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SARDAR PATEL INSTITUTE OF TECHNOLOGY
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Munshi Nagar, Andheri (W), Mumbai – 400 058.
Department of Computer Science and Engineering

Experiment	1
Aim	To install Flutter and its dependency. Create an app of your profile including educational qualification, hobby, Technical language known, social media handles etc.
Objective	1. To install flutter. 2. To create basic app for your own profile using UI components of flutter.
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Batch	D
Date of Submission	29-01-25

Technology used	**VS CODE, Flutter,Dart**
Task	Part1: Installation of Flutter and its Dependencies Part 2: Create an app of your profile using your creative design.

Code with proper label	**Main.dart**
	
	 import 'package:flutter/material.dart';
	 import 'profile_page.dart';
	
	 void main() {
	  runApp(ProfileApp());
	 }
	
	 class ProfileApp extends StatelessWidget {
	  @override
	  Widget build(BuildContext *context*) {
	   return MaterialApp(
	    debugShowCheckedModeBanner: false,
	    title: 'Profile App',
	    theme: ThemeData(*primarySwatch*: Colors.blue),
	    home: ProfilePage(),
	   );
	  }
	 }
	
	 Profile_page.dart
	
	 import 'package:flutter/material.dart';
	 import 'contact_page.dart';
	
	 class ProfilePage extends StatefulWidget {
	  @override
	  _ProfilePageState createState() => _ProfilePageState();
	 }
	
	 class _ProfilePageState extends State\<ProfilePage\>
	   with SingleTickerProviderStateMixin {
	  late AnimationController _controller;
	  late Animation\<double\> _opacityAnimation;
	  late Animation\<Offset\> _slideAnimation;
	  late Animation\<double\> _scaleAnimation;

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```dart
@override
void initState() {
 super.initState();
 _controller = AnimationController(
  duration: Duration(seconds: 2),
  vsync: this,
 );

 _opacityAnimation =
   Tween<double>(begin: 0.0, end: 1.0).animate(CurvedAnimation(
  parent: _controller,
  curve: Curves.easeInOut,
 ));

 _scaleAnimation =
   Tween<double>(begin: 0.5, end: 1.0).animate(CurvedAnimation(
  parent: _controller,
  curve: Curves.easeInOut,
 ));

 _slideAnimation = Tween<Offset>(begin: Offset(0, 1), end: Offset(0, 0))
   .animate(CurvedAnimation(
  parent: _controller,
  curve: Curves.easeInOut,
 ));

 _controller.forward(); // Start the animations
}

@override
void dispose() {
 _controller.dispose();
 super.dispose();
}

@override
Widget build(BuildContext context) {
 return Scaffold(
  appBar: AppBar(
   title: Text("My Profile"),
   actions: [
    IconButton(
     icon: Icon(Icons.contact_page),
     onPressed: () {
      Navigator.push(
       context,
       MaterialPageRoute(builder: (context) => ContactPage()),
      );
     },
    ),
   ],
  ),
  body: Center(
   child: FadeTransition(
    opacity: _opacityAnimation,
    child: SlideTransition(
     position: _slideAnimation,
     child: Column(
```

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```
            mainAxisAlignment: MainAxisAlignment.start,
            children: [
             // Profile Image
             ScaleTransition(
               scale: _scaleAnimation,
               child: CircleAvatar(
                 radius: 80,
                 backgroundImage: AssetImage("assets/profile.jpg"),
               ),
            ),
            SizedBox(height: 10),
            // Name & Skills
            Text("Sanjana Palkar",
                style:
                    TextStyle(fontSize: 24, fontWeight: FontWeight.bold)),
            Text("Flutter Developer",
                style: TextStyle(fontSize: 18, color: Colors.grey)),
            SizedBox(height: 5),
            Text("Skills: Flutter, Dart, C#, .NET",
                style: TextStyle(fontSize: 16)),

            SizedBox(height: 20),

            // New Section: Birthday, Height, Speciality
            Card(
              elevation: 3,
              shape: RoundedRectangleBorder(
                  borderRadius: BorderRadius.circular(10)),
              margin: EdgeInsets.symmetric(horizontal: 20),
              child: Padding(
                padding: EdgeInsets.all(15),
                child: Column(
                  children: [
                    _infoRow(" 🎂 Birthday", "07-12-2002"),
                    _infoRow(" 📏 Height", "5.2\""),
                    _infoRow(" 💻 Speciality", "C# Developer"),
                  ],
                ),
              ),
            ),

            SizedBox(height: 20),

            // Qualification Section
            Card(
              elevation: 3,
              shape: RoundedRectangleBorder(
                  borderRadius: BorderRadius.circular(10)),
              margin: EdgeInsets.symmetric(horizontal: 20),
              child: Padding(
                padding: EdgeInsets.all(15),
                child: Column(
                  children: [
                    _infoRow(" 📚 10th Percentage", "90%"),
                    _infoRow(" 📖 12th Percentage", "91%"),
                    _infoRow(" 🎓 BSc IT CGPA", "9.80"),
                  ],
                ),
              ),
```

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```
          ),

        SizedBox(height: 20),

          // About Me Button
          ElevatedButton(
           onPressed: () {
             Navigator.push(
               context,
               MaterialPageRoute(builder: (context) => ContactPage()),
             );
           },
           child: Text("About Me"),
          ),
         ],
        ),
       ),
      ),
     );
    }

    // Widget for displaying each row of information
    Widget _infoRow(String label, String value) {
     return Padding(
       padding: const EdgeInsets.symmetric(vertical: 5),
       child: Row(
         mainAxisAlignment: MainAxisAlignment.spaceBetween,
         children: [
          Text(label,
             style: TextStyle(fontSize: 16, fontWeight: FontWeight.bold)),
          Text(value, style: TextStyle(fontSize: 16)),
         ],
       ),
     );
    }
}
```

Contact_page.dart

```
import 'package:flutter/material.dart';
import 'package:flutter/services.dart'; // For handling keyboard input

class ContactPage extends StatefulWidget {
 @override
 _ContactPageState createState() => _ContactPageState();
}

class _ContactPageState extends State<ContactPage> {
 final _formKey = GlobalKey<FormState>();
 final TextEditingController emailController = TextEditingController();
 final TextEditingController messageController = TextEditingController();
 bool isSubmitting = false; // To handle loading state

 // Sample images (Replace with actual image paths)
 final List<String> imagePaths = [
   "assets/image1.jpg",
   "assets/image2.jpg",
```

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```dart
    "assets/image3.jpg",
    "assets/image4.jpg",
    "assets/image5.jpg",
  ];

  // Simple email validation
  String? validateEmail(String? value) {
    if (value == null || value.isEmpty) {
      return 'Enter your email';
    }
    String pattern = r'^[a-zA-Z0-9._%+-]+@[a-zA-Z0-9.-]+\.[a-zA-Z]{2,4}$';
    RegExp regex = RegExp(pattern);
    if (!regex.hasMatch(value)) {
      return 'Enter a valid email';
    }
    return null;
  }

  @override
  Widget build(BuildContext context) {
    return Scaffold(
      appBar: AppBar(title: Text("Contact Me")),
      body: GestureDetector(
        onTap: () {
          // Dismiss keyboard when tapping outside the form
          FocusScope.of(context).unfocus();
        },
        child: Padding(
          padding: EdgeInsets.all(16),
          child: SingleChildScrollView(
            child: Column(
              crossAxisAlignment: CrossAxisAlignment.start,
              children: [
                // Greeting Heading
                Center(
                  child: Text(
                    "Nice to meet you!!",
                    style: TextStyle(
                      fontSize: 24,
                      fontWeight: FontWeight.bold,
                      color: Colors.blueAccent,
                    ),
                  ),
                ),
                SizedBox(height: 20),

                // Skills Section
                Wrap(
                  spacing: 10,
                  runSpacing: 10,
                  children: [
                    _buildSkillChip("Creative", Colors.purple),
                    _buildSkillChip("Public Speaking", Colors.orange),
                    _buildSkillChip("Camping", Colors.green),
                    _buildSkillChip("Volunteering", Colors.blue),
                  ],
                ),

                SizedBox(height: 20),
```

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```dart
// Image Grid Section (Instagram-like)
Text(
  "My Moments",
  style: TextStyle(fontSize: 18, fontWeight: FontWeight.bold),
),
SizedBox(height: 10),
GridView.builder(
  shrinkWrap: true,
  physics: NeverScrollableScrollPhysics(),
  gridDelegate: SliverGridDelegateWithFixedCrossAxisCount(
    crossAxisCount: 3, // 3 images per row
    crossAxisSpacing: 5,
    mainAxisSpacing: 5,
  ),
  itemCount: imagePaths.length,
  itemBuilder: (context, index) {
    return ClipRRect(
      borderRadius: BorderRadius.circular(8),
      child: Image.asset(
        imagePaths[index],
        fit: BoxFit.cover,
      ),
    );
  },
),

SizedBox(height: 20),

// Contact Me Form
Text(
  "Get in touch with me:",
  style: TextStyle(fontSize: 20, fontWeight: FontWeight.bold),
),
SizedBox(height: 20),

TextFormField(
  controller: emailController,
  decoration: InputDecoration(
    labelText: "Email",
    border: OutlineInputBorder(),
    prefixIcon: Icon(Icons.email),
  ),
  validator: validateEmail,
  keyboardType: TextInputType.emailAddress,
  textInputAction: TextInputAction.next,
  onFieldSubmitted: (_) => FocusScope.of(context).nextFocus(),
),
SizedBox(height: 16),

TextFormField(
  controller: messageController,
  decoration: InputDecoration(
    labelText: "Message",
    border: OutlineInputBorder(),
    prefixIcon: Icon(Icons.message),
  ),
  maxLines: 4,
  validator: (value) {
```

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```dart
                if (value == null || value.isEmpty)
                  return "Enter a message";
                return null;
              },
              textInputAction: TextInputAction.done,
              onFieldSubmitted: (_) => FocusScope.of(context).unfocus(),
            ),

            SizedBox(height: 20),

            isSubmitting
              ? Center(child: CircularProgressIndicator())
              : ElevatedButton(
                  onPressed: () async {
                    if (_formKey.currentState!.validate()) {
                      setState(() {
                        isSubmitting = true;
                      });

                      // Simulate a network request
                      await Future.delayed(Duration(seconds: 2));

                      ScaffoldMessenger.of(context).showSnackBar(
                        SnackBar(content: Text("Message Sent!")),
                      );

                      // Reset form after submission
                      emailController.clear();
                      messageController.clear();

                      setState(() {
                        isSubmitting = false;
                      });
                    }
                  },
                  child: Text("Send"),
                ),
          ],
        ),
      ),
    ),
  );
}

// Helper Widget for Skills
Widget _buildSkillChip(String skill, Color color) {
  return Chip(
    label: Text(
      skill,
      style: TextStyle(color: Colors.white),
    ),
    backgroundColor: color.withOpacity(0.8),
    padding: EdgeInsets.symmetric(horizontal: 12, vertical: 8),
  );
}
}
```
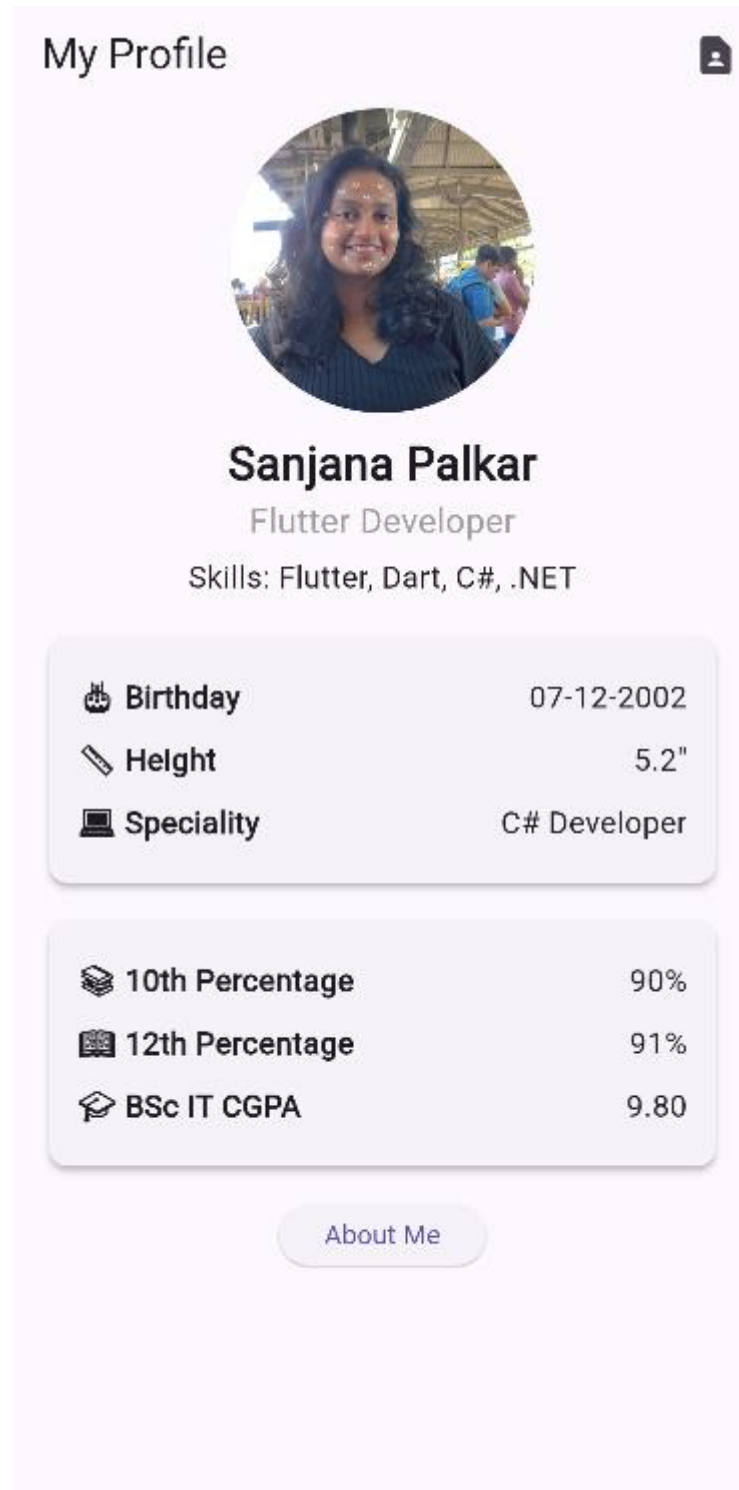
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Screenshots

Profile_page

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Contact_Page

Question and Answers	**1. What is Flutter? Features and Benefits of Flutter?** **Flutter** is an open-source UI framework by Google for building natively compiled applications for mobile, web, and desktop from a single codebase.

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Features: Fast development, hot reload, expressive UI, and cross-platform support.
Benefits: High performance, single codebase, customizable widgets, and strong community support.

2. What is Dart? Why use Dart?
Dart is a client-optimized programming language for fast apps on multiple platforms.
Why Dart? It is optimized for UI development, has a JIT compiler for faster development, and an AOT compiler for high-performance execution.

3. How is a basic Dart program written?
```
void main() {
  print("Hello, Dart!");
}
```

4. What are Widgets?
Widgets are the building blocks of Flutter UI, representing everything visible on the screen.

5. What are Stateless Widgets?
Stateless widgets do not change their state once built. Example: Text, Icon.

6. What are Stateful Widgets?
Stateful widgets maintain a dynamic state that can change during runtime. Example: TextField, Checkbox.

7. Structure of Files in Flutter
- lib/: Main Dart files (e.g., main.dart)
- android/ & ios/: Native platform-specific code
- pubspec.yaml: Project dependencies and assets
- test/: Unit test files

8. Steps to Install Flutter
1. Download Flutter SDK from flutter.dev
2. Extract and add Flutter to the system PATH
3. Install dependencies: Android Studio/Xcode, Flutter plugin, Dart SDK
4. Run flutter doctor to check setup

9. Command to Start a Flutter Application
flutter create my_app

10. Command to Run a Flutter Application
flutter run

11. Command to Sync Files with Emulator
r # Press 'r' in the terminal for hot reload
R # Press 'R' for hot restart

12. Command to Check Issues in Flutter Application
flutter doctor
or
flutter analyze

Conclusion

Flutter is an open-source UI toolkit developed by Google for building natively compiled applications from a single codebase for mobile, web, desktop, and embedded devices. It uses Dart, a language designed for high-performance and ease of development. With Flutter's widget-based architecture, developers can create highly customizable UIs, while its "hot reload" feature enables rapid development. Flutter allows for fast, smooth applications with native-like performance across platforms, making it a popular choice for modern app development.