theme with blue as primary color
      ),
      darkTheme: ThemeData(
        brightness: Brightness.dark,
        scaffoldBackgroundColor:
            const Color(0xFF121212), // Dark theme background color
        appBarTheme: const AppBarTheme(
          backgroundColor: Color(0xFF1F1F1F),
          iconTheme: IconThemeData(color: Colors.white),
          titleTextStyle: TextStyle(color: Colors.white, fontSize: 20),
        ),
        textButtonTheme: TextButtonThemeData(
          style: TextButton.styleFrom(
            foregroundColor: Colors.white,
            backgroundColor: Colors.blue,
          ),
        ),
        inputDecorationTheme: InputDecorationTheme(
          filled: true,
          fillColor: Colors.grey[800],
          border: OutlineInputBorder(
            borderRadius: BorderRadius.circular(8.0),
            borderSide: BorderSide.none,
          ),
          hintStyle: const TextStyle(color: Colors.grey),
        ),
        textTheme: const TextTheme(
          bodyMedium: TextStyle(color: Colors.white),
          titleLarge: TextStyle(color: Colors.white),
```

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```dart
      ),
    ),
    themeMode: ThemeMode.dark, // Set dark mode by default
    home: const EMICalculator(), // Set the EMI calculator screen as the home
    debugShowCheckedModeBanner: false, // Hide the debug banner
  );
 }
}

// Stateful widget for EMI Calculator
class EMICalculator extends StatefulWidget {
  const EMICalculator({super.key});

  @override
  State<EMICalculator> createState() => _EMICalculatorState();
}

class _EMICalculatorState extends State<EMICalculator> {
  int currentindex = 0; // 0 for Simple Interest, 1 for Compound Interest
  String result = ""; // To hold the calculated EMI result
  double principal = 0.0; // Principal amount
  double rate = 0.0; // Annual interest rate
  double tenure = 0.0; // Loan tenure in years
  double totalPayment = 0.0; // Total payment calculated
  double totalInterest = 0.0; // Total interest calculated

  // Controllers for TextField inputs
  TextEditingController principalController = TextEditingController();
  TextEditingController rateController = TextEditingController();
  TextEditingController tenureController = TextEditingController();

  @override
  Widget build(BuildContext context) {
    return Scaffold(
      appBar: AppBar(
        title: const Text("EMI Calculator"), // AppBar title
        backgroundColor: Theme.of(context)
            .appBarTheme
            .backgroundColor, // AppBar color based on theme
        actions: [
          IconButton(
            onPressed: () {},
            icon:
                const Icon(Icons.settings), // Settings icon (currently unused)
          ),
        ],
      ),
      body: SingleChildScrollView(
        // Enables scrolling for the screen
        child: Padding(
          padding: const EdgeInsets.all(12.0), // Screen padding
          child: Column(
```

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```
          mainAxisAlignment: MainAxisAlignment.start,
          crossAxisAlignment: CrossAxisAlignment.start,
          children: [
            Row(
              children: [
                // Radio buttons for selecting Simple/Compound interest
                radioButton("Simple Interest", Colors.blue, 0),
                radioButton("Compound Interest", Colors.pink, 1),
              ],
            ),
            const SizedBox(height: 20.0),
            const Text(
              "Loan Amount (Principal) :- ",
              style: TextStyle(fontSize: 18.0),
            ),
            const SizedBox(height: 8.0),
            // TextField for entering principal amount
            TextField(
              controller: principalController,
              keyboardType: TextInputType.number,
              textAlign: TextAlign.center,
              decoration: InputDecoration(
                hintText: "Enter Principal Amount",
                filled: true,
                fillColor: Theme.of(context)
                    .inputDecorationTheme
                    .fillColor, // TextField styling based on theme
                border: OutlineInputBorder(
                  borderRadius: BorderRadius.circular(8.0),
                  borderSide: BorderSide.none,
                ),
              ),
            ),
            const SizedBox(height: 20.0),
            const Text(
              "Annual Interest Rate (%) :- ",
              style: TextStyle(fontSize: 18.0),
            ),
            const SizedBox(height: 8.0),
            // TextField for entering interest rate
            TextField(
              controller: rateController,
              keyboardType: TextInputType.number,
              textAlign: TextAlign.center,
              decoration: InputDecoration(
                hintText: "Enter Interest Rate",
                filled: true,
                fillColor: Theme.of(context).inputDecorationTheme.fillColor,
                border: OutlineInputBorder(
                  borderRadius: BorderRadius.circular(8.0),
                  borderSide: BorderSide.none,
                ),
```

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```
        ),
      ),
      const SizedBox(height: 20.0),
      const Text(
        "Loan Tenure (in Years) :- ",
        style: TextStyle(fontSize: 18.0),
      ),
      const SizedBox(height: 8.0),
      // TextField for entering tenure in years
      TextField(
        controller: tenureController,
        keyboardType: TextInputType.number,
        textAlign: TextAlign.center,
        decoration: InputDecoration(
          hintText: "Enter Loan Tenure",
          filled: true,
          fillColor: Theme.of(context).inputDecorationTheme.fillColor,
          border: OutlineInputBorder(
            borderRadius: BorderRadius.circular(8.0),
            borderSide: BorderSide.none,
          ),
        ),
      ),
      const SizedBox(height: 20.0),
      SizedBox(
        width: double.infinity, // Button fills full width
        height: 50.0, // Button height
        child: TextButton(
          onPressed: () {
            // Parsing values from TextField inputs
            setState(() {
              principal =
                  double.tryParse(principalController.text) ?? 0.0;
              rate = double.tryParse(rateController.text) ?? 0.0;
              tenure = double.tryParse(tenureController.text) ?? 0.0;
            });
            // Call calculation method based on selected interest type
            if (currentindex == 0) {
              calculateEMIWithSimpleInterest(principal, rate, tenure);
            } else {
              calculateEMIWithCompoundInterest(principal, rate, tenure);
            }
          },
          child: const Text(
            "Calculate EMI",
            style: TextStyle(color: Colors.white),
          ),
        ),
      ),
      const SizedBox(height: 20.0),
      const Center(
        child: Text(
```

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```dart
          "Your EMI is :- ",
          textAlign: TextAlign.center,
          style: TextStyle(
            fontSize: 24.0,
            fontWeight: FontWeight.bold,
          ),
        ),
      ),
      const SizedBox(height: 50.0),
      Center(
        child: Text(
          result, // Display calculated EMI
          textAlign: TextAlign.center,
          style: const TextStyle(
            fontSize: 40.0,
            fontWeight: FontWeight.bold,
          ),
        ),
      ),
      const SizedBox(height: 20.0),
      const Center(
        child: Text(
          "Total Payment Breakdown",
          textAlign: TextAlign.center,
          style: TextStyle(
            fontSize: 20.0,
            fontWeight: FontWeight.bold,
          ),
        ),
      ),
      const SizedBox(height: 10.0),
      // Linear progress bar indicating total payment breakdown
      Container(
        height: 20.0,
        decoration: BoxDecoration(
          color: Colors.orange, // Background color of the progress bar
          borderRadius: BorderRadius.circular(10.0),
        ),
        child: ClipRRect(
          borderRadius: BorderRadius.circular(10.0),
          child: LinearProgressIndicator(
            value: (principal > 0 && totalPayment > 0)
                ? principal / totalPayment
                : 0.0,
            backgroundColor: Colors.transparent,
            valueColor:
                const AlwaysStoppedAnimation<Color>(Colors.green),
          ),
        ),
      ),
      const SizedBox(height: 10.0),
      // Displaying total principal and interest
```

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```dart
              Row(
                mainAxisAlignment: MainAxisAlignment.spaceBetween,
                children: [
                  Column(
                    crossAxisAlignment: CrossAxisAlignment.start,
                    children: [
                      Text(
                        "Total Principal",
                        style: TextStyle(fontSize: 16.0, color: Colors.green),
                      ),
                      Text(
                        "₹ ${principal.toStringAsFixed(2)}",
                        style: const TextStyle(
                          fontSize: 16.0,
                          fontWeight: FontWeight.bold,
                        ),
                      ),
                    ],
                  ),
                  Column(
                    crossAxisAlignment: CrossAxisAlignment.end,
                    children: [
                      Text(
                        "Total Interest",
                        style: TextStyle(fontSize: 16.0, color: Colors.orange),
                      ),
                      Text(
                        "₹ ${totalInterest.toStringAsFixed(2)}",
                        style: const TextStyle(
                          fontSize: 16.0,
                          fontWeight: FontWeight.bold,
                        ),
                      ),
                    ],
                  ),
                ],
              ),
            ],
          ),
        ),
      ),
    ),
  );
}

// Method for radio button widget
Widget radioButton(String value, Color color, int index) {
  return Expanded(
    child: Container(
      margin: const EdgeInsets.symmetric(horizontal: 12.0),
      height: 50.0,
      child: TextButton(
        onPressed: () {
```

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```dart
      setState(() {
        currentindex = index; // Update index when radio button is pressed
      });
    },
    style: TextButton.styleFrom(
      backgroundColor: currentindex == index ? color : Colors.grey[200],
    ),
    child: Text(
      value,
      style: TextStyle(
        color: currentindex == index ? Colors.white : color,
      ),
    ),
  ),
  ),
  );
}

// Method to calculate EMI with Simple Interest
void calculateEMIWithSimpleInterest(
    double principal, double rate, double tenure) {
  setState(() {
    double interest =
        (principal * rate * tenure) / 100; // Simple interest formula
    totalPayment = principal + interest; // Total payment
    totalInterest = interest; // Total interest
    result = (totalPayment / (tenure * 12))
        .toStringAsFixed(2); // EMI calculation for months
  });
}

// Method to calculate EMI with Compound Interest
void calculateEMIWithCompoundInterest(
    double principal, double rate, double tenure) {
  setState(() {
    double monthlyRate = rate / (12 * 100); // Monthly interest rate
    int n = (tenure * 12).toInt(); // Number of months (n)
    totalPayment =
        principal * pow(1 + monthlyRate, n); // Compound interest formula
    totalInterest = totalPayment - principal; // Total interest
    result =
        (totalPayment / n).toStringAsFixed(2); // EMI calculation for months
  });
}
}
```

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Output:-