



**Bharatiya Vidya Bhavan's**  
**SARDAR PATEL INSTITUTE OF TECHNOLOGY**  
(Autonomous Institute Affiliated to University of Mumbai)  
Munshi Nagar, Andheri (W), Mumbai – 400 058.  
Department of Computer Science and Engineering

<b>Experiment</b>	1
<b>Aim</b>	To install Flutter and its dependency. Create an app of your profile including educational qualification, hobby, technical language known, social media handles etc.
<b>Objective</b>	1. To install flutter. 2. To create basic app for your own profile using UI components of flutter.
<b>Name</b>	Atharva Vasant Angre
<b>UCID</b>	2024510001
<b>Class</b>	FYMCA
<b>Batch</b>	A
<b>Date of Submission</b>	29.01.2025

<b>Technology used</b>	Flutter, Android Studio
<b>Task</b>	Part1: Installation of Flutter and its Dependencies Part 2: Create an app of your profile using your creative design.
<b>Code with proper label</b>	<pre><b>main.dart</b> import 'package:flutter/material.dart'; import 'package:get/get.dart'; import 'package:profile/Screens/profile.dart';  void main() {   WidgetsFlutterBinding.ensureInitialized();   runApp(const MyApp()); }  class MyApp extends StatelessWidget {   const MyApp({super.key});    @override   Widget build(BuildContext context) {     return GetMaterialApp(       debugShowCheckedModeBanner: false,       title: 'Flutter Demo',       home: ProfileScreen(),     );   } }  <b>Profile.dart</b> import 'package:flutter/material.dart'; import 'package:get/get.dart'; import 'package:url_launcher/url_launcher.dart'; import 'dart:math' as math;  class ProfileScreen extends StatefulWidget {   const ProfileScreen({super.key});    @override   State&lt;ProfileScreen&gt; createState() =&gt; _ProfileScreenState(); }</pre>



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```
class _ProfileScreenState extends State<ProfileScreen> {  
  Future<void> _launchURL(String urlString) async {  
    final Uri url = Uri.parse(urlString);  
    try {  
      if (!await launchUrl(url)) {  
        ScaffoldMessenger.of(context).showSnackBar(  
          SnackBar(content: Text('Could not launch $urlString')),  
        );  
      }  
    } catch (e) {  
      debugPrint('Error launching $urlString: $e');  
      ScaffoldMessenger.of(context).showSnackBar(  
        SnackBar(content: Text('Failed to open $urlString')),  
      );  
    }  
  }  
}
```

String about =

"MCA student at Sardar Patel Institute of Technology with expertise in Flutter, full-stack, and backend development, focusing on scalable systems and new technologies.";

String CIM =

"The Colliers CRM app simplifies property management with real-time search, dashboards, detailed pages, and multilingual support for iOS and Android.";

String WMS =

"The Warehouse Management System optimizes inventory with modules for Putaway, Picking, Packing, and more, ensuring efficient tracking and storage.";

String SAS =

"The RFID-based attendance system automates tracking with Google Sheets and Firebase, offering admin tools and student access to attendance details.";

String ach1 = "Ranked 3rd in Khelo India University Games 2023 for Mallakhamb. National player with accolades in state and national competitions.";

String ach2 = "Performed Mallakhamb internationally in Australia, Budapest, Mexico, and Bahrain, promoting this traditional Indian sport globally.";

```
final List<Map<String, String>> imageItems = [  
  {'imagePath': 'assets/images/1.jpeg', 'title': 'Acrobatic Dynamic'},  
  {'imagePath': 'assets/images/2.jpeg', 'title': 'MoonKnight'},  
  {'imagePath': 'assets/images/3.jpeg', 'title': 'CWG 2018'},  
  {'imagePath': 'assets/images/4.jpeg', 'title': 'CWG 2018'},  
  {'imagePath': 'assets/images/5.jpeg', 'title': 'CWG 2018'},  
  {'imagePath': 'assets/images/6.jpg', 'title': 'Khelo India 2023'},  
];
```

```
final CarouselController controller = CarouselController(initialItem: 1);
```

@override

```
Widget build(BuildContext context) {  
  return Scaffold(  
    appBar: AppBar(  
      // toolbarHeight: 100,  
      centerTitle: true,  
      title: Text("Profile"),  
    ),  
  ),
```



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```
body: CustomScrollView(slivers: [
  SliverAppBar(
    expandedHeight: Get.height * 0.4,
    pinned: true,
    backgroundColor: Colors.white, // Set background color to white
    flexibleSpace: LayoutBuilder(
      builder: (context, constraints) {
        // Calculate the progress of the collapse (0.0 to 1.0)
        final progress = 1.0 -
          (constraints.maxHeight - constraints.minHeight) /
            (Get.height * 0.4 - kToolbarHeight);

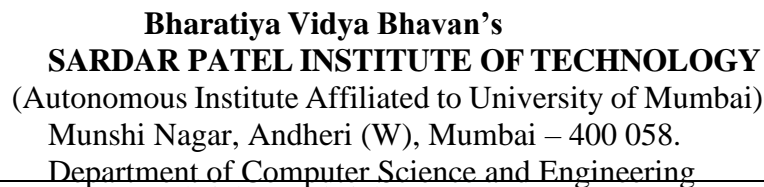
        // Ensure progress is between 0 and 1
        final safeProgress = math.max(0.0, math.min(1.0, progress));

        return FlexibleSpaceBar(
          title: Row(
            mainAxisAlignment: MainAxisAlignment.start,
            children: [
              if (safeProgress > 0.5)
                Text(
                  "Atharva Vasant Angre",
                  style: TextStyle(
                    fontSize: 25,
                    color: Colors.black,
                    fontWeight: FontWeight.bold,
                  ),
                ),
            ],
          ),
          background: Column(
            mainAxisAlignment: MainAxisAlignment.center,
            children: [
              ClipOval(
                child: Image.asset(
                  'assets/images/profileImage.png',
                  height: Get.height * 0.25,
                  width: Get.height * 0.25,
                  fit: BoxFit.cover,
                ),
              ),
              SizedBox(height: 16),
              Text(
                "Atharva Vasant Angre",
                style: TextStyle(
                  fontSize: 35,
                  color: Colors.black,
                  fontWeight: FontWeight.bold,
                ),
              ),
            ],
          ),
        );
      },
    ),
  ),
  SliverList(
    delegate: SliverChildListDelegate(
      [
```



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	<pre>SizedBox(height: Get.height * 0.02), Row(   mainAxisAlignment: MainAxisAlignment.spaceEvenly,   children: [     // GitHub     GestureDetector(       onTap: () =&gt; _launchURL('https://github.com/angreatharva'),       child: Container(         height: Get.height * 0.08,         width: Get.width * 0.2,         padding: EdgeInsets.symmetric(horizontal: Get.width * 0.025,vertical: Get.height * 0.005),         decoration: BoxDecoration(           color: Color(0xffffd146),           borderRadius: BorderRadius.all(Radius.circular(8)),           border: Border.all(color: Colors.black, width: 2.5),         ),         child: Image.asset(           'assets/images/git1.png',           height: Get.height * 0.050,         ),       ),     ),     // Email     GestureDetector(       onTap: () =&gt; _launchURL( 'mailto:angreatharva08@gmail.com?subject=Greetings&amp;body=Hello Atharva,'),       child: Container(         height: Get.height * 0.08,         width: Get.width * 0.2,         padding: EdgeInsets.symmetric(horizontal: Get.width * 0.025,vertical: Get.height * 0.005),         decoration: BoxDecoration(           color: Color(0xffffd146),           borderRadius: BorderRadius.all(Radius.circular(8)),           border: Border.all(color: Colors.black, width: 2.5),         ),         child: Icon(Icons.mail_outline_rounded, size: 60),       ),     ),     // LinkedIn     GestureDetector(       onTap: () =&gt; _launchURL( 'https://www.linkedin.com/in/atharva-angre-3146aa269/'),       child: Container(         height: Get.height * 0.08,         width: Get.width * 0.2,         padding: EdgeInsets.symmetric(horizontal: Get.width * 0.025,vertical: Get.height * 0.005),         decoration: BoxDecoration(           color: Color(0xffffd146),           borderRadius: BorderRadius.all(Radius.circular(8)),           border: Border.all(color: Colors.black, width: 2.5),         ),         child: Image.asset(           'assets/images/linkedin.png',</pre>
--	---

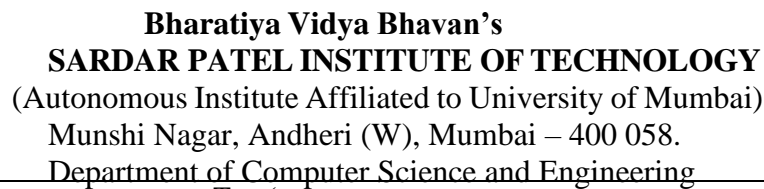


```

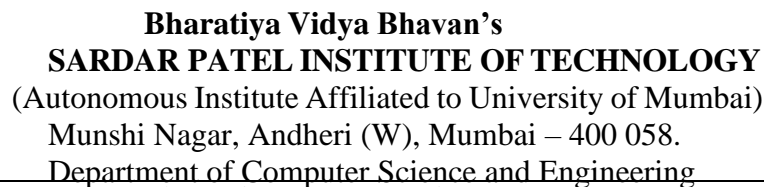
        height: Get.height * 0.05,
    ),
    ),
),

// Phone
GestureDetector(
  onTap: () => _launchURL('tel:+919167449720'),
  child: Container(
    height: Get.height * 0.08,
    width: Get.width * 0.2,
    padding: EdgeInsets.symmetric(horizontal: Get.width *
0.025,vertical: Get.height * 0.005),
    decoration: BoxDecoration(
      color: Color(0xffffd146),
      borderRadius: BorderRadius.all(Radius.circular(8)),
      border: Border.all(color: Colors.black, width: 2.5),
    ),
    child: Icon(Icons.phone_android_rounded, size: 50),
  ),
),
],
),
SizedBox(height: Get.height * 0.02),
Column(
  spacing: Get.height * 0.02,
  children: [
    Container(
      width: Get.width * 0.95,
      // height: Get.height * 0.35,
      padding: EdgeInsets.all(8),
      decoration: BoxDecoration(
        borderRadius: BorderRadius.all(Radius.circular(8)),
        border: Border.all(color: Colors.black, width: 2.5),
        color: Color(0xffbed5ea),
      ),
      child: Text(
        about,
        style:
          TextStyle(fontWeight: FontWeight.w700, fontSize: 18),
      ),
    ),
    Container(
      width: Get.width * 0.95,
      height: Get.height * 0.35,
      padding: EdgeInsets.all(8),
      decoration: BoxDecoration(
        borderRadius: BorderRadius.all(Radius.circular(8)),
        border: Border.all(color: Colors.black, width: 2.5),
        color: Color(0xffbed5ea),
      ),
      child: Scrollbar(
        thumbVisibility: true,
        child: SingleChildScrollView(
          // physics: ,
          child: Column(
            crossAxisAlignment: CrossAxisAlignment.start,
            spacing: Get.height * 0.015,
            children: [

```



```
Text(
    "Project",
    style: TextStyle(
        fontWeight: FontWeight.w700, fontSize: 25),
),
Column(
    crossAxisAlignment: CrossAxisAlignment.start,
    children: [
        Text(
            "ReConnect",
            style: TextStyle(
                fontWeight: FontWeight.w900,fontSize: 20),
        ),
        Text(
            CIM,
            style: TextStyle(
                fontWeight: FontWeight.w700, fontSize: 18),
        ),
    ],
),
Column(
    crossAxisAlignment: CrossAxisAlignment.start,
    children: [
        Text(
            "WMS",
            style: TextStyle(
                fontWeight: FontWeight.w900,fontSize: 18),
        ),
        Text(
            WMS,
            style: TextStyle(
                fontWeight: FontWeight.w700, fontSize: 18),
        ),
    ],
),
Column(
    crossAxisAlignment: CrossAxisAlignment.start,
    children: [
        Text(
            "Smart Attendance System",
            style: TextStyle(
                fontWeight: FontWeight.w900, fontSize: 18),
        ),
        Text(
            SAS,
            style: TextStyle(
                fontWeight: FontWeight.w700, fontSize: 18),
        ),
    ],
),
],
),
),
),
),
),
Container(
    width: Get.width * 0.95,
    // height: Get.height * 0.38,
    padding: EdgeInsets.all(8),
```



```
decoration: BoxDecoration(
    borderRadius: BorderRadius.all(Radius.circular(8)),
    border: Border.all(color: Colors.black, width: 2.5),
    color: Color(0xffbed5ea),
),
child: Scrollbar(
    thumbVisibility: true,
    child: SingleChildScrollView(
        child: Column(
            crossAxisAlignment: CrossAxisAlignment.start,
            children: [
                Text(
                    "Achievements",
                    style: TextStyle(
                        fontWeight: FontWeight.w700, fontSize: 25),
                ),
                Text(
                    "\u2022 "+ach1,
                    style: TextStyle(
                        fontWeight: FontWeight.w700, fontSize: 18),
                ),
                Text(
                    "\u2022 "+ach2,
                    style: TextStyle(
                        fontWeight: FontWeight.w700, fontSize: 18),
                ),
            ],
        ),
    ),
),
),
Container(
    width: Get.width * 0.95,
    height: Get.height * 0.35,
    padding: EdgeInsets.all(8),
    decoration: BoxDecoration(
        borderRadius: BorderRadius.all(Radius.circular(8)),
        border: Border.all(color: Colors.black, width: 2.5),
        color: Color(0xffbed5ea),
    ),
    child: CarouselView.weighted(
        controller: controller,
        itemSnapping: true,
        flexWeights: const <int>[1,7,1],
        children: imageItems.map((Map<String, String> item) {
            return HeroLayoutCard(
                imagePath: item['imagePath']!,
                title: item['title']!,
            );
        }).toList(),
    ),
),
),
SizedBox(height: Get.height * 0.005)
```



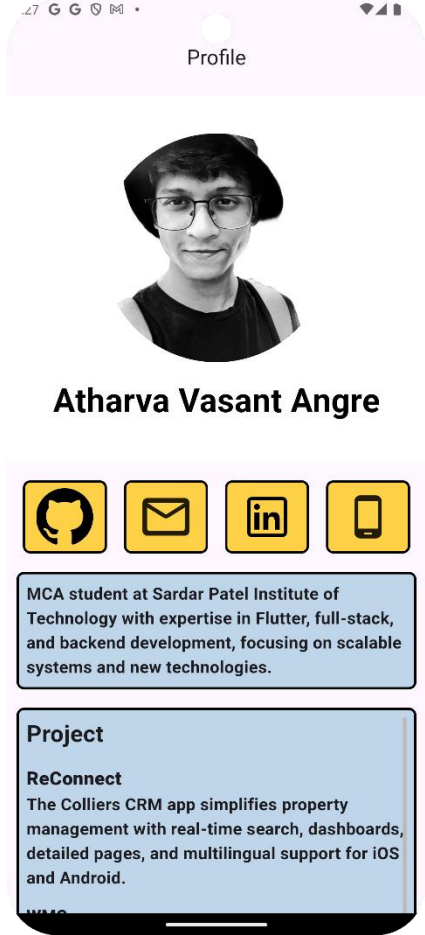
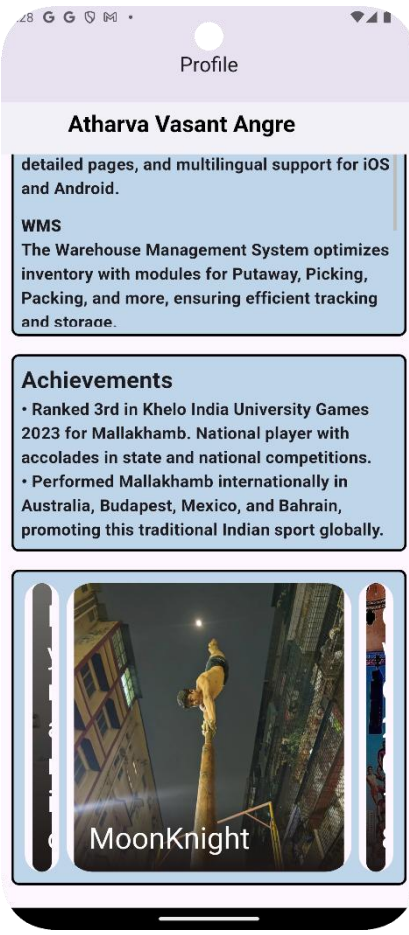
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```
}  
class HeroLayoutCard extends StatelessWidget {  
  const HeroLayoutCard({  
    Key? key,  
    required this.imagePath,  
    required this.title,  
  }) : super(key: key);  
  
  final String imagePath;  
  final String title;  
  
  @override  
  Widget build(BuildContext context) {  
    return Container(  
      margin: const EdgeInsets.symmetric(horizontal: 8),  
      child: ClipRRect(  
        borderRadius: BorderRadius.circular(12),  
        child: Stack(  
          fit: StackFit.expand,  
          children: <Widget>[  
            Image.asset(  
              imagePath,  
              fit: BoxFit.cover,  
            ),  
            Positioned(  
              bottom: 0,  
              left: 0,  
              right: 0,  
              child: Container(  
                padding: const EdgeInsets.all(16),  
                decoration: BoxDecoration(  
                  gradient: LinearGradient(  
                    begin: Alignment.topCenter,  
                    end: Alignment.bottomCenter,  
                    colors: [  
                      Colors.transparent,  
                      Color(0xff1e1818),  
                    ],  
                ),  
              ),  
            ),  
            child: Column(  
              crossAxisAlignment: CrossAxisAlignment.start,  
              children: <Widget>[  
                Text(  
                  title,  
                  style: Theme.of(context)  
                    .textTheme  
                    .headlineLarge  
                    ?.copyWith(color: Colors.white),  
                ),  
              ],  
            ),  
          ],  
        ),  
      ),  
    );  
  }  
}
```





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	}
<b>Screenshots</b>	<div></div> <div></div>
<b>Question and Answers</b>	<p>Answer the following Questions:</p> <ol style="list-style-type: none"><li>1. What is flutter? features and benefits of flutter?  Flutter is a versatile framework developed by Google in 2015 that allows developers to build applications for Android, iOS, web, and desktop using a single codebase. Its key feature is its low development time, made possible by tools like <b>hot reload</b> and <b>hot restart</b>, which enable developers to see real-time changes without restarting the app. The main benefit of Flutter is its ability to create visually attractive applications with high performance while ensuring platform consistency. Additionally, it offers an extensive set of pre-built widgets and integrates well with various platforms, making development efficient and seamless.</li><li>2. What is dart? why should we use dart as the programming language?  Dart is a modern programming language designed by Lars and Kasper and developed by Google. It is object-oriented and similar to Java in terms of syntax, making it easier for developers with Java experience to adapt quickly. Dart is specifically optimized for UI development with frameworks like</li></ol>



	<p>Flutter. Its fast compilation to native code and support for asynchronous programming make it an ideal choice for building high-performance, cross-platform applications.</p>
3.	<p>How is the basic program of dart written?</p> <p>Dart programs typically start with the main.dart file, located in the lib folder of a Flutter project. The program execution begins with the main() function, which serves as the entry point of the application. Other functions and methods can be defined and called within this structure, ensuring a modular and organized codebase.</p>
4.	<p>What do you mean by widgets?</p> <p>Widgets are the fundamental building blocks used to construct the user interface (UI) of a Flutter app. They define the visual and functional elements of the app. Examples of widgets include <b>Container</b>, <b>Column</b>, <b>Row</b>, <b>ListView</b>, <b>ElevatedButton</b>, and many more.</p> <p>Widgets can be classified as <b>stateless</b> or <b>stateful</b>, depending on whether their state changes during runtime.</p>
5.	<p>What do you mean by stateless widgets?</p> <p>A <b>stateless widget</b> is a widget that remains immutable throughout its lifecycle. Once it is built, its appearance and properties cannot be dynamically updated. Stateless widgets are typically used for UI elements that do not require user interaction or data changes.</p> <p>For example, a static text label or an icon can be implemented as a stateless widget.</p>
6.	<p>What is stateful widgets?</p> <p>A <b>stateful widget</b> is a widget that can update its appearance dynamically based on user interaction or changes in data. It holds a mutable "state" object, and whenever the state is updated, the widget rebuilds itself to reflect the changes.</p> <p>Stateful widgets are commonly used for features like forms, animations, or any element that involves interactivity.</p>
7.	<p>what is the structure of files in flutter?</p> <p>The file structure in Flutter is well-organized and includes the following:</p> <ul style="list-style-type: none"><li>• The <b>entry point</b> is main.dart, located in the lib folder. This file contains the main() function, where the application execution begins.</li><li>• All dependencies are managed in the pubspec.yaml file under the dependencies: section. This file is also used to configure assets and packages.</li><li>• To include assets like images or fonts, a dedicated <b>assets folder</b> should be created at the root of the project. The assets must also be listed in the pubspec.yaml file to make them accessible in the project.</li></ul>
8.	<p>Steps for installation of flutter. Give step by step installation. What dependent files are required.</p>



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	<ul style="list-style-type: none"><li>a) Download Flutter SDK from (<a href="https://docs.flutter.dev/get-started/install">https://docs.flutter.dev/get-started/install</a>)</li><li>b) Extract the Flutter SDK and save it in D drive</li><li>c) Add Flutter to System Path (give the flutter\bin path in environment variable)</li><li>d) Verify Installation (flutter doctor)</li><li>e) Install Android Studio &amp; SDK</li><li>f) In Android Studio inside SDK Manager install (Android 14 in SDK Platform), (In SDK Tools install Android SDK command-line tools, HAXM installer)</li><li>g) Create a Virtual Device like Pixel 8 and set the API to 14</li></ul> <p>9. Command to start flutter application</p> <p style="padding-left: 40px;">flutter create projectName</p> <p>10. Command to run flutter application</p> <p style="padding-left: 40px;">flutter run</p> <p>11. Command to sync files with emulator.</p> <p style="padding-left: 40px;">Flutter pub get</p> <p style="padding-left: 40px;">We can also do (ctrl + s) to sync the UI changes in the emulator</p> <p>12. Command to check the issues in flutter application.</p> <p style="padding-left: 40px;">To check for any issues in the Flutter setup</p> <ul style="list-style-type: none"><li>- flutter doctor</li></ul> <p style="padding-left: 40px;">To check for any issues in the Flutter dependencies</p> <ul style="list-style-type: none"><li>- flutter pub get</li></ul> <p style="padding-left: 40px;">To analyze and find errors in the Flutter code</p> <ul style="list-style-type: none"><li>- flutter analyze</li></ul>
<b>Conclusion</b>	Flutter is an open-source framework developed by Google that enables developers to create applications for multiple platforms, including Android, iOS, web, and desktop, all from a single codebase. This eliminates the need for separate code for each platform, saving time and effort. It offers fast development with features like hot reload, allowing developers to instantly see the effects of their code changes without restarting the complete app. Flutter's rich set of customizable widgets makes it easy to create beautiful and responsive user interfaces