

## **An Application that uses GUI components, Fonts, Colors**

**Ex.No:1**

**Date: 30/08/2022**

### **Aim:**

To create a mobile application that uses GUI components, fonts, and colors.

### **Procedure:**

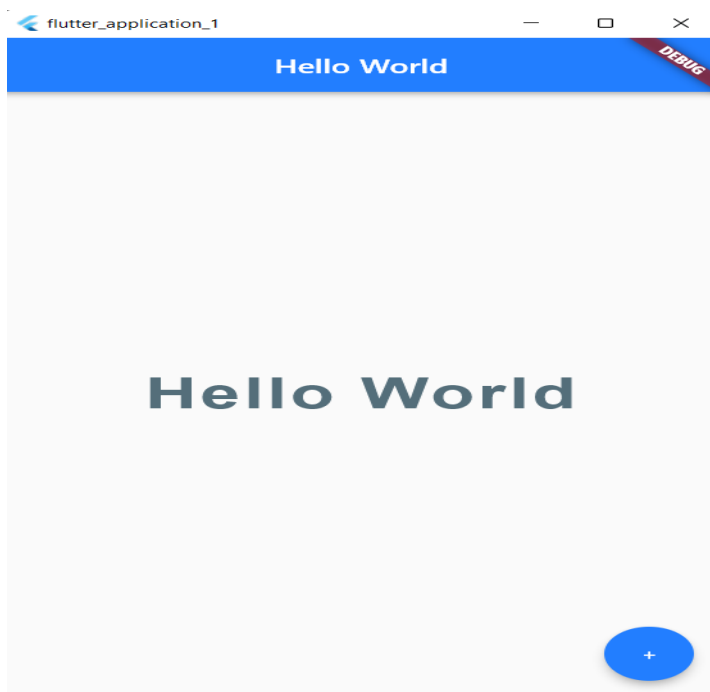
- Scaffold()
  - o Creates a visual scaffold for Material Design widgets
  - o appBar() is used to specify the title and background of the top bar.
  - o body() is used to contain the primary content of the scaffold.
- MaterialApp()
  - o contains widgets that are used for the material design of an application.
  - o theme property is used to set the theme of the application to dark or light.
  - o Home property defines the starting point of the application. It usually contains Scaffold.
- Text():
  - o import 'package:flutter/material.dart';
  - o specify the string to be displayed, withing quotes inside Text().
  - o Style property can be used to add TextStyle like fontSize, color.
  - o textAlign property can be used for alignment of specified text

### **Code:**

```
import 'package:flutter/material.dart';
void main() {
  runApp(MaterialApp(
    home: Home(),
  ));}
class Home extends StatelessWidget {
  const Home({Key? key}) : super(key: key);
  @override
  Widget build(BuildContext context) {
    return Scaffold(
      appBar: AppBar(
        title: Text("Hello World"),
        centerTitle: true,
        backgroundColor: Color.fromARGB(255, 34, 126, 255)),
      body: Center(
        child: Text(
          "Hello World",
```

```
style: TextStyle(  
    fontSize: 45.0,  
    fontWeight: FontWeight.bold,  
    letterSpacing: 2.0,  
    color: Colors.blueGrey[600],  
    fontFamily: 'Arial',  
),  
),  
),  
floatingActionButton: FloatingActionButton(  
    onPressed: () {},  
    child: Text("+"),  
    backgroundColor: Color.fromARGB(255, 34, 126, 255),  
),,);}}
```

### **Output:**



### **Result:**

A mobile application which uses GUI components, fonts, and colors has been implemented successfully.

## **An application that uses Layout Managers and Event Listeners**

**Ex.No:2**

**Date: 06/09/2022**

### **Aim:**

To create a mobile application that uses Layout Managers and Event Listeners

### **Procedure:**

- Layout managers:
  - Column() class is used to display its children in a vertical way.
  - Children property is used to specify its descendants.
  - ListTile is a fixed-height row that typically contains some text as well as leading or trailing icon.
  - The icons (or other widgets) for the tile are defined with the leading and trailing parameters.
- Event listeners:
  - onPressed() property is used to assign a callback function to the button or icon.
  - The application executes this function whenever the user presses the chip.
  - If onPressed() is null, then it denotes disabled.

### **Code:**

```
import 'package:flutter/material.dart';
void main() {
  runApp(const MaterialApp(
    home: Home(),
  ));
}
class Home extends StatefulWidget {
  const Home({Key? key}) : super(key: key);
  @override
  State<Home> createState() => _HomeState();
}
class _HomeState extends State<Home> {
  int projects = 0;
  @override
  Widget build(BuildContext context) {
    return Scaffold(
      backgroundColor: Color.fromARGB(255, 223, 223, 225),
```

```

appBar: AppBar(
  title: Text("Sample layout"),
  backgroundColor: Colors.black12,
  centerTitle: true,
  elevation: 0.0,
),
body: Padding(
  padding: EdgeInsets.fromLTRB(30.0, 40.0, 30.0, 0.0),
  child: Column(
    crossAxisAlignment: CrossAxisAlignment.start,
    children: <Widget>[
      Center(
        child: CircleAvatar(
          backgroundImage: AssetImage('assets/flutter.png'),
          radius: 50.0,
        ),
      ),
      SizedBox(
        height: 20.0,
      ),
      Text(
        "Sample layout",
        style: TextStyle(
          color: Colors.black,
          letterSpacing: 2.0,
        ),
      ),
      SizedBox(
        height: 10.0,
      ),
      Text(
        "$projects",
        style: TextStyle(
          color: Colors.blue,
          letterSpacing: 2.0,
          fontSize: 28.0,
          fontWeight: FontWeight.bold,
        ),
      ),
      SizedBox(
        height: 20.0,
      ),
      ElevatedButton(
        onPressed: () {
          setState(() {
            projects++;
          });
        },
      ),
    ],
  ),
),

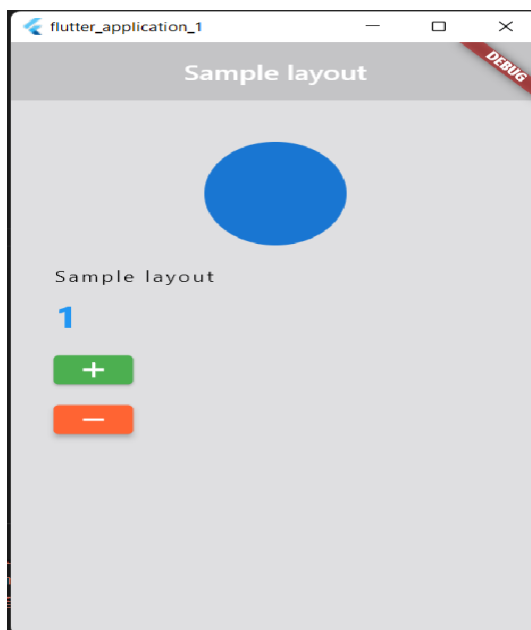
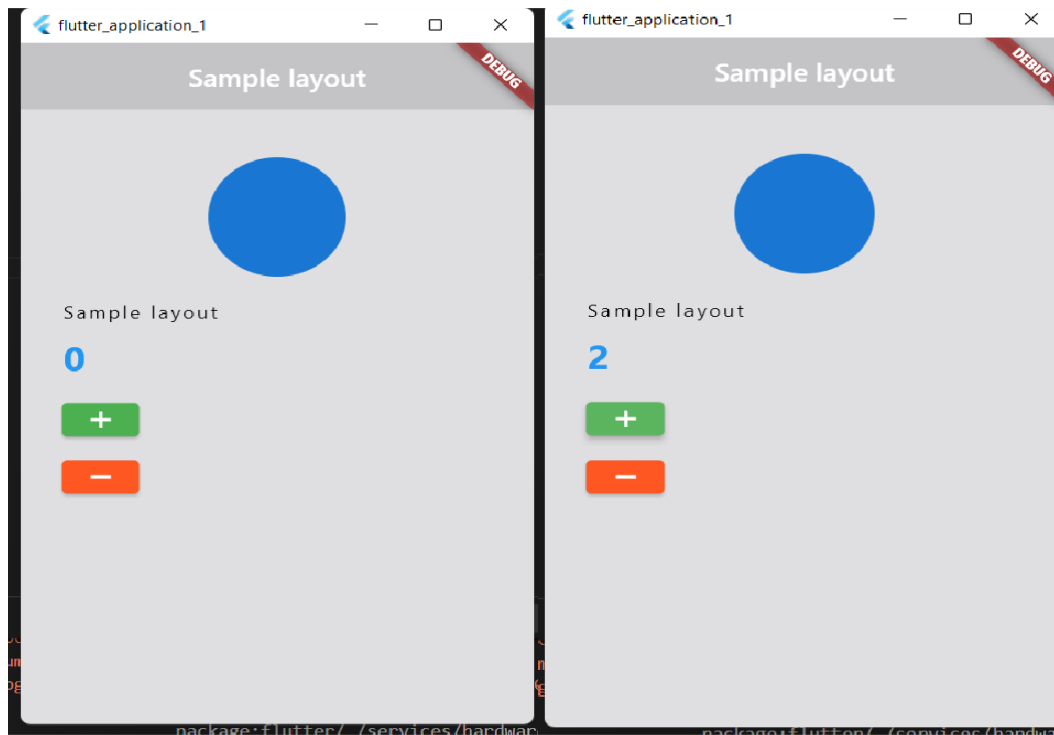
```

```

onLongPress: () {
      setState(() {
        projects *= 2;
      });
    },
    child: Icon(
      Icons.add,
    ),
    style: ElevatedButton.styleFrom(
      primary: Colors.green,
    ),
  ),
  SizedBox(
    height: 20.0,
  ),
  ElevatedButton(
    onPressed: () {
      setState(() {
        if (projects > 0) projects--;
      });
    },
    onLongPress: () {
      setState(() {
        if (projects > 0) projects ~/= 2;
      });
    },
    child: Icon(
      Icons.remove,
    ),
    style: ElevatedButton.styleFrom(
      primary: Colors.deepOrange,
    ),
  ),
  SizedBox(
    height: 20.0,
  ),
  Row(
    children: [
      SizedBox(
        width: 20.0,
      ),
    ],
  ),
)
}
}

```

## Output:



## Result:

An application that uses layout managers and event listeners has been implemented successfully

## Creation of Calculator Application

**Ex.No:3**

**Date: 13/09/2022**

### Aim:

To create a mobile calculator application

### Procedure:

- Initialize num1, num2 and res (result) as 0
- Declare a function for each of the basic arithmetic operations ( + , - , \* , / ) which takes two operands as parameters and returns the result.
- Use the TextField, to get num1 and num2 as input.
- TextEditingController is used to retrieve the values of the TextField(s).
- Use another non-editable TextField to display the result.
- Use MaterialButton to perform the labelled arithmetic operation.

### Code:

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

void main() => runApp(const MyApp());

class MyApp extends StatelessWidget {
  const MyApp({Key? key}) : super(key: key);

  @override
  Widget build(BuildContext context) {
    return MaterialApp(
      title: 'Calculator',
      theme: ThemeData(
        primarySwatch: Colors.blue,
      ),
      debugShowCheckedModeBanner: false,
      home: const MyHomePage(),
    );
  }
}

class MyHomePage extends StatefulWidget {
  const MyHomePage({Key? key}) : super(key: key);

  @override
  _MyHomePageState createState() => _MyHomePageState();
}
```

```

class _MyHomePageState extends State<MyHomePage> {
  String output = "0";

  String _output = "0";
  double num1 = 0.0;
  double num2 = 0.0;
  String operand = "";
  onPressed(String buttonText) {
    if (buttonText == "CLEAR") {
      _output = "0";
      num1 = 0.0;
      num2 = 0.0;
      operand = "";
    } else if (buttonText == "+" ||
      buttonText == "-" ||
      buttonText == "/" ||
      buttonText == "X") {
      num1 = double.parse(output);
      operand = buttonText;
      _output = "0";
    } else if (buttonText == ".") {
      if (_output.contains(".")) {
        return;
      } else {
        _output = _output + buttonText;
      }
    } else if (buttonText == "=") {
      num2 = double.parse(output);
      if (operand == "+") {
        _output = (num1 + num2).toString();}
      if (operand == "-") {
        _output = (num1 - num2).toString();}
      if (operand == "X") {
        _output = (num1 * num2).toString();}
      if (operand == "/") {
        _output = (num1 / num2).toString();}
      num1 = 0.0;
      num2 = 0.0;
      operand = "";
    } else {
      _output = _output + buttonText;
    }
    setState(() {
      output = double.parse(_output).toStringAsFixed(2);
    });
  }
}

```



```

buildButton(String buttonText) {
  return Expanded(
    child: OutlinedButton(
      style: OutlinedButton.styleFrom(
        shape: RoundedRectangleBorder(
          borderRadius: BorderRadius.circular(0.0),
        ),

        side: const BorderSide(width: 1, color: Colors.grey),
        minimumSize: const Size.fromHeight(
          50.0), // Set this padding: EdgeInsets.zero, // and this
      ),
      child: Text(
        buttonText,
        style: const TextStyle(fontSize: 20.0, fontWeight: FontWeight.bold),
      ),
      onPressed: () => buttonPressed(buttonText),
    ));}

@override
Widget build(BuildContext context) {
  return Scaffold(
    appBar: AppBar(
      title: const Text("Calculator"),
    ),
    body: Column(
      children: <Widget>[
        const Expanded(
          child: Divider(
            color: Colors.white,
          ),),
        Column(children: [
          Container(
            alignment: Alignment.centerRight,
            padding: const EdgeInsets.symmetric(
              vertical: 24.0, horizontal: 12.0),
            child: Text(output,
              style: const TextStyle(
                fontSize: 48.0,
                fontWeight: FontWeight.bold,
              )),
          Row(children: [
            buildButton("7"),
            buildButton("8"),
            buildButton("9"),
            buildButton("/")
          ]),
        ]),

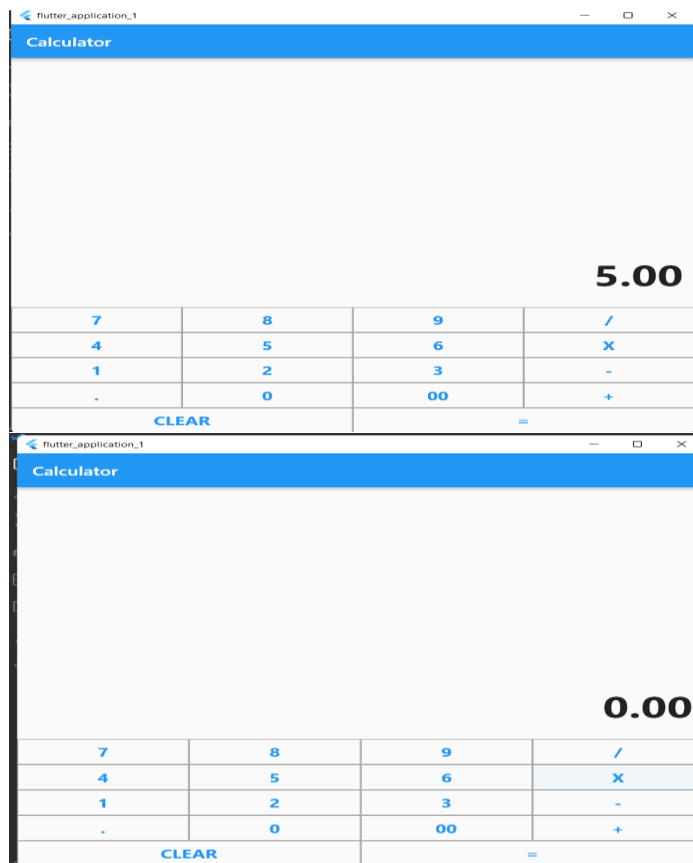
```

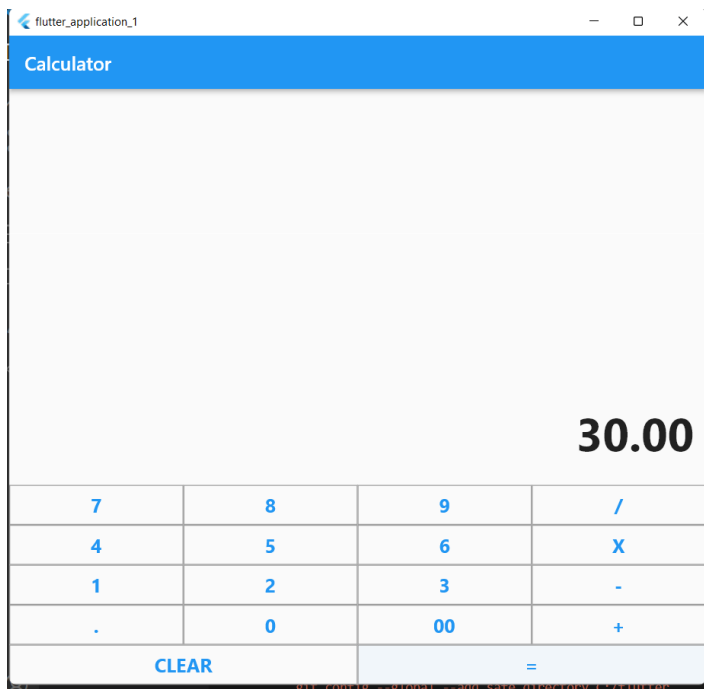
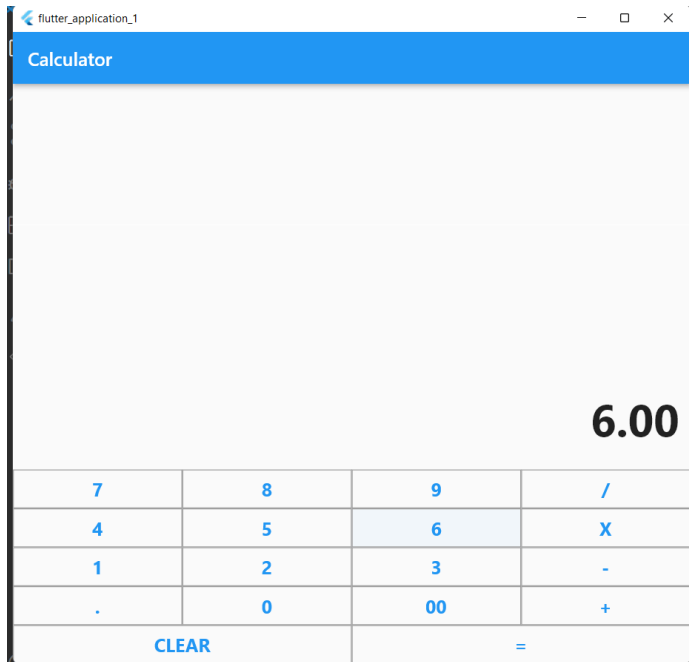
```

Row(children: [
    buildButton("4"),
    buildButton("5"),
    buildButton("6"),
    buildButton("X")]),
Row(children: [
    buildButton("1"),
    buildButton("2"),
    buildButton("3"),
    buildButton("-")]),
Row(children: [
    buildButton("."),
    buildButton("0"),
    buildButton("00"),
    buildButton("+")]),
Row(children: [
    buildButton("CLEAR"),
    buildButton("="),
    ])],
));}}

```

## Output:





## **Result:**

A calculator application for mobiles has been implemented successfully.

## **An application that draws basic graphical primitives on screen**

**Ex.No:4**

**Date: 20/09/2022**

### **Aim:**

To create a mobile application that draws basic graphical primitives on screen.

### **Procedure:**

- Declare a class for each graphical primitive.
- The CustomPainter class is used.
- The paint method takes canvas and size as parameters.
- Create an instance of Paint() class.
- canvas.drawRect() is used to draw a rectangle.
- Similarly, for line drawLine() is used.
- For circle and arc, drawCircle() and drawArc() are used respectively.
- Inside the scaffold, the required class is called by specifying it as the painter of CustomPaint class.

### **Code:**

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

final Color darkBlue = Color.fromARGB(255, 18, 32, 47);
void main() {
  runApp(MyApp());
}

class MyApp extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    return MaterialApp(
      theme: ThemeData.dark().copyWith(scaffoldBackgroundColor: darkBlue),
      debugShowCheckedModeBanner: false,
      home: Scaffold(
// Outer white container with padding
        body: Container(
          color: Colors.black,
          padding: EdgeInsets.symmetric(horizontal: 40, vertical: 80),
// Inner yellow container
          child: Container(
// pass double.infinity to prevent shrinking of the painter area to 0.
```

```

width: double.infinity,
    height: double.infinity,
    color: Color.fromARGB(255, 126, 125, 125),
    child: CustomPaint(painter: FaceOutlinePainter()),
  ),
),
),
);
}
}

```

```

class FaceOutlinePainter extends CustomPainter {
  @override
  void paint(Canvas canvas, Size size) {
    final paint = Paint();
    paint.style = PaintingStyle.stroke;
    paint.strokeWidth = 4.0;
    paint.color = Color.fromARGB(255, 244, 67, 54);

    canvas.drawOval(
      Rect.fromLTWH(size.width - 120, 40, 100, 100),
      paint,
    );

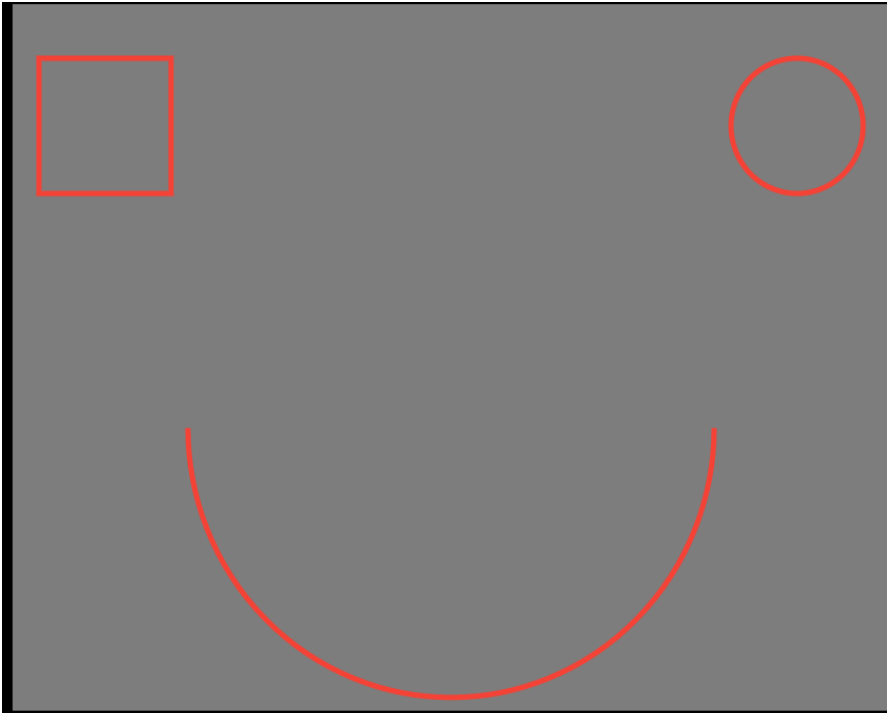
    canvas.drawRect(
      Rect.fromLTWH(20, 40, 100, 100),
      paint,
    );

    final mouth = Path();
    mouth.moveTo(size.width * 0.8, size.height * 0.6);
    mouth.arcToPoint(
      Offset(size.width * 0.2, size.height * 0.6),
      radius: Radius.circular(150),
    );
    canvas.drawPath(mouth, paint);
  }

  bool shouldRepaint(FaceOutlinePainter oldDelegate) => false;
}

```

**Output:**



**Result:**

A mobile application that draws basic graphical primitives on screen has been implemented successfully.

## An application that uses database for persistent storage

Ex.No:5

Date: 27/09/2022

### Aim:

To create a mobile application that draws basic graphical primitives on screen.

### Procedure:

- Install the following packages:
  - o npm install firebase-tools
  - o flutter pub add firebase\_core
  - o flutter pub add firebase\_auth
- Use 'firebase login' command to login to google account
- Use 'flutterfire configure' to add a firebase project to the application.
- Import the generated 'firebase options' file to main.dart file.
- FirebaseAuth.instance.currentUser is used to get the current user object
- Use FilePicker to select files from the device.
- storage.ref().child() is used to store the chosen file to Firebase storage.

### Code:

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

import 'package:cloud_firestore/cloud_firestore.dart';
void main() => runApp(
  MaterialApp(
    theme: ThemeData(
      brightness: Brightness.light,
      primaryColor: Colors.blue,
      accentColor: Colors.orange),
    home: MyApp(),
  ),
);
class MyApp extends StatefulWidget {
  @override
  _MyAppState createState() => _MyAppState();
}
class _MyAppState extends State<MyApp> {
  List todos = List();
  String input = "";
  createTodos() {
    DocumentReference documentReference =
      Firestore.instance.collection('MyTodos').document(input);
```

```

Map<String, String> todos = {'todoTitle': input};
documentReference.setData(todos).whenComplete(() {

  print('$input created');
});

}
deleteTodos() {}
@override
Widget build(BuildContext context) {
  return Scaffold(
    appBar: AppBar(
      title: Text('To-Do List'),
    ),
    floatingActionButton: FloatingActionButton(
      child: Icon(Icons.add),
      onPressed: () {
        showDialog(
          context: context,
          builder: (BuildContext context) {
            return AlertDialog(
              title: Text('Add To-Do'),
              content: TextField(
                onChanged: (String value) {
                  input = value;
                },
              ),
            ),
          ),
          actions: <Widget>[
            FlatButton(
              onPressed: () {
                createTodos();
                Navigator.of(context).pop();
              },
              child: Text('Add'),
            ),
          ],
        );
      },
    ),
  ),
);

```



```

body: StreamBuilder(
  stream: Firestore.instance.collection('MyTodos').snapshots(),
  builder: (context, snapshots) {
    return ListView.builder(
      shrinkWrap: true,
      itemCount: snapshots.data.documents.length,
      itemBuilder: (BuildContext context, int index) {
        DocumentSnapshot documentSnapshot =
          snapshots.data.documents[index];
        return Dismissible(
          key: Key(index.toString()),
          child: Card(
            elevation: 4.0,

            margin: EdgeInsets.all(8.0),
            shape: RoundedRectangleBorder(
              borderRadius: BorderRadius.circular(8),
            ),

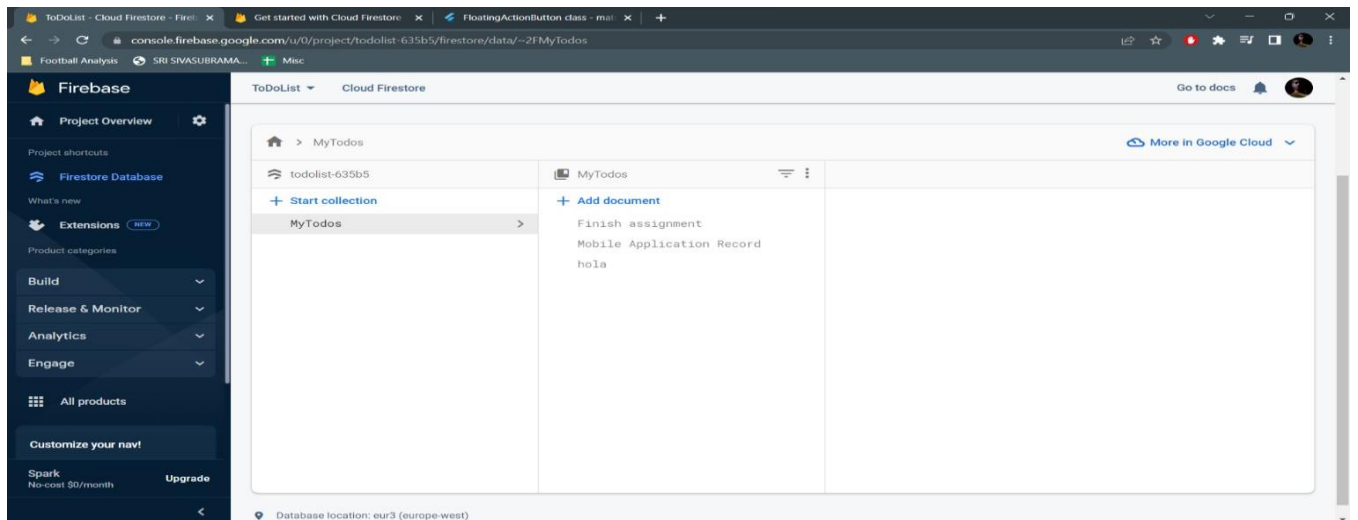
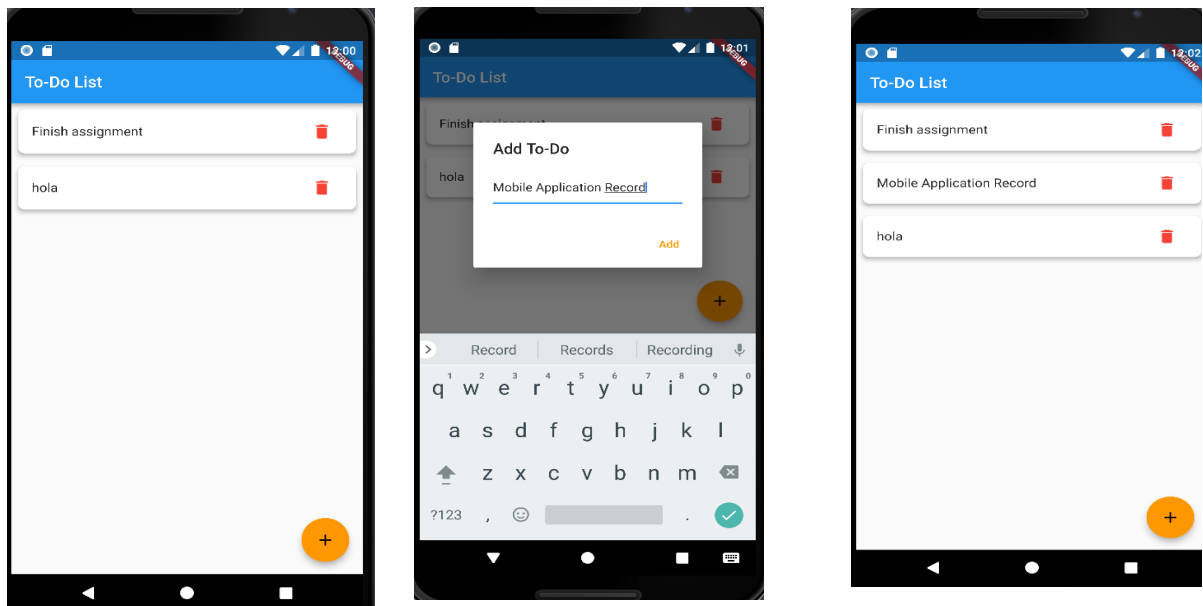
            child: ListTile(

              title: Text(documentSnapshot['todoTitle']),
              trailing: IconButton(
                icon: Icon(
                  Icons.delete,
                  color: Colors.red,
                ),

                onPressed: () {
                  setState(() {
                    todos.removeAt(index);
                  });
                },
              ),
            ),
          ),
        );
      },
    );
  },
);

```

## Output:



## Result:

A mobile application that draws uses databases has been implemented successfully.

## **An application that makes use of RSS feed**

**Ex.No:6**

**Date:11/10/2022**

### **Aim:**

To create a mobile application that uses RSS feed.

### **Procedure:**

- Import packages.  
import  
'package:webfeed/webfeed.dart';  
import 'package:http/http.dart' as  
http;  
import 'package:url\_launcher/url\_launcher.dart';
- Define RSS Feed URL ( FEED\_URL)
- Create a variable to hold our RSS feed data. (\_feed)
- Create a place holder for our title (\_title)
- Create a method to navigate to the selected RSS item (openFeed)
- Use RssFeed.parse(response.body)to grab the RSS data from the provided URL.
- Create the UI for the ListView and plug in the retrieved RSS data

### **Code:**

#### **main.dart**

```
import 'package:flutter/foundation.dart';  
import 'package:flutter/material.dart';  
import 'package:webfeed/webfeed.dart';  
import 'package:http/http.dart' as http;  
import 'package:url_launcher/url_launcher.dart';  
  
void main() {  
  runApp(const RSSDemo());  
}  
class RSSDemo extends StatelessWidget {
```

```

const RSSDemo({Key? key}) : super(key: key);
@override
Widget build(BuildContext context) {
  return const MaterialApp(title: "RSS Feed", home: RSSMainPicture());
}
}

```

```

class RSSMainPicture extends StatefulWidget {
  const RSSMainPicture({Key? key}) : super(key: key);

  @override
  State<RSSMainPicture> createState() => _RSSMainPictureState();
}

```

```

class _RSSMainPictureState extends State<RSSMainPicture> {
  late Future<RssFeed> result;
  Future<RssFeed> giver() async {
    var response = await http.get(Uri.parse(
      "https://www.espncricinfo.com/rss/content/story/feeds/0.xml"));
    var channel = RssFeed.parse(response.body);
    return channel;
  }
}

```

```

@override
void initState() {
  super.initState();
  result = giver();
}

```

```

@override
Widget build(BuildContext context) {
  return Scaffold(
    appBar: AppBar(
      title: const Text("News"),
      actions: [
        IconButton(
          onPressed: () => result = giver(),
          icon: const Icon(Icons.refresh_rounded)),
      ],
    ),
    body: FutureBuilder<RssFeed?>(
      future: result,

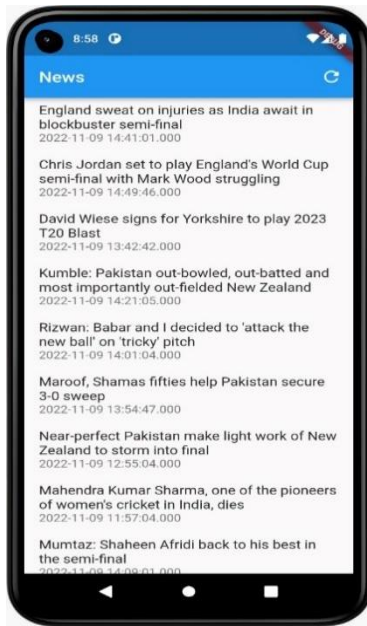
```

```

builder: (context, snapshot) {
  if (snapshot.hasError) {
    if (kDebugMode) {
      print("Error");
    }
    return Container();
  } else if (snapshot.connectionState == ConnectionState.waiting) {
    return const Center(
      child: CircularProgressIndicator(),
    );
  } else if (snapshot.hasData) {
    var feed = snapshot.data!;
    var items = feed.items;
    return ListView.builder(
      itemCount: items?.length,
      itemBuilder: (context, index) {
        var item = items![index];
        return GestureDetector(
          onTap: () async {
            if (!await launchUrl(Uri.parse(item.link!))) {
              throw 'Could not launch ${item.link}';
            }
          },
          child: ListTile(
            // leading: CachedNetworkImage(
            //   imageUrl: mediaImage!,
            //   progressIndicatorBuilder: (context, url, downloadProgress) =>
            //     CircularProgressIndicator(value: downloadProgress.progress),
            //   errorWidget: (context, url, error) => const Icon(Icons.error),
            // ),
            title: Text(item.title!),
            subtitle: Text("${item.pubDate!}"),
          ),
        );
      },
    );
  }
  return Container();
},
);
}

```

## Output:



## Result:

RSS feed has been successfully integrated with the mobile app.

## **An application that implements multithreading**

**Ex.No:7**

**Date:18/10/2022**

### **Aim:**

To create a mobile application that implements multithreading.

### **Procedure:**

- Install the following packages:
  - o npm install firebase-tools
  - o flutter pub add firebase\_core
  - o flutter pub add firebase\_auth
- Use 'firebase login' command to login to google account
- Use 'flutterfire configure' to add a firebase project to the application.
- Import the generated 'firebase options' file to main.dart file.
- FirebaseAuth.instance.currentUser is used to get the current user object
- Use FilePicker to select files from the device.
- storage.ref().child() is used to store the chosen file to Firebase storage.
- 'async' enables your program to start a potentially long-running task and still be able to be responsive to other events while that task runs, rather than having to wait until that task has finished.
- 'await' keyword is used before a call to a function that returns a promise. This makes the code wait at that point until the promise is settled, at which point the fulfilled value of the promise is treated as a return value, or the rejected value is thrown.

### **Code:**

#### **main.dart**

```
import 'package:expt7/pages/home.dart';
import 'package:flutter/material.dart';

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

```

class MyApp extends StatelessWidget {
  const MyApp({super.key});

  // This widget is the root of your application.
  @override
  Widget build(BuildContext context) {
    return MaterialApp(
      title: 'Flutter Demo',
      theme: ThemeData(
        primarySwatch: Colors.blue,
        brightness: Brightness.dark,
      ),
      home: const Home(),
    );
  }
}

```

## **home.dart**

```

import 'dart:async';
import 'dart:math';

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

class Home extends StatefulWidget {
  const Home({Key? key}) : super(key: key);

  @override
  State<Home> createState() => _HomeState();
}

class _HomeState extends State<Home> {
  int randint=99;
  static FutureOr<int> randGen(int cal){
    var rng = Random();
    return rng.nextInt(100);
  }
  @override
  Widget build(BuildContext context) {
    return Scaffold(
      appBar: AppBar(

```

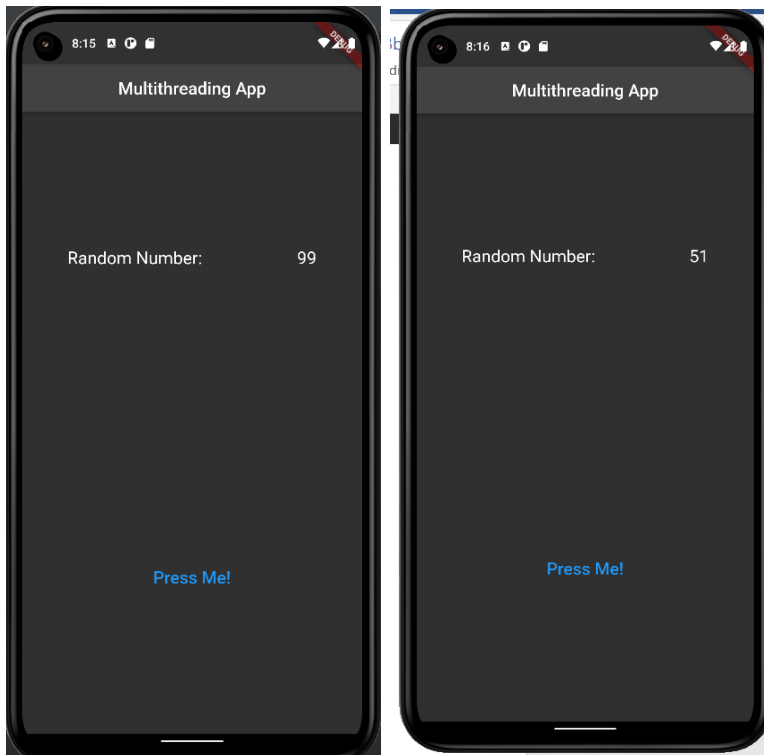


```

title: Text(
  "Multithreading App",
),
centerTitle: true,
),
body: Column(
  mainAxisAlignment: MainAxisAlignment.spaceEvenly,
  children: <Widget>[
    Row(
      mainAxisAlignment: MainAxisAlignment.spaceAround,
      children: [
        Text(
          "Random Number: ",
          style: TextStyle(
            fontSize: 20.0,
          ),
        ),
        Text(
          "${randint}",
          style: TextStyle(
            fontSize: 20.0,
          ),
        ),
      ],
    ),
    SizedBox(
      height: 20.0,
    ),
    TextButton(
      onPressed: () async{
        int result = await compute(randGen,randint);
        setState(() {
          randint = result;
        });
      },
      child: Text(
        "Press Me!",
        style: TextStyle(
          fontSize: 20.0,
        ),
      ),
    ),
  ],
);}}

```

### **Output:**



### **Result:**

An android application that implements multithreading has been developed and executed successfully.

## An application that uses GPS location information

**Ex.No:8**

**Date: 01/11/2022**

### Aim:

To create a mobile application that uses GPS location information.

### Procedure:

- Install the following packages: geolocator & geocoding
- Import them using,
  - o import 'package:geocoding/geocoding.dart';
  - o import 'package:geolocator/geolocator.dart';
- Get current location of the device, by creating an instance of Geolocator and calling `getCurrentPosition`.
- Convert latitude and longitude values into address using `PlacemarkFromCoordinates()`.

### Code:

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

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

```
class MyApp extends StatelessWidget {
  const MyApp({Key? key}) : super(key: key);
```

```
  // This widget is the root of your application.
```

```
  @override
```

```
  Widget build(BuildContext context) {
```

```
    return MaterialApp(
      title: 'Flutter Demo',
      theme: ThemeData(
        primarySwatch: Colors.pink,
      ),
      home: const Home(),
    );
  }
}
```

```

class Home extends StatelessWidget {
  const Home({Key? key}) : super(key: key);
  @override
  Widget build(BuildContext context) {
    return Scaffold(
      appBar: AppBar(
        title: const Text(
          "My Location"
        ),
        centerTitle: true,
      ),
      body: const LocationInfo(

    ),
      floatingActionButtonLocation: FloatingActionButtonLocation.centerDocked,
    );
  }
}

```

```

class LocationInfo extends StatefulWidget {
  const LocationInfo({Key? key}) : super(key: key);

  @override
  State<LocationInfo> createState() => _LocationInfoState();
}

```

```

class _LocationInfoState extends State<LocationInfo> {
  String _myLoc ="My Location";
  Location location=new Location();
  late bool _serviceEnabled;
  late PermissionStatus _permissionGranted;
  late LocationData _locationData;
  bool _isListenLocation =false, _isGetLocation = false;
  @override
  Widget build(BuildContext context) {
    return Column(
      crossAxisAlignment: CrossAxisAlignment.stretch,
      children: <Widget>[
        const SizedBox(
          height: 20.0,
        ),
        const Icon(
          Icons.location_pin,
        ),
        const SizedBox(
          height: 20.0,
        ),

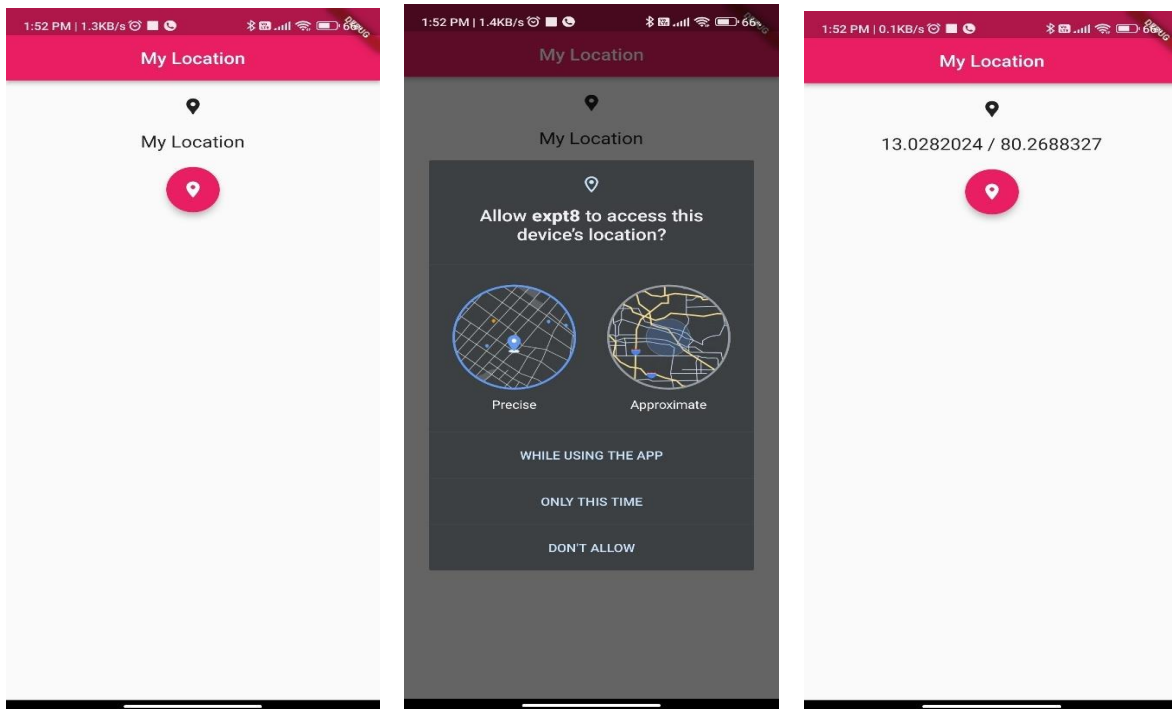
```

```

Center(
  child: Text(
    "$_myLoc",
    style: TextStyle(
      fontSize: 20.0,
    ),
  ),
),
const SizedBox(
  height: 20.0,
),
FloatingActionButton(
  child: Icon(
    Icons.location_on_sharp,
  ),
  onPressed: updateLoc,
),
],
);
}
void updateLoc() async{
  _serviceEnabled = await location.serviceEnabled();
  if(!_serviceEnabled){
    _serviceEnabled = await location.requestService();
    if(_serviceEnabled)
      return;
  }
  _permissionGranted = await location.hasPermission();
  if(_permissionGranted == PermissionStatus.denied){
    _permissionGranted = await location.requestPermission();
    if(_permissionGranted != PermissionStatus.granted)
      return;
  }
  _locationData = await location.getLocation();
  setState(() {
    _isGetLocation = true;
  });
  if(_isGetLocation){
    _myLoc="$_locationData.latitude / $_locationData.longitude";
  }
}
}
}

```

## Output:



## Result:

A native application that uses GPS location has been developed and executed successfully.

## **An application that takes advantage of rich gesture-based UI handling**

**Ex.No:9**

**Date: 08/11/2022**

### **Aim:**

To create a mobile application that will take advantage of underlying phone functionality including rich gesture-based UI handling

### **Procedure:**

- Install path\_provider package
- The path where file is to be written is obtained using `getExternalStorageDirectory()` function.
- `writeAsString(<String>)` is used to write contents into a text file.
- `readAsString()` is used to read the contents of the file.

### **Code:**

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

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

class MyApp extends StatelessWidget {
  const MyApp({super.key});

  // This widget is the root of your application.
  @override
  Widget build(BuildContext context) {
    return MaterialApp(
      title: 'Flutter Demo',
      theme: ThemeData(
        // This is the theme of your application.
        //
        // Try running your application with "flutter run". You'll see the
        // application has a blue toolbar. Then, without quitting the app, try
        // changing the primarySwatch below to Colors.green and then invoke
```

```

// "hot reload" (press "r" in the console where you ran "flutter run",
// or simply save your changes to "hot reload" in a Flutter IDE).
// Notice that the counter didn't reset back to zero; the application
// is not restarted.
    primarySwatch: Colors.blue,
  ),
  home: const MyHomePage(title: 'Gyroscope and ui'),
);
}
}

class MyHomePage extends StatefulWidget {
  const MyHomePage({super.key, required this.title});

  // This widget is the home page of your application. It is stateful, meaning
  // that it has a State object (defined below) that contains fields that affect
  // how it looks.

  // This class is the configuration for the state. It holds the values (in this
  // case the title) provided by the parent (in this case the App widget) and
  // used by the build method of the State. Fields in a Widget subclass are
  // always marked "final".

  final String title;

  @override
  State<MyHomePage> createState() => _MyHomePageState();
}

class _MyHomePageState extends State<MyHomePage> {
  double _dx = 0,
    _dy = 0;

  @override
  Widget build(BuildContext context) {
    return Scaffold(
      appBar: AppBar(
        title: Text(widget.title),
      ),
      body: StreamBuilder<GyroscopeEvent>(
        stream: SensorsPlatform.instance.gyroscopeEvents,
        builder: (context, snapshot) {

```

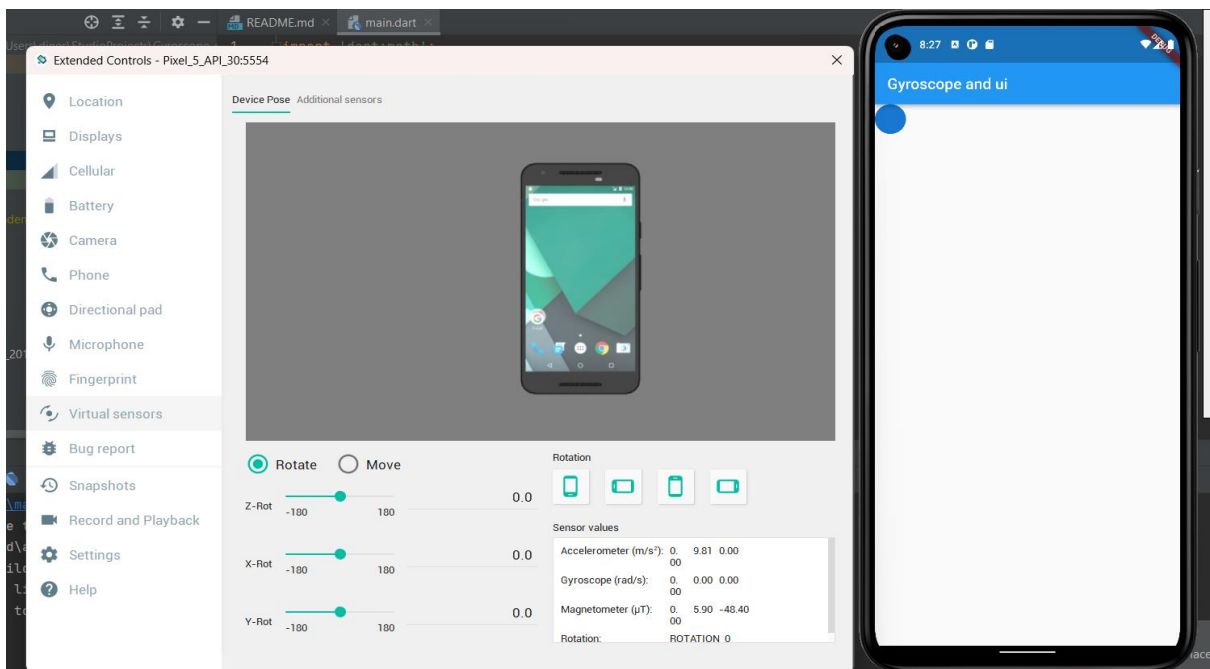


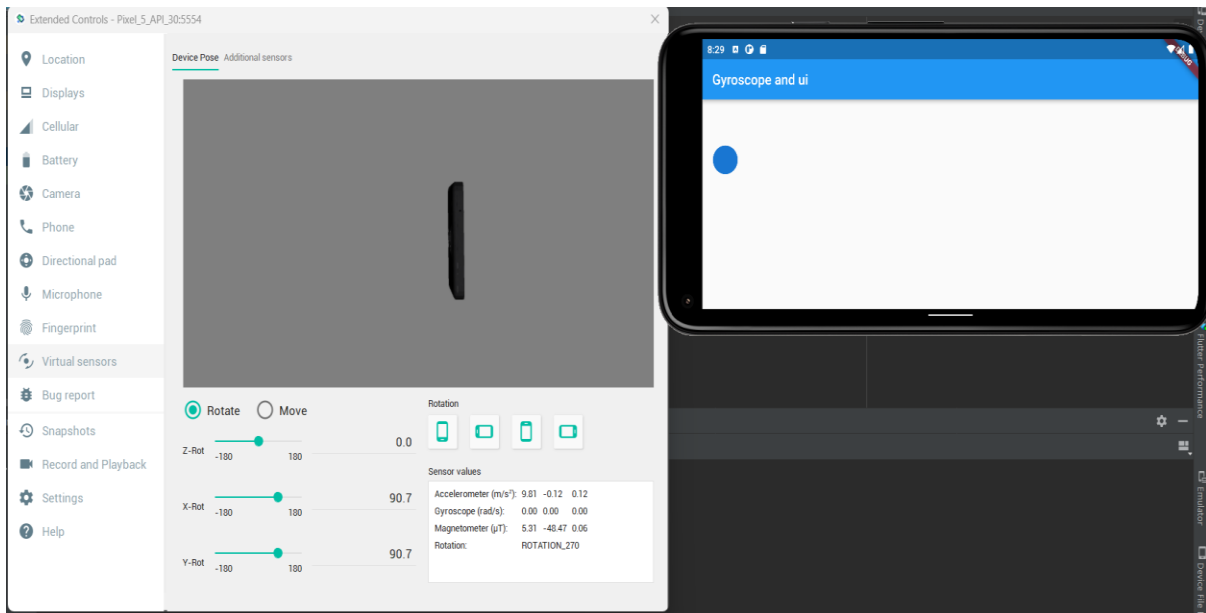
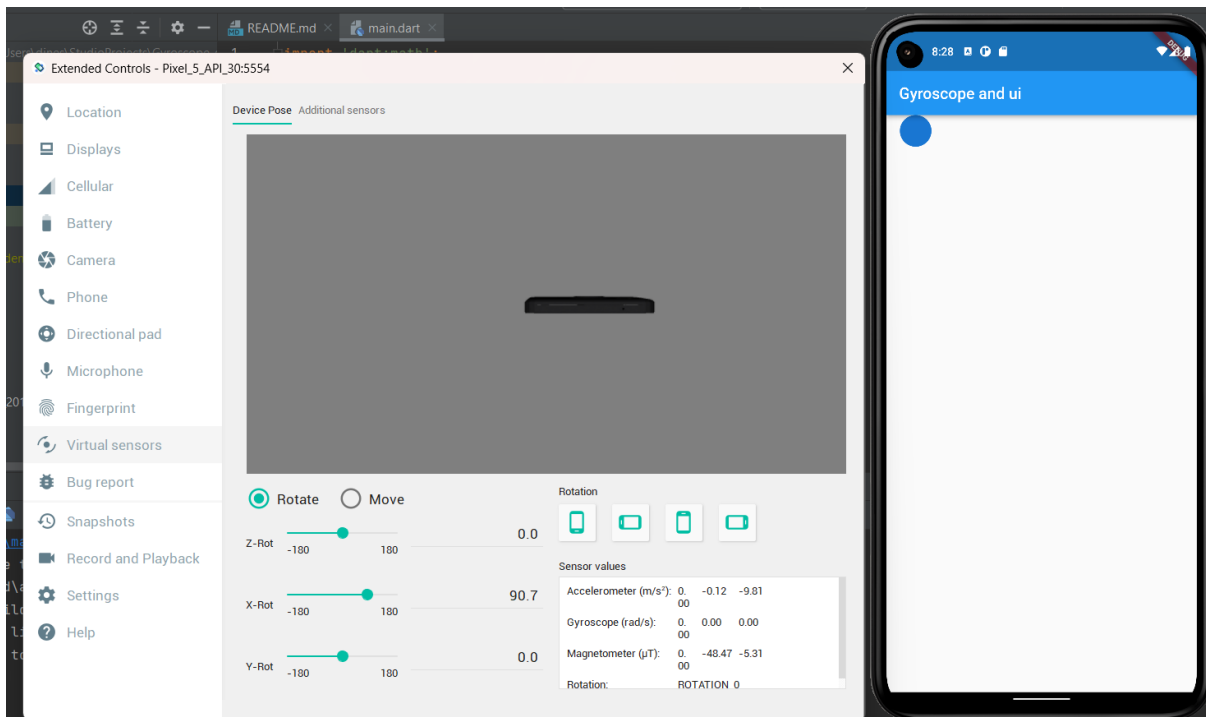
```

if (snapshot.hasData) {
  _dy = _dy + snapshot.data!.y * 10;
  _dx = _dx + snapshot.data!.x * 10;
}
return Stack(
  children: [
    Positioned(
      top: _dy,
      left: _dx,
      child: GestureDetector(
        onPanUpdate: (details) {
          setState(() {
            _dy = max(0, _dy + details.delta.dy);
            _dx = max(0, _dx + details.delta.dx);
          });
        },
        child: const CircleAvatar(),
      ),
    ),
  ],
);
},),);}}

```

## Output:





## **Result:**

A mobile application that uses rich gestures to handle UI was developed and executed successfully.

## **An application that creates an alert upon user action**

**Ex.No:10**

**Date: 15/11/2022**

### **Aim:**

To create an application that sends an alert upon user action.

### **Procedure:**

- On the To-do list page, create a TextButton labelled 'ADD' to add a new task.
- In the onPressed() property, use showDialog to specify the alert box contents.
- AlertDialog() is used to create the alert message box.
  - o The content property is used to specify the message using Text(). In this case, the message displayed is "Task added".
  - o The action property is used to specify the buttons in the alert box using TextButton().

### **Code:**

#### **main.dart**

```
import 'package:expt10/pages/home.dart';
import 'package:flutter/material.dart';

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

class MyApp extends StatelessWidget {
  const MyApp({Key? key}) : super(key: key);

  // This widget is the root of your application.
  @override
  Widget build(BuildContext context) {
    return MaterialApp(
      title: 'Experiment 10',
      theme: ThemeData.dark(),
      home: const Home(),
    );
  }
}
```

## home.dart

```
import 'package:expt10/services/local_notification_service.dart';
import 'package:flutter/material.dart';
class Home extends StatefulWidget {
  const Home({Key? key}) : super(key: key);

  @override
  State<Home> createState() => _HomeState();
}

class _HomeState extends State<Home> {
  late final LocalNotificationService service;
  @override
  void initState(){
    service = LocalNotificationService();
    service.initialize();
    super.initState();
  }
  @override
  Widget build(BuildContext context) {
    return Scaffold(
      appBar: AppBar(
        title: const Text(
          "Local Notifications Expt"
        ),
        backgroundColor: const Color(0xff006473),
        centerTitle: true,
      ),
      body: Padding(
        padding: EdgeInsets.all(MediaQuery.of(context).size.width*0.25),
        child: Column(
          children: <Widget>[
            TextButton(
              onPressed: () async {
                await service.showNotification(
                  id: 0,
                  title: "Sample Notification",
                  body: "Sample Body"
                );
              },
              child: const Text(
                "Get an instant Notification"
              ),
            ),
            TextButton(
              onPressed: () async {
```

```

await service.showScheduledNotification(
    id: 0,
    title: "Sample Notification",
    body: "Sample Body",
    seconds: 4,
  );
},
child: const Text(
  "Get a delayed Notification"
),),1,)),);
}
}

```

### **local\_notification\_service.dart**

```

import 'package:flutter_local_notifications/flutter_local_notifications.dart';
import 'package:timezone/timezone.dart' as tz;
import 'package:timezone/data/latest.dart' as tz;

class LocalNotificationService {
  LocalNotificationService();

  final _localNotificationService = FlutterLocalNotificationsPlugin();

  Future<void> initialize() async{
    tz.initializeTimeZones();
    const AndroidInitializationSettings androidInitializationSettings =
      AndroidInitializationSettings('ic_stat_assistant_navigation');

    const DarwinInitializationSettings iosInitializationSettings =
      DarwinInitializationSettings(
        requestAlertPermission: true,
        requestBadgePermission: true,
        requestSoundPermission: true,
      );
    const InitializationSettings settings = InitializationSettings(
      android: androidInitializationSettings,
      iOS: iosInitializationSettings
    );

    await _localNotificationService.initialize(settings);
  }
  Future<NotificationDetails> _notificationDetails() async{
    const AndroidNotificationDetails androidNotificationDetails = AndroidNotificationDetails(

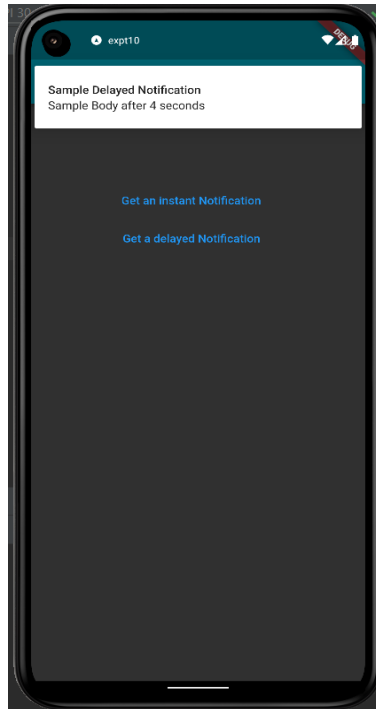
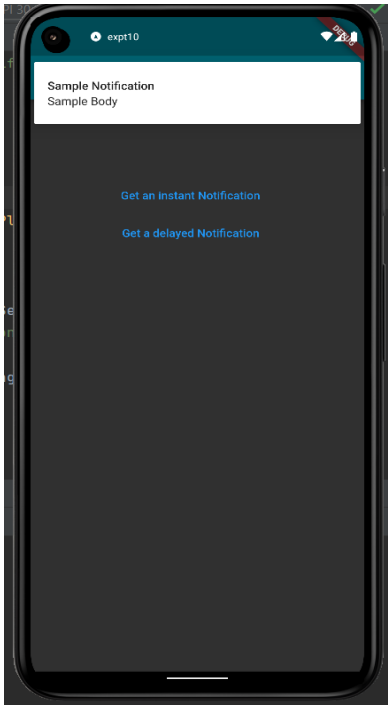
```

```

"channel_id", "channel_name",
  channelDescription: "Description",
  importance: Importance.max,
  priority: Priority.max,
  playSound: true,
);
const DarwinNotificationDetails darwinNotificationDetails = DarwinNotificationDetails();
return const NotificationDetails(android: androidNotificationDetails,iOS:
darwinNotificationDetails);
}
Future<void> showNotification({
  required int id,
  required String title,
  required String body}) async{
  final details = await _notificationDetails();
  await _localNotificationService.show(id, title, body, details);
}
Future<void> showScheduledNotification({
  required int id,
  required String title,
  required String body,
  required int seconds
}) async{
  final details = await _notificationDetails();
  await _localNotificationService.zonedSchedule(
    id,
    title,
    body,
    tz.TZDateTime.from(DateTime.now().add(Duration(seconds: seconds)), tz.local,),
    details,
    androidAllowWhileIdle: true,
    uiLocalNotificationDateInterpretation: UILocalNotificationDateInterpretation.absoluteTime
  );
}
}

```

## **Output:**



## **Result:**

An application that sends an alert upon user action was developed and executed successfully.

## **An application that creates an alarm clock**

**Ex.No:11**

**Date: 22/11/2022**

### **Aim:**

To create an application that creates an alarm clock.

### **Procedure:**

- Install the flutter\_alarm\_clock package using
  - o flutter pub add flutter\_alarm\_clock
- Import it using
  - o import 'package:flutter\_alarm\_clock/flutter\_alarm\_clock.dart';
- The FlutterAlarmClock.createAlarm() that takes hours and minutes as parameters.
- Hours and minutes are taken as input from user, using TextField().
- On clicking on “Create Alarm” button, a snackbar is displayed which appears when an alarm is set.
- The “Show Alarms” button, opens the clock application of the device which shows the created alarms.

### **Code:**

#### **main.dart**

```
import 'package:flutter/material.dart';
import 'pages/home.dart';
void main() {
  runApp(const MyApp());
}

class MyApp extends StatelessWidget {
  const MyApp({super.key});

  // This widget is the root of your application.
  @override
  Widget build(BuildContext context) {
    return MaterialApp(
      title: 'Flutter Demo',
```



```

theme: ThemeData(
  primarySwatch: Colors.cyan,
  brightness: Brightness.dark,
),
home: const Home(),
);
}
}

```

## home.dart

```

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

class Home extends StatefulWidget {
  const Home({Key? key}) : super(key: key);
  @override
  State<Home> createState() => _HomeState();
}

class _HomeState extends State<Home> {
  TimeOfDay time= TimeOfDay(hour: 23, minute: 59);
  @override
  Widget build(BuildContext context) {
    return Scaffold(
      appBar: AppBar(
        title: Text(
          "Alarm Clock",
        ),
        centerTitle: true,
        elevation: 0.0,
        backgroundColor: Colors.cyan,
      ),
      body: Padding(
        padding: EdgeInsets.all(20),
        child: Center(
          child: Column(
            mainAxisAlignment: MainAxisAlignment.center,
            children: [
              Row(
                mainAxisAlignment: MainAxisAlignment.spaceEvenly,
                children: [

```

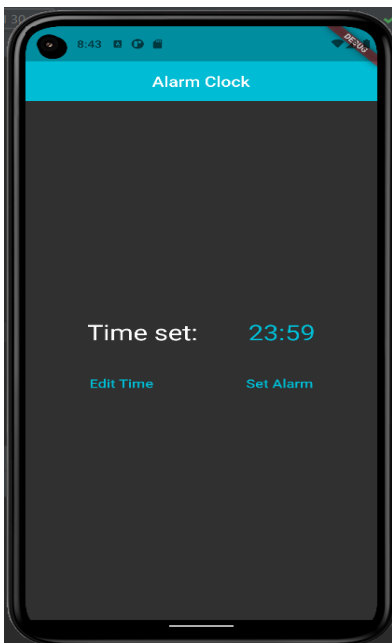
```

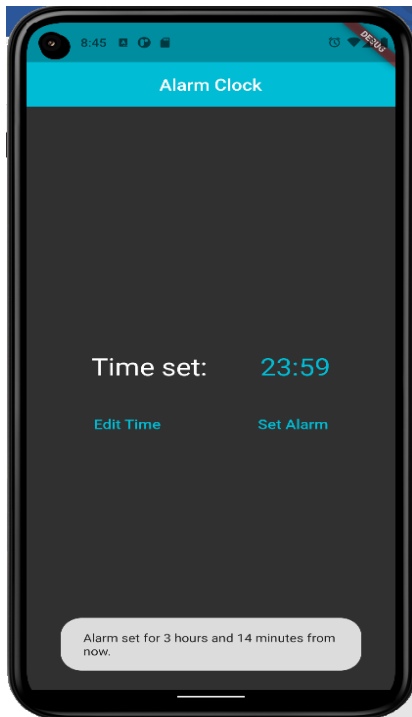
Text(
  "Time set: ",
  style: TextStyle(
    fontSize: 30.0,
  ),
),
Text(
  "${time.hour.toString().padLeft(2,'0')}:${time.minute.toString().padLeft(2,'0')}",
  style: TextStyle(
    fontSize: 30.0,
    color: Colors.cyan,
  ),
)
],
),
 SizedBox(
  height: 30.0,
),
 Row(
  mainAxisAlignment: MainAxisAlignment.spaceAround,
  children: [
    TextButton(
      onPressed: () async{
        TimeOfDay? newTime = await showTimePicker(
          context: context,
          initialTime: time,
        );
        if(newTime == null) return;
        setState(() {
          time = newTime;
        });
      },
      child: Text(
        "Edit Time",
        style: TextStyle(
          fontSize: 17.0,
        ),
      ),
    ),
    TextButton(
      onPressed: () {
        FlutterAlarmClock.createAlarm(time.hour,time.minute);
      },

```

```
child: Text(
    "Set Alarm",
    style: TextStyle(
        fontSize: 17.0,
    ),),],),]),),)),);
}
```

**Output:**





**Result:**

An application that creates an alarm clock is developed and tested successfully.

## **Simple Game With Multimedia Support**

**Ex.No:12**

**Date:27/11/2022**

### **Aim:**

To implement a simple gaming application with multimedia support.

### **Procedure:**

- Create a class TileModel for each tile, which has the following as members
  - o ImageAssetPath
  - o IsSelected
- Create a list called 'pairs' which contains a pair of each tile of a specific image.
- Use GridView to display the tiles as a 4x4 grid.
- Initialize points as 0 using setState().
- For every matched tile, increment points by 100.
- Play until points == 800.
- Click on replay to restart the game.

### **Code:**

#### **data.dart**

```
import 'package:memory_game/models/TileModel.dart';

String selectedTile = "";
int selectedIndex ;
bool selected =
true;int points = 0;

List<TileModel> myPairs = new List<TileModel>();
List<bool> clicked = new List<bool>();

List<bool> getClicked(){

List<bool> yoClicked = new List<bool>();
List<TileModel> myairs = new
List<TileModel>();myairs = getPairs();
for(int i=0;i<myairs.length;i++){
  yoClicked[i] = false;
}
```

```

    return yoClicked;
}
List<TileModel> getPairs(){

    List<TileModel> pairs = new

    List<TileModel>();TileModel tileModel = new

    TileModel();

    //1
    tileModel.setImageAssetPath("assets/fox.png");
tileModel.setIsSelected(false);
pairs.add(tileModel);
pairs.add(tileModel); tileModel
= new TileModel();

    //2
    tileModel.setImageAssetPath("assets/hippo.p
ng"); tileModel.setIsSelected(false);
pairs.add(tileModel);
pairs.add(tileModel);
tileModel = new
TileModel();
    //3
    tileModel.setImageAssetPath("assets/horse.p
ng"); tileModel.setIsSelected(false);
pairs.add(tileModel);
pairs.add(tileModel);
tileModel = new
TileModel();
    //4
    tileModel.setImageAssetPath("assets/monkey.pn
g"); tileModel.setIsSelected(false);
pairs.add(tileModel);
pairs.add(tileModel);
tileModel = new
TileModel();
    //5
    tileModel.setImageAssetPath("assets/panda.p
ng"); tileModel.setIsSelected(false);
pairs.add(tileModel);
pairs.add(tileModel);
tileModel = new
TileModel();

```

```
//6
tileModel.setImageAssetPath("assets/parrot.png"); tileModel.setIsSelected(false);
pairs.add(tileModel);
pairs.add(tileModel);
tileModel = new
TileModel();
```

```
//7
tileModel.setImageAssetPath("assets/rabbit.png"); tileModel.setIsSelected(false);
pairs.add(tileModel);
pairs.add(tileModel);
tileModel = new
TileModel();
```

```
//8
tileModel.setImageAssetPath("assets/zoo.png"); tileModel.setIsSelected(false);
pairs.add(tileModel);
```

```
pairs.add(tileModel); tileModel
= new TileModel();
    return pairs;
}
```

```
List<TileModel> getQuestionPairs(){
```

```
    List<TileModel> pairs = new
```

```
    List<TileModel>(); TileModel tileModel = new
```

```
    TileModel();
```

```
//1
tileModel.setImageAssetPath("assets/question.png"); tileModel.setIsSelected(false);
pairs.add(tileModel);
pairs.add(tileModel);
tileModel = new
TileModel();
```

```
//2
tileModel.setImageAssetPath("assets/question.png"); tileModel.setIsSelected(false);
pairs.add(tileModel);
pairs.add(tileModel);
tileModel = new
TileModel();
```

```

//3
tileModel.setImageAssetPath("assets/question.p
ng"); tileModel.setIsSelected(false);
pairs.add(tileModel);
pairs.add(tileModel);
tileModel = new
TileModel();
//4
tileModel.setImageAssetPath("assets/question.p
ng"); tileModel.setIsSelected(false);
pairs.add(tileModel);
pairs.add(tileModel);
tileModel = new
TileModel();
//5
tileModel.setImageAssetPath("assets/question.p
ng"); tileModel.setIsSelected(false);
pairs.add(tileModel);
pairs.add(tileModel);
tileModel = new
TileModel();

//6
tileModel.setImageAssetPath("assets/question.p
ng"); tileModel.setIsSelected(false);
pairs.add(tileModel);

pairs.add(tileModel);
tileModel = new
TileModel();
//7
tileModel.setImageAssetPath("assets/question.p
ng"); tileModel.setIsSelected(false);
pairs.add(tileModel);
pairs.add(tileModel);
tileModel = new
TileModel();
//8
tileModel.setImageAssetPath("assets/question.p
ng"); tileModel.setIsSelected(false);
pairs.add(tileModel);
pairs.add(tileModel);
tileModel = new
TileModel();
return pairs;
}

```



### **TileModel.dart**

```
class TileModel{

  String
  imageAssetPath;bool
  isSelected;

  TileModel({this.imageAssetPath, this.isSelected});

  void setImageAssetPath(String
    getImageAssetPath){imageAssetPath =
    getImageAssetPath;
  }

  String getImageAssetPath(){
    return imageAssetPath;
  }

  void setIsSelected(bool
    setIsSelected){isSelected =
    setIsSelected;
  }

  bool getIsSelected(){
    return isSelected;
  }
}
```

### **main.dart**

```
import 'dart:async';

import 'package:flutter/material.dart';
import 'package:memory_game/data/data.dart';
import
'package:memory_game/models/TileModel.dart';

void main() => runApp(MyApp());

class MyApp extends StatelessWidget {
  // This widget is the root of your application.
  @override
  Widget build(BuildContext context)
    {return MaterialApp(
```

```

        title: 'Card Memory Game',
        debugShowCheckedModeBanner:
        false, theme: ThemeData(
          // primaryColor: Color(0xffef2e6c),
          primarySwatch: Colors.red,
        ),
        home: Home(),
      );
    }
  }

class Home extends StatefulWidget {
  @override
  _HomeState createState() => _HomeState();
}

class _HomeState extends State<Home> {
  List<TileModel> gridViewTiles = new
  List<TileModel>(); List<TileModel> questionPairs =
  new List<TileModel>();

  @override
  void initState() {
    // TODO: implement initState
    super.initState();
    reStart();
  }

  void reStart() {

    myPairs = getPairs();
    myPairs.shuffle();

    gridViewTiles = myPairs;
    Future.delayed(const Duration(seconds:
    5), () {
      // Here you can write your code
      setState(() {
        print("2 seconds done");
        // Here you can write your code for open new view
        questionPairs =
        getQuestionPairs(); gridViewTiles =
        questionPairs;
        selected = false;
      });
    });
  }
}

```

```

@override
Widget build(BuildContext context)
{
  return Scaffold(
    appBar: AppBar(
      title: Text('Card Memory Game'),
      backgroundColor: Color(0xffef2e6c) ,
    ),
    backgroundColor: Colors.white,
    body: SingleChildScrollView(
      child: Container(
        padding: EdgeInsets.symmetric(horizontal: 20, vertical: 50),
        child: Column(
          children: <Widget>[

            SizedBox(
              height: 40,
            ),
            points != 800 ? Column(
              crossAxisAlignment: CrossAxisAlignment.center,
              children: <Widget>[
                Text(
                  "$points/800",
                  style:
                    TextStyle(
                      fontSize: 20, fontWeight: FontWeight.w500),
                ),
                Text(
                  "Points",
                  textAlign: TextAlign.start,
                  style: TextStyle(
                    fontSize: 14, fontWeight: FontWeight.w300),
                ),
              ],
            ) : Container(),
            SizedBox(
              height: 20,
            ),
            points != 800 ? GridView(
              shrinkWrap: true,
              //physics: ClampingScrollPhysics(),
              scrollDirection: Axis.vertical,
              gridDelegate: SliverGridDelegateWithMaxCrossAxisExtent(
                mainAxisSpacing: 0.0, maxCrossAxisExtent: 100.0),
              children: List.generate(gridViewTiles.length, (index) {
                return Tile(
                  imagePathUrl: gridViewTiles[index].getImageAssetPath(),

                  tileIndex: index,
                  parent: this,

```

```

    );
  }},
) : Container(
  child: Column(
    children: <Widget>[
      GestureDetector(
        onTap: (){
          setState(()
            { points =
              0;
              reStart();
            });
        },
      child: Container(
        height: 50,
        width: 200,

        alignment: Alignment.center,
        decoration: BoxDecoration(
          color: Color(0xffef2e6c),
          borderRadius: BorderRadius.circular(24),
        ),
        child: Text("Replay", style:
          TextStyle(color: Colors.white,
            fontSize: 17,
            fontWeight: FontWeight.w500
          )),
      ),
    ),
    SizedBox(height: 20,),
  ]),),),),);
}
}

```

```

class Tile extends StatefulWidget {
  String imagePathUrl;
  int tileIndex;
  _HomeState parent;

  Tile({this.imagePathUrl, this.tileIndex, this.parent});

  @override
  _TileState createState() => _TileState();
}

```

```

class _TileState extends
State<Tile> { @override
Widget build(BuildContext context)
{return GestureDetector(
onTap: () {
if (!selected) {
setState(() {
myPairs[widget.tileIndex].setIsSelected(true);
});
if (selectedTile != "") {
/// testing if the selected tiles are same
if (selectedTile == myPairs[widget.tileIndex].getImageAssetPath()) {
print("add point");
points = points + 100;
print(selectedTile + " thishis" + widget.imagePathUrl);

TileModel tileModel = new TileModel();
print(widget.tileIndex);
selected = true;
Future.delayed(const Duration(seconds: 2), () {
tileModel.setImageAssetPath("");
myPairs[widget.tileIndex] = tileModel;
print(selectedIndex);
myPairs[selectedIndex] =
tileModel;
this.widget.parent.setState(() {});
setState(() {
selected = false;
});
selectedTile = "";
});
} else {
print(selectedTile +
" thishis " +
myPairs[widget.tileIndex].getImageAssetPath());
print("wrong choice");
print(widget.tileIndex);
print(selectedIndex);
selected = true;
Future.delayed(const Duration(seconds: 2), () {
this.widget.parent.setState(() {
myPairs[widget.tileIndex].setIsSelected(false);
myPairs[selectedIndex].setIsSelected(false);
});
setState(() {
selected = false;
});
});
});
}
}
}

```

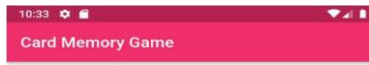
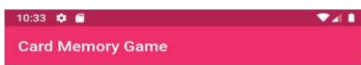
```

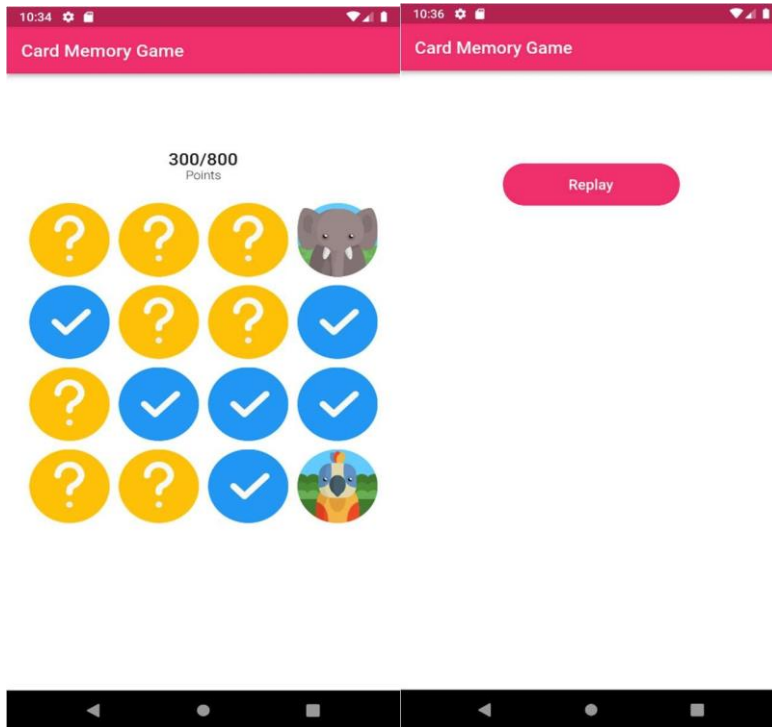
        selectedTile = "";
    }
    } else {
    setState(() {
        selectedTile = myPairs[widget.tileIndex].getImageAssetPath();
        selectedIndex = widget.tileIndex;
    });

    print(selectedTile);
    print(selectedIndex);
    }
    }
    },
    child: Container(
        margin: EdgeInsets.all(5),
        child: myPairs[widget.tileIndex].getImageAssetPath() != ""
            ? Image.asset(myPairs[widget.tileIndex].getIsSelected()
                ? myPairs[widget.tileIndex].getImageAssetPath()
                : widget.imageUrl)
            : Container(
                color: Colors.white,
                child: Image.asset("assets/correct.png"),
                ),),);
    }
}

```

## Output:





### **Result:**

Thus, a simple gaming application that supports multimedia is implemented using Flutter.

## Connectivity Via SOAP Or REST

**Ex.No:13**

**Date:29/11/2022**

### Aim:

To a mobile application for data handling and connectivity via SOAP or REST to backend services potentially hosted in a cloud environment.

### Procedure:

- Import,
  - o http.dart
  - o dart:convert
- Specify the URL of the API within “Uri.parse(<>)”
- http.get() is used to fetch url contents.

### Code:

#### quotes.dart

```
// To parse this JSON data, do
//
// final quotes = quotesFromJson(jsonString);

import 'dart:convert';

Quotes quotesFromJson(String str) =>
Quotes.fromJson(json.decode(str));String quotesToJson(Quotes data)
=> json.encode(data.toJson());

class Quotes {
  Quotes({
    this.id,
    this.tags,
    this.content = "",
    this.author = "",
```



```

    this.authorSlug,
    this.length,
    this.dateAdded,
    this.dateModified
  },
});

```

```

String? id;
List<String>?
tags;String
content; String
author; String?
authorSlug;int?
length;
DateTime? dateAdded;
DateTime? dateModified;

```

```

factory Quotes.fromJson(Map<String, dynamic> json) => Quotes(

```

```

    id: json["_id"],
    tags: List<String>.from(json["tags"].map((x) =>
x)),content: json["content"],
    author: json["author"],
    authorSlug:
json["authorSlug"],length:
json["length"],
    dateAdded: DateTime.parse(json["dateAdded"]),
    dateModified:
DateTime.parse(json["dateModified"]),
);

```

```

Map<String, dynamic> toJson() => {
  "_id": id,
  "tags": List<dynamic>.from(tags!.map((x) =>
x)), "content": content,
  "author": author,
  "authorSlug": authorSlug,
  "length": length,
  "dateAdded":
    "${dateAdded!.year.toString().padLeft(4, '0')}-
${dateAdded!.month.toString().padLeft(2, '0')}-${dateAdded!.day.toString().padLeft(2,
'0')}",
  "dateModified":
    "${dateModified!.year.toString().padLeft(4, '0')}-
${dateModified!.month.toString().padLeft(2, '0')}-${dateModified!.day.toString().padLeft(2,
'0')}",
};}

```

## api.dart

```
import 'dart:convert';
import 'package:http/http.dart' as
http;import 'quotes.dart';
class Api {
  static Future<Quotes?> getQuotes() async {
    Uri url =
    Uri.parse('http://api.quotable.io/random');
    http.Response response = await http.get(url);

    if (response.statusCode == 200) {
      print("success");
      return Quotes.fromJson(jsonDecode(response.body));
    } else {
      print("error in getting data");
    }
  }
}
```

## quotes\_page.dart

```
import 'dart:convert';
import'package:flutter/material.dart'
; import 'package:http/http.dart' as
http;import 'quotes.dart';
import 'api.dart';

class QuotesScreen extends StatefulWidget {
  QuotesScreen({Key? key}) : super(key: key);

  @override
  State<QuotesScreen> createState() => _QuotesScreenState();
}

class _QuotesScreenState extends
State<QuotesScreen> {var size, height, width;
Quotes? data;
@override
Widget build(BuildContext context)
{size =
MediaQuery.of(context).size;
height = size.height;
width = size.width;
return Scaffold(
appBar: AppBar(
```

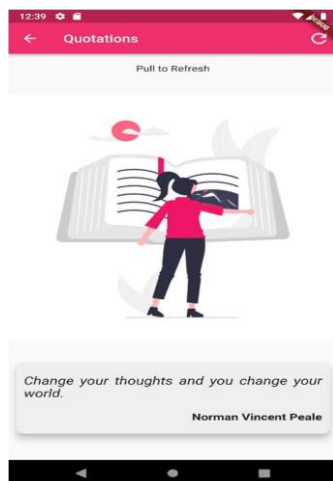
```

        backgroundColor:
        Color(0xffef2e6c),title:
        Text("Quotations"),
        actions: [
            IconButton(
                icon: Icon(
                    Icons.refresh_outlined,
                ),
                iconSize: 30, onPressed: () {
                    print("icon refresh");
                    getQuotes();
                },),],),
        body: RefreshIndicator(
            onRefresh:
            getQuotes,child:
            ListView( children: [
                Padding(
                    padding: const
                    EdgeInsets.all(18.0),child: Text(
                        "Pull to Refresh",
                        textAlign:
                        TextAlign.center,style:
                        TextStyle(
                            fontSize: 15,
                        ),),);}

Future<Null> getQuotes() async {
    data = await Api.getQuotes();
    setState(() {});
}

```

## Output:





### **Result:**

Hence, a mobile application for data handling and connectivity via SOAP or REST to backend services potentially hosted in a cloud environment.

## **Geo-Positioning, Accelerometer And Rich Gesture Based UI**

**Ex.No:14**

**Date:03/12/2022**

### **Aim:**

To write a mobile application that will take advantage of underlying phone functionality including GEO positioning, accelerometer, and rich gesture-based UI handling.

### **Procedure:**

#### **Geo-positioning:**

- Install the following packages: geolocator & geocoding
- Import them using,
  - o import 'package:geocoding/geocoding.dart';
  - o import 'package:geolocator/geolocator.dart';
- Get current location of the device, by creating an instance of Geolocator and calling `getCurrentPosition`.
- Convert latitude and longitude values into address using `PlacemarkFromCoordinates()`.

#### **Accelerometer:**

- Install the sensors package.
- Import it using, 'import 'package:sensors/sensors.dart';'
- accelerometer readings tell if the device is moving in a particular direction.

#### **Gesture-based UI:**

- In the `onTap()` property of the `GestureDetector()`, pass the function to be performed.
- In this case, it reverses the boolean value `isLightsOn`.
- This is used to switch the theme of the screen as dark or light.
- The child property of `GestureDetector()` is used to specify icon, on clicking which the action is to be performed.

**Code:**

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

class LocationPage extends
  StatefulWidget { @override
  _LocationPageState createState() => _LocationPageState();
}

class _LocationPageState extends
  State<LocationPage> { Position? _currentPosition;
  String _currentAddress = "";
@override
  Widget build(BuildContext
    context) {return Scaffold(
    appBar: AppBar(
      iconTheme: IconThemeData(
        color: Colors.black, //change your color here
      ),
      backgroundColor: Color(0xffef2e6c),
      title: Text("Location",style:TextStyle(color:Colors.black)),
    ),
    body: Center(
      child: Column(
        mainAxisAlignment:
        MainAxisAlignment.center,children:
        <Widget>[
          Image.asset('assets/images/undraw_Current_location_re_j130.png'), TextButton(
            style: ButtonStyle(backgroundColor:
            MaterialStateProperty.all(Color(0xffef2e6c))),child: Text("Get
            location",style:TextStyle(fontSize: 20,color:Colors.white)), onPressed: () {
              _getCurrentLocation();
            },
          ),
        ],
      ),
    ),
  ),
}
```

```

        Divider(color:Colors.transparent,thickness:
        150),if (_currentAddress != null) Text(
        _currentAddress,style: TextStyle(fontSize: 20),
        ),
        if (_currentPosition != null) Text( 'Latitude : ' +
        _currentPosition!.latitude.toString(),style: TextStyle(fontSize: 20),
        ),
        if (_currentPosition != null) Text( 'Longitude : ' +
        _currentPosition!.longitude.toString(),style: TextStyle(fontSize: 20),
        ),],),),);}

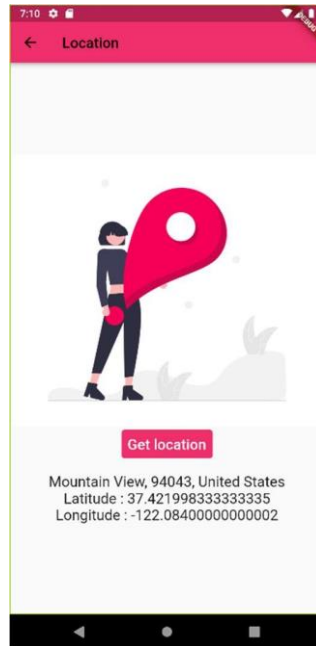
_getCurrentLocation() {
  Geolocator
    .getCurrentPosition(desiredAccuracy:
LocationAccuracy.best,forceAndroidLocationManager: true)
    .then((Position position) {
      setState(() {
        _currentPosition = position;
        _getAddressFromLatLng();
      });
    }).catchError((e)
    {print(e);
    });
  }

_getAddressFromLatLng() async
{try {
  List<Placemark> placemarks = await placemarkFromCoordinates(
    _currentPosition!.latitude,
    _currentPosition!.longitude
  );

  Placemark place =
  placemarks[0];setState(() {
    _currentAddress = "${place.locality}, ${place.postalCode}, ${place.country}";
  });
} catch (e) {
  print(e);
}
}
}

```

## Output:



## Accelerometer:

### Code:

```
import 'dart:async';

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

class FocusPage extends
StatefulWidget { final String

title='Focus!';

  @override
  FocusPageState createState() => FocusPageState();
}
```



```

class FocusPageState extends State<FocusPage> {
    // color of the circle
    Color color = Colors.greenAccent;

    // event returned from accelerometer stream
    AccelerometerEvent? event;

    // hold a refernce to these, so that they can be disposed
    Timer? timer;
    StreamSubscription?
    accel;

    // positions and count
    double top = 125;
    double? left;
    int count = 0;

    // variables for screen size
    double? width;
    double? height;

    setColor(AccelerometerEvent event) {
        // Calculate Left
        double x = ((event.x * 12) + ((width! - 100) / 2));
        // Calculate Top
        double y = event.y * 12 + 125;
        // find the difference from the target position
        var xDiff = x.abs() - ((width! - 100) /
        2);var yDiff = y.abs() - 125;
        // check if the circle is centered, currently allowing a buffer of 3 to make centering easier
        if (xDiff.abs() < 3 && yDiff.abs() < 3) {
            // set the color and increment count
            setState(() {
                color =
                Colors.greenAccent;count
                += 1;
            });
        } else {
            // set the color and restart count
            setState(() {
                color = Colors.red;

```

```

        count = 0;
    });
}
}

setPosition(AccelerometerEvent
event) { if (event == null) {
    return;
}
// When x = 0 it should be centered horizontally
// The left positin should equal (width - 100) / 2
// The greatest absolute value of x is 10, multipling it by 12 allows the left position
to movea total of 120 in either direction.
    setState(() {
        left = ((event.x * 12) + ((width! - 100) / 2));
    });

    // When y = 0 it should have a top position matching the target, which we set at 125
    setState(() {
        top = event.y * 12 + 125;
    });
}

startTimer() {
    // if the accelerometer subscription hasn't been created, go ahead and create it
    if (accel == null) {
        accel = accelerometerEvents.listen((AccelerometerEvent
        eve) { setState(() {
            event = eve;
        });
        });
    } else {
        // it has already ben created so just resume it
        accel?.resume();
    }

    // Accelerometer events come faster than we need them so a timer is used to only
proccessthem every 200 milliseconds
    if (timer == null || !timer!.isActive) {
        timer = Timer.periodic(Duration(milliseconds: 200), (_) {
            // if count has increased greater than 3 call pause timer to handle success

```

```

        if (count > 3) {
            pauseTimer();
        } else {
            // process the current
            eventsetColor(event!);
            setPosition(event!);
        }

    });
}
}

pauseTimer() {
    // stop the timer and pause the accelerometer stream
    timer?.cancel();
    accel?.pause();

    // set the success color and reset the count
    setState() {
        count = 0;
        color = Colors.green;
    });
}

@override
void dispose() {
    timer?.cancel();
    accel?.cancel();
    super.dispose();
}

@override
Widget build(BuildContext context) {
    // get the width and height of the screen
    width =
        MediaQuery.of(context).size.width;
    height =
        MediaQuery.of(context).size.height;

    return Scaffold(
        appBar:

```

```

AppBar(
  iconTheme: IconThemeData(
    color: Colors.black, //change your color here
  ),
  title:
    Text(widget.title,style:TextStyle(color:Colors.black)),
  backgroundColor : Color(0xffef2e6c),
),
body:
  Column(
    children: [
      Padding(
        padding: const EdgeInsets.all(8.0),
        child: Text('Keep the circle in the center for 1
second',textAlign:TextAlign.center,style: TextStyle(fontSize:25)),
      ),
      Stack(
        children: [
          // This empty container is given a width and height to set the size of the stack
          Container(
            height: height! / 2,
            width: width,

            ),

          // Create the outer target circle wrapped in a Positioned
          Positioned(
            // positioned 50 from the top of the stack
            // and centered horizontally, left = (ScreenWidth - Container width) / 2
            top: 50,
            left: (width! - 250) /
            2,child: Container(
              height: 250,
              width: 250,
              decoration: BoxDecoration(
                border: Border.all(color: Colors.red, width: 5.0),
                borderRadius: BorderRadius.circular(125),
              )),),
          // This is the colored circle that will be moved by the accelerometer
          // the top and left are variables that will be set
          Positioned(
            top: top,
            left: left ?? (width! - 100) / 2,
            // the container has a color and is wrapped in a ClipOval to make it round

```

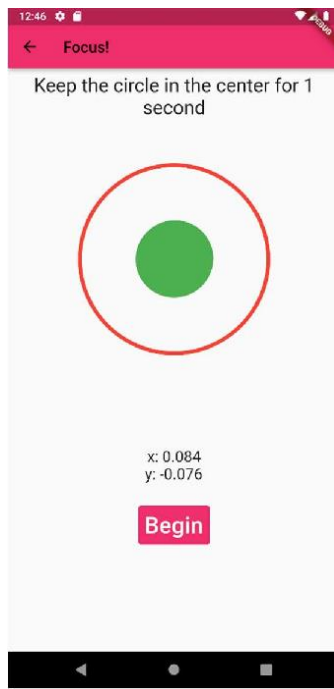
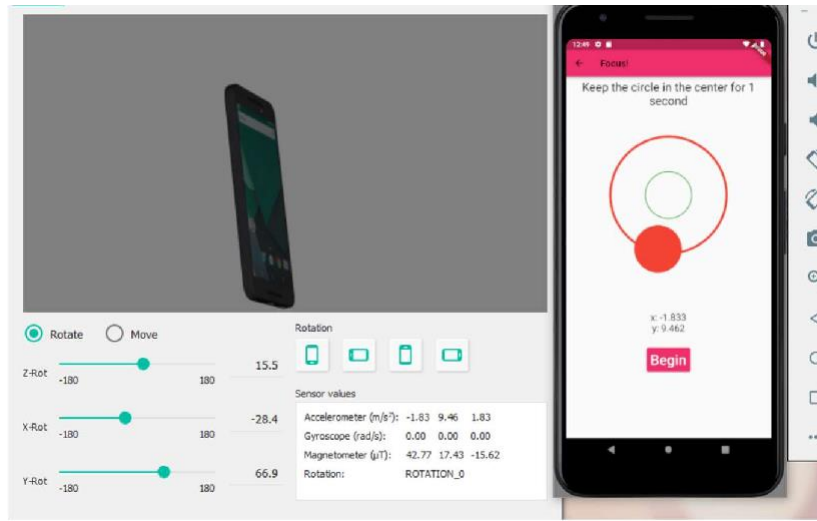
```

        child: ClipOval(
          child: Container(
            width: 100,
            height: 100,
            color: color,
          )),
        // inner target circle wrapped in a Position
        Positioned(
          top: 125,
          left: (width! - 100) /
            2,
          child: Container(
            height: 100,
            width: 100,
            decoration: BoxDecoration(
              border: Border.all(color: Colors.green, width:
                2.0),
              borderRadius: BorderRadius.circular(50),
            ),
          ),
        ),
      ],
    ),
    Text('x: ${(event?.x ?? 0).toStringAsFixed(3)}', style: TextStyle(fontSize:
      20)),
    Text('y: ${(event?.y ??
      0).toStringAsFixed(3)}', style: TextStyle(fontSize: 20)),
    Padding(
      padding: EdgeInsets.symmetric(horizontal: 16.0, vertical: 30.0),

      child: TextButton(
        style: ButtonStyle(backgroundColor:
          MaterialStateProperty.all(Color(0xffef2e6c))),
        onPressed: startTimer,
        child: Text('Begin.!!', style: TextStyle(fontSize: 30.0, color: Colors.white)),
        // color: Theme.of(context).primaryColor,
        // text color: Colors.white,
      ),
    ),
  ],
),
);
}
}

```

## Output:



## **Gesture based UI:**

### **Code:**

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

class AboutPage extends
  StatefulWidget { @override
  _AboutPageState createState() => _AboutPageState();
}

class _AboutPageState extends
  State<AboutPage> { bool _lightIsOn = false;

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

  @override
  void initState() {
    super.initState();
  }

  @override
  Widget build(BuildContext
  context) {return MaterialApp(
    theme: _lightIsOn ? ThemeData.dark() :
    ThemeData.light(),home: Scaffold(
    appBar: AppBar(
      title: Text('About', style: TextStyle(color:
      Colors.black)),backgroundColor: Color(0xffef2e6c),
    ),
    body: Column(children: <Widget>[
      Container(
        margin:
        EdgeInsets.all(20),
        height: 200,
        width: 350,
        child: Image.asset('assets/images/logo.png'),
      ),
    ],
```

```

Divider(color:Colors.black,thickness: 2,),
Container(
  // alignment: FractionalOffset.center,
  child: Column(
    // mainAxisAlignment: MainAxisAlignment.center,
    children:
      <Widget>[
        GestureDetector(
          onTap: () {
            setState() {

              // Toggle light when tapped.
              _lightIsOn = !_lightIsOn;
            });
          },

          child: Container(
            margin: EdgeInsets.fromLTRB(350, 10, 3, 6),
            width : 50,
            height:50,
            padding: const EdgeInsets.all(8),
            // Change button text when light changes state.
            decoration: BoxDecoration(
              shape : BoxShape.circle,
              color: Color(0xffef2e6c),
            ),
            child: Icon(
              _lightIsOn ? Icons.light_mode_outlined :
              Icons.dark_mode_outlined,size: 30),
          ),
        ],
      ),
    ),
  Text('In publishing and graphic design, '
    'Lorem ipsum is a placeholder text commonly used to
    demonstrate "the visual form of a document or a typeface
    without relying on "meaningful content. Lorem ipsum may be
    used as a placeholder "before final copy is available.',

```



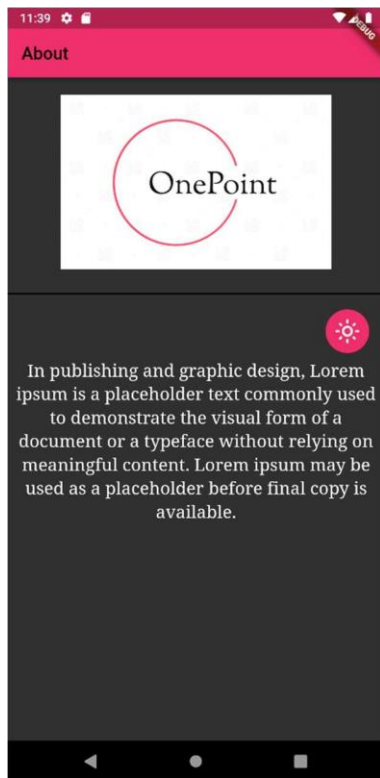
```

        textAlign: TextAlign.center,
        softWrap: true,
        style: GoogleFonts. notoSerif(textStyle: TextStyle( color: _lightIsOn ? Colors.white :
Colors.black,fontSize: 20),)
      ),.)))));
    }
  }
}

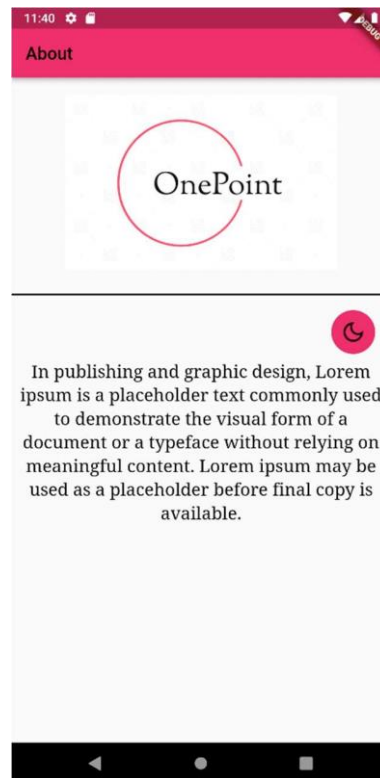
```

## Output:

### Dark mode



### Light mode



## Result:

Thus, GEO positioning, accelerometer, and rich gesture-based UI handling have been implemented using Flutter.

## Social Media Integration

Ex.No:15

Date:06/12/2022

### Aim:

To write an application for integrating mobile applications in the market, including social networking software integration with Google.

### Procedure:

- Download the following packages using flutter pub add.
  - o firebase\_auth
  - o firebase\_core
  - o google\_sign\_in
- In the firebase console, enable Google as a provider under Authentication-> Sign In method.
- Get SHA key, by using the command gradlew signingReport at the android directory of the flutter application.
- Add SHA-1 fingerprint to the application.
- Now, get Google user credential using the await GoogleSignIn().signIn();
- Obtain the auth details from the request.
- Obtain the auth details from the request

### Code:

#### authentication.dart

```
import 'package:firebase_auth/firebase_auth.dart';
import
'package:google_sign_in/google_sign_in.dart';

class AuthenticationHelper {
  final FirebaseAuth _auth =

  FirebaseAuth.instance; get user =>

  _auth.currentUser;

  Future<String?> signInWithGoogle() async {
    final GoogleSignInAccount? googleUser = await GoogleSignIn().signIn();
```

```

final GoogleSignInAuthentication? googleAuth = await

googleUser?.authentication;final credential = GoogleAuthProvider.credential(
  accessToken: googleAuth?.accessToken,
  idToken: googleAuth?.idToken,
);

await
FirebaseAuth.instance.signInWithCredential(credential);
return null;
}

Future<UserCredential> signInWithFacebook() async {
  // Trigger the sign-in flow
  final LoginResult loginResult = await FacebookAuth.instance.login();

  // Create a credential from the access token
  final OAuthCredential facebookAuthCredential =
FacebookAuthProvider.credential(loginResult.accessToken.token);

  // Once signed in, return the UserCredential
  return FirebaseAuth.instance.signInWithCredential(facebookAuthCredential);
}

//SIGN UP METHOD
Future<String?> signUp({required String email, required String password})
  async { try {
    await
      _auth.createUserWithEmailAndPassword(
        email: email,
        password: password,
      );
    return null;
  } on FirebaseAuthException catch (e)
    {return e.message;
  }
}

//SIGN IN METHODJ
Future<String?> signIn({required String email, required String password})
  async { try {
    await _auth.signInWithEmailAndPassword(email: email, password:

```

```

        password);return null;
    } on FirebaseAuthException catch (e)
    {return e.message;
    }
}

```

*//SIGN OUT METHOD*

```

Future<void> signOut() async
{await _auth.signOut();

```

```

    print('signout');
  }
}

```

## **login.dart**

```

import 'package:flutter/material.dart';
import './authentication.dart';
import
'./home.dart';
import
'./signup.dart';

```

```

class Login extends
StatelessWidget { @override
Widget build(BuildContext
context) {return Scaffold(
  body: ListView(
    padding:
    EdgeInsets.all(8.0),
    children: <Widget>[
    SizedBox(height: 80),
    // logo
    Column(
    children: [
    Image.asset('assets/images/logo.png'),
    SizedBox(height: 50),
    Text(
    'Welcome back!',
    style: TextStyle(fontSize: 24),
    ),],),

```

```

    SizedBox(
      height: 50,
    ),
    Padding(
      padding: const
        EdgeInsets.all(16.0),child:
        LoginForm(),
    ),

    SizedBox(height:
    20),Row(
  children: <Widget>[
    SizedBox(width: 30),
    Text('New here ? ',
      style: TextStyle(fontWeight: FontWeight.bold, fontSize:
    20)),GestureDetector(
      onTap: () {
        Navigator.pushReplacement(context,MaterialPageRoute(builder: (context) =>
Signup()));
      },
      child: Text('Get Registered Now..',
        style: TextStyle(fontSize: 20, color: Color(0xffef2e6c))),
    ),),
    Row(
      children: <Widget>[
        SizedBox(width: 30),
        GestureDetector(

          onTap: () {
            AuthenticationHelper()
              .signInWithGoogle()
              .then((result) {
                if (result == null) {
                  Navigator.pushReplacement(context
                    ,
                    MaterialPageRoute(builder: (context) => MyApp()));
                } else {
                  ScaffoldMessenger.of(context).showSnackBar(SnackBar(
                    content: Text(
                      result,
                      style: TextStyle(fontSize: 16),
                    )),));});},

```

```

        child: Text('Sign in with Google',
          style: TextStyle(fontSize: 20, color: Color(0xffef2e6c))),
      ),),),),);}}

```

```

class LoginForm extends StatefulWidget
{ LoginForm({Key? key}) : super(key:
key);

```

```

  @override
  _LoginFormState createState() => _LoginFormState();
}

```

```

class _LoginFormState extends
State<LoginForm> { final _formKey =
GlobalKey<FormState>();

```

```

String? email;
String? password;

```

```

bool _obscureText = true;

```

```

  @override
  Widget build(BuildContext context) {
    return Form(
      key:
        _formKey,
      child:
        Column(

```

```

          mainAxisAlignment: MainAxisAlignment.spaceAround,
          children: <Widget>[
            // email
            TextFormField(
              // initialValue: 'Input text',
              decoration: InputDecoration(
                prefixIcon:
                  Icon(Icons.email_outlined,color:Colors.black),
                labelText: 'Email',
                labelStyle: TextStyle(
                  color:
                    Color(0xffef2e6c),),

```

```

enabledBorder:
  OutlineInputBorder(
    borderRadius: BorderRadius.all(
      const Radius.circular(100.0),
    ),
  ),
focusedBorder:
  OutlineInputBorder(
    borderRadius: BorderRadius.all(
      const Radius.circular(100.0),
    ),
    borderSide: BorderSide(color: Color(0xffef2e6c) ),
  ),
),
),
validator: (value) {
  if (value!.isEmpty) {
    return 'Please enter some text';
  }
  return null;
},
onSaved: (val) {
  email = val;
},
),
SizedBox(
  height: 20,
),
// password
TextFormField(
  // initialValue: 'Input text',
  decoration:
    InputDecoration(labelText:
      'Password', labelTextStyle:
        TextStyle(
          color: Color(0xffef2e6c),
        ),
    ),
  prefixIcon:
    Icon(Icons.lock_outline,color:Colors.black),
  enabledBorder: OutlineInputBorder(
    borderRadius:
      BorderRadius.all(const
        Radius.circular(100.0),

```

```

    ),
  ),
  focusedBorder:
    OutlineInputBorder(
      borderRadius: BorderRadius.all(
        const Radius.circular(100.0),
      ),
      borderSide: BorderSide(color: Color(0xffef2e6c) ),
    ),
  suffixIcon: GestureDetector(
    onTap: () {
      setState(() {
        _obscureText = !_obscureText;
      });
    },
    child: Icon(
      _obscureText ? Icons.visibility_off : Icons.visibility,
    ),
  ),
),
obscureText: _obscureText,
onSaved: (val) {
  password = val;
},
validator: (value) {
  if (value!.isEmpty) {
    return 'Please enter some text';
  }
  return null;
},
),

```

```

    SizedBox(height: 30),

```

```

    SizedBox(
      height: 54,
      width: 184,
      child: ElevatedButton(
        onPressed: () {
          // Respond to button press

          if (_formKey.currentState!.validate()) {
            _formKey.currentState!.save();

```



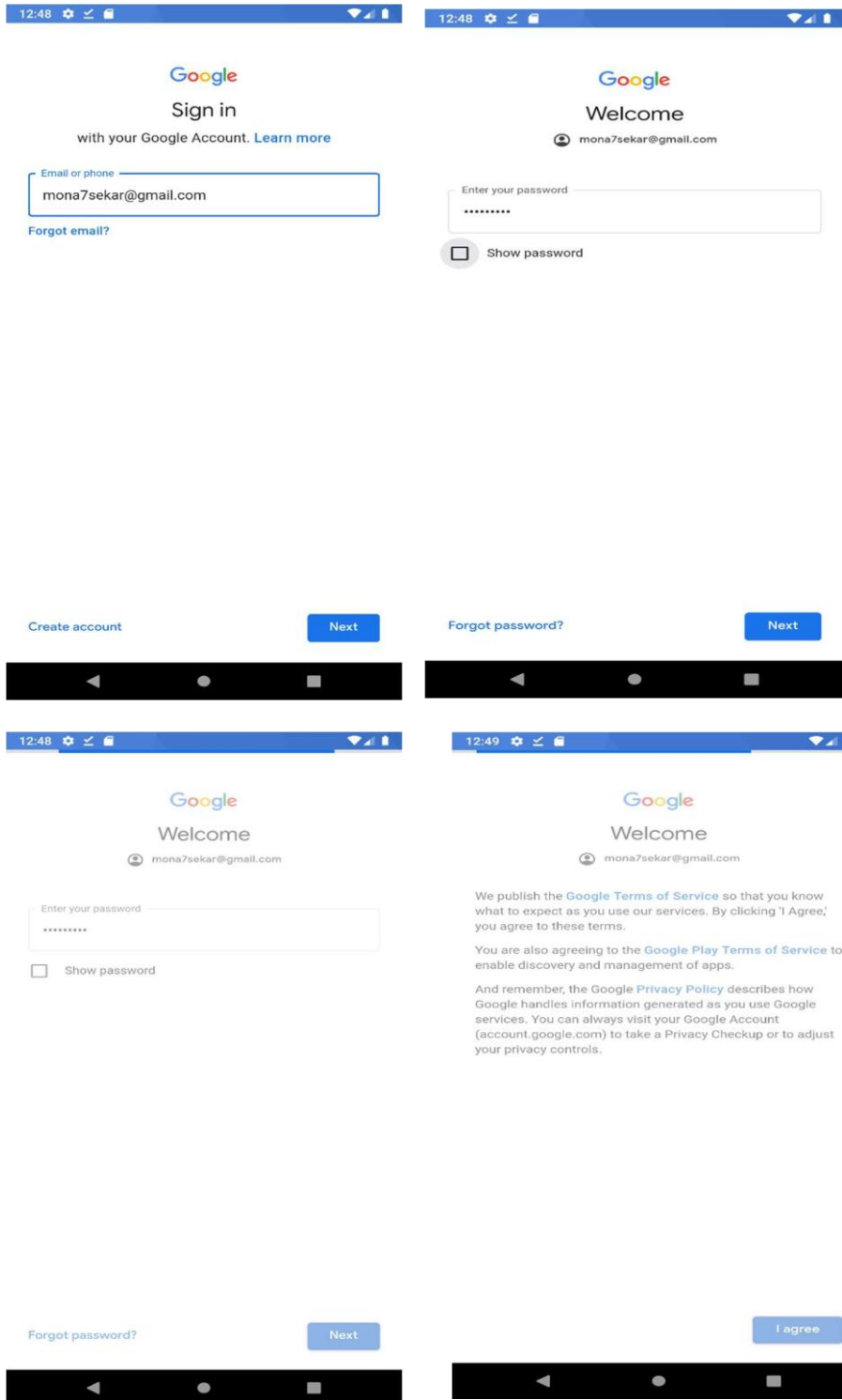
```

AuthenticationHelper()
  .signIn(email: email!, password: password!)
  .then((result) {
    if (result == null) {
      Navigator.pushReplacement(context,
        MaterialPageRoute(builder: (context) => MyApp()));

    } else {
      ScaffoldMessenger.of(context).showSnackBar(SnackBar(
        content: Text(
          result,
          style: TextStyle(fontSize: 16),
        ),
      ));
    }
  });
},
style: ElevatedButton.styleFrom(
  shape:
    RoundedRectangleBorder(
      borderRadius:
        BorderRadius.all(Radius.circular(24.0))),
  backgroundColor: Color(0xffef2e6c),
  child: Text(
    'Login',
    style: TextStyle(fontSize: 24),
  ),
),
),
],
),
);
}
}

```

## Output:






OnePoint ▼

Go to docs 🔔 M ?

# Authentication

[Users](#)
[Sign-in method](#)
[Templates](#)
[Usage](#)
[Settings](#)

Add user
↺
⋮

Identifier	Providers	Created <span>↓</span>	Signed In	User UID
mona7sekar@gmail.com		Dec 3, 2022	Dec 3, 2022	tfhNqTbNrfa1E1yxqJG8XaLrRtr1
rangz@gmail.com		Nov 23, 2022	Nov 23, 2022	a2jkcIkTxZdfxqSXTYXQIJ5kT6m2
mona7sekar@gmail.com		Nov 21, 2022	Dec 2, 2022	AFgYft19r3WrGzpeTxSQb61rYO63

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## Result:

Thus, an application that uses social networking software (Google) for authentication has been implemented.

# **UIT 1711 Mobile Application Development Lab**

## **Mini Project**

### **Project Title:**

Ceramic Industry and Products

### **Problem Statement:**

Mobile Application for Ceramic industry and products.

### **Problem Description:**

Ceramic Industry is growing rapidly. It came into existence about a century ago and the innovations have added freshness to this. Our solutions are meant to understand the requirements of the current scenario. Ceramics have made their way to our regular lives in the form of utensils, tiles, artwork, etc. The ceramic industry is facing several challenges these days and that has created an urge for creating an online identity.

From procurement to delivering the final product, there are many stages to complete. Ceramics are growing useful every day. Our App is a powerful management system. This system aims to generate a strict control of business activities. These systems should be highly organized as well as rigorous to ensure complete business activities. Lots of daily operations take place in the ceramic industry. From purchasing, production, transportation to inventory management, there is much more to explore with these operations.

### **Source Code:**

#### **Dependencies:**

```
cupertino_icons: ^1.0.2
firebase_core: ^2.4.0
firebase_auth: ^4.2.0
cloud_firestore: ^4.2.0
fluttertoast: ^8.1.1
google_fonts: 2.1.0
provider: ^6.0.4
```

#### **Main.dart**

```
import 'package:flutter/material.dart';
import 'login.dart';
import 'package:firebase_core/firebase_core.dart';
import 'package:login/model/cart_model.dart';
import 'package:provider/provider.dart';
```

```
Future<void> main() async {
  WidgetsFlutterBinding.ensureInitialized();
  await Firebase.initializeApp();

  runApp(const MyApp());
}
```

```
class MyApp extends StatelessWidget {
  const MyApp({super.key});
  // This widget is the root of your application.
  @override
  Widget build(BuildContext context) {
    return ChangeNotifierProvider(
      create: (context) => CartModel(),
```

```

        child: MaterialApp(
          debugShowCheckedModeBanner: false,
          home: login(),
        ),
      );
    }
  }
}

```

### Login.dart

```

import 'package:firebase_auth/firebase_auth.dart';
import 'package:flutter/material.dart';
import 'package:firebase_core/firebase_core.dart';
import 'package:fluttertoast/fluttertoast.dart';
import 'package:login/pages/intro_screen.dart';
import 'homescreen.dart';

class login extends StatefulWidget {
  const login({super.key});

  @override
  State<login> createState() => _loginState();
}

class _loginState extends State<login> {
  final _formKey = GlobalKey<FormState>();

  final emailEditingController = new TextEditingController();
  final passwordEditingController = new TextEditingController();

  final _auth = FirebaseAuth.instance;
  @override
  Widget build(BuildContext context) {
    //emailfield
    final emailfield = TextFormField(
      autofocus: false,
      controller: emailEditingController,
      keyboardType: TextInputType.emailAddress,
      validator: (value) {
        if (value!.isEmpty) {
          return ("Please enter the username");
        }
        if (!RegExp("^[a-zA-Z0-9+_.-]+@[a-zA-Z0-9.-]+.[a-z]").hasMatch(value)) {
          return ("Please Enter a valid email");
        }
      },
    ),
    onSaved: (value) {
      emailEditingController.text = value!;
    },
    textInputAction: TextInputAction.next,
    decoration: InputDecoration(
      prefixIcon: Icon(Icons.mail),
      hintText: "USERNAME",

```

```

        contentPadding: EdgeInsets.fromLTRB(20, 15, 20, 15),
        border: OutlineInputBorder(borderRadius: BorderRadius.circular(20))),
    );

    final passwordfield = TextFormField(
      autofocus: false,
      controller: passwordEditingController,
      obscureText: true,
      validator: (value) {
        RegExp regex = new RegExp(r'^.{6,}$');
        if (value!.isEmpty) {
          return ("Please enter the Password");
        }
        if (!regex.hasMatch(value)) {
          return ("Enter Valid Password(Min. 6 Character)");
        }
      },
      onSave: (value) {
        passwordEditingController.text = value!;
      },
      textInputAction: TextInputAction.done,
      decoration: InputDecoration(
        prefixIcon: Icon(Icons.vpn_key),
        contentPadding: EdgeInsets.fromLTRB(20, 15, 20, 15),
        hintText: "PASSWORD",
        border: OutlineInputBorder(borderRadius: BorderRadius.circular(20))),
    );

    final loginButton = Material(
      elevation: 5,
      borderRadius: BorderRadius.circular(30),
      child: MaterialButton(
        color: Color(0xFF4C53A5),
        padding: EdgeInsets.fromLTRB(20, 15, 20, 15),
        minWidth: MediaQuery.of(context).size.width,
        onPressed: () {
          signIn(emailEditingController.text, passwordEditingController.text);
        },
        child: const Text(
          "LOGIN",
          textAlign: TextAlign.center,
          style: TextStyle(
            fontWeight: FontWeight.bold, fontSize: 20, color: Colors.white),
        ),
      ),
    );

    return Scaffold(
      backgroundColor: Colors.white,
      body: Center(
        child: SingleChildScrollView(
          child: Container(
            child: Padding(
              padding: const EdgeInsets.all(30.0),

```

```
child: Form(
  key: _formKey,
  child: Column(
    mainAxisAlignment: MainAxisAlignment.center,
    crossAxisAlignment: CrossAxisAlignment.center,
    children: [
      Padding(
        padding: const EdgeInsets.only(
          left: 80.0,
          right: 80.0,
          top: 20,
          bottom: 20,
        ),
        child: Image.asset('lib/images/login.jpg'),
      ),
      SizedBox(
        height: 70,
        child: Text(
          "LOGIN ",
          style: TextStyle(
            fontSize: 30,
            color: Color(0xFF4C53A5),
            fontWeight: FontWeight.bold,
          ),
        ),
      ),
      emailfield,
      SizedBox(
        height: 30,
      ),
      passwordfield,
      SizedBox(
        height: 30,
      ),
      loginButton,
      SizedBox(
        height: 30,
      ),
      Text("DONT HAVE A ACCOUNT!!"),
      GestureDetector(
        onTap: () {},
        child: Text(
          "SIGNUP",
          style:
            TextStyle(color: Color(0xFF4C53A5), fontSize: 16),
        ),
      ),
    ],
  ),
),
),
),
),
),
```

```

    ),
  );
}

void signIn(String email, String password) async {
  if (_formKey.currentState!.validate()) {
    await _auth
      .signInWithEmailAndPassword(email: email, password: password)
      .then((uid) => {
        Fluttertoast.showToast(msg: "Login Successful"),
        Navigator.of(context).pushReplacement(
          MaterialPageRoute(builder: (context) => IntroScreen()),
        )
      })
      .catchError((e) => {Fluttertoast.showToast(msg: e!.message)});
  }
}
}

```

### Pages:

#### **Intro\_screen.dart**

```

import 'package:flutter/material.dart';
import 'package:google_fonts/google_fonts.dart';
import 'home_page.dart';

class IntroScreen extends StatelessWidget {
  const IntroScreen({super.key});

  @override
  Widget build(BuildContext context) {
    return Scaffold(
      backgroundColor: Colors.grey[50],
      body: SafeArea(
        child: Column(
          children: [
            // big logo
            Padding(
              padding: const EdgeInsets.only(
                left: 80.0,
                right: 80.0,
                top: 30,
                bottom: 20,
              ),
              child: Image.asset('lib/images/img5.jpg'),
            ),

            // we deliver groceries at your doorstep
            Padding(
              padding: const EdgeInsets.all(28.0),
              child: Text(
                'We deliver Ceramic Products at your doorstep',
                textAlign: TextAlign.center,
                style: GoogleFonts.notoSerif(
                  color: Color(0xFF4C53A5),

```



```

        fontSize: 28,
        fontWeight: FontWeight.bold),
    ),
),

// groceree gives you fresh vegetables and fruits
Text(
  'New items everyday',
  textAlign: TextAlign.center,
  style: TextStyle(
    fontSize: 16,
    color: Color(0xFF4C53A5),
  ),
),

const SizedBox(height: 24),

const Spacer(),

// get started button
GestureDetector(
  onTap: () => Navigator.pushReplacement(
    context,
    MaterialPageRoute(
      builder: (context) {
        return HomePage();
      },
    ),
  ),
  child: Container(
    padding: const EdgeInsets.all(24),
    decoration: BoxDecoration(
      borderRadius: BorderRadius.circular(16),
      color: Color(0xFF4C53A5),
    ),
    child: const Text(
      "Get Started",
      style: TextStyle(
        color: Colors.white,
        // fontWeight: FontWeight.bold,
        fontSize: 16,
      ),
    ),
  ),
),

const Spacer(),

],
),
),
);
}
}

```

### Home\_screen.dart

```
import 'package:flutter/material.dart';
import 'package:google_fonts/google_fonts.dart';
import 'package:provider/provider.dart';
import '../components/grocery_item_tile.dart';
import '../model/cart_model.dart';
import 'cart_page.dart';

class HomePage extends StatefulWidget {
  const HomePage({super.key});

  @override
  State<HomePage> createState() => _HomePageState();
}

class _HomePageState extends State<HomePage> {
  @override
  Widget build(BuildContext context) {
    return Scaffold(
      appBar: AppBar(
        backgroundColor: Colors.transparent,
        elevation: 0,
        leading: Padding(
          padding: const EdgeInsets.only(left: 24.0),
          child: Icon(
            Icons.location_on,
            color: Color(0xFF4C53A5),
          ),
        ),
        title: Text(
          'Chennai, India',
          style: TextStyle(
            fontSize: 16,
            color: Color(0xFF4C53A5),
          ),
        ),
        centerTitle: false,
        actions: [
          Padding(
            padding: const EdgeInsets.only(right: 24.0),
            child: Container(
              padding: EdgeInsets.all(16),
              decoration: BoxDecoration(
                color: Colors.grey[200],
                borderRadius: BorderRadius.circular(12),
              ),
              child: Icon(
                Icons.person,
                color: Colors.grey,
              ),
            ),
          ),
        ],
      ),
    );
  }
}
```

```

    ),
  ],
),
floatingActionButton: FloatingActionButton(
  backgroundColor: Colors.black,
  onPressed: () => Navigator.push(
    context,
    MaterialPageRoute(
      builder: (context) {
        return CartPage();
      },
    ),
  ),
  child: const Icon(Icons.shopping_bag),
),
body: Column(
  crossAxisAlignment: CrossAxisAlignment.start,
  children: [
    const SizedBox(height: 48),

    // good morning bro
    const Padding(
      padding: EdgeInsets.symmetric(horizontal: 24.0),
      child: Text(
        'Welcome Buyers,',
        style: TextStyle(color: Color(0xFF4C53A5)),
      ),
    ),

    const SizedBox(height: 4),

    // Let's order fresh items for you
    Padding(
      padding: const EdgeInsets.symmetric(horizontal: 24.0),
      child: Text(
        "Let's order Ceramic Industry Products for you",
        style: GoogleFonts.notoSerif(
          color: Color(0xFF4C53A5),
          fontSize: 20,
          fontWeight: FontWeight.bold,
        ),
      ),
    ),

    const SizedBox(height: 24),

    const Padding(
      padding: EdgeInsets.symmetric(horizontal: 24.0),
      child: Divider(),
    ),

    const SizedBox(height: 24),
  ],
),

```

```

// categories -> horizontal listview
Padding(
  padding: const EdgeInsets.symmetric(horizontal: 24.0),
  child: Text(
    "New Arrivals",
    style: GoogleFonts.notoSerif(
      color: Color(0xFF4C53A5),
      fontWeight: FontWeight.bold,
      fontSize: 18,
    ),
  ),
),

// recent orders -> show last 3
Expanded(
  child: Consumer<CartModel>(
    builder: (context, value, child) {
      return GridView.builder(
        padding: const EdgeInsets.all(12),
        // physics: const NeverScrollableScrollPhysics(),
        itemCount: value.shopItems.length,
        gridDelegate: const SliverGridDelegateWithFixedCrossAxisCount(
          crossAxisCount: 2,
          childAspectRatio: 1 / 1.2,
        ),
        itemBuilder: (context, index) {
          return GroceryItemTile(
            itemName: value.shopItems[index][0],
            itemPrice: value.shopItems[index][1],
            imagePath: value.shopItems[index][2],
            color: value.shopItems[index][3],
            onPressed: () =>
              Provider.of<CartModel>(context, listen: false)
                .addItemToCart(index),
          );
        },
      );
    },
  ),
),
],
),
);
}
}

```

### Cart\_page.dart

```

import 'package:flutter/material.dart';
import 'package:google_fonts/google_fonts.dart';
import 'package:provider/provider.dart';

import '../model/cart_model.dart';

```





```

        // pay now
        Container(
          decoration: BoxDecoration(
            border: Border.all(color: Colors.green.shade200),
            borderRadius: BorderRadius.circular(28),
          ),
          padding: const EdgeInsets.all(12),
          child: Row(
            children: const [
              Text(
                'Pay Now',
                style: TextStyle(color: Colors.white),
              ),
              Icon(
                Icons.arrow_forward_ios,
                size: 16,
                color: Colors.white,
              ),
            ],
          ),
        ),
      ],
    ),
  ],
);
},
),
);
}
}

```

### Model:

#### **Cart\_model.dart**

```

import 'package:flutter/material.dart';

class CartModel extends ChangeNotifier {
  // list of items on sale
  final List _shopItems = const [
    // [ itemName, itemPrice, imagePath, color ]
    ["Stylish Pots", "100.00", "lib/images/img1.jpg", Colors.green],
    ["Plates and Cups", "200.00", "lib/images/imgFc5.JPG", Colors.yellow],
    ["Floor Tiles", "150.00", "lib/images/imgFc1.jpg", Colors.brown],
    ["Toiletary", "400.00", "lib/images/imgFc2.jpg", Colors.blue],
    ["Pipes", "50.00", "lib/images/imgFc6.JPG", Colors.lime],
    ["Gas Fire Radient", "500.00", "lib/images/img6.jpg", Colors.orange],
    ["Roof Tiles", "250.00", "lib/images/imgFc7.jpg", Colors.lightGreen],
    ["Bricks", "330.00", "lib/images/imgFc9.JPG", Colors.blueGrey],
    ["TableWare", "600.00", "lib/images/img7.PNG", Colors.indigo],
    ["Green Vase", "90.00", "lib/images/img2.jpg", Colors.brown],
    ["Staring Set", "350.00", "lib/images/ss1.jpg", Colors.yellow],
  ];
}

```

```

    ["CookWare", "420.00", "lib/images/img8.jpg", Colors.purple],
    ["3 Combo Pots", "280.00", "lib/images/splashscreen2.jpg", Colors.green],
    ["Full Set Combo", "400.00", "lib/images/imgFc4.png", Colors.blue],
    ["Bluish Cups", "140.00", "lib/images/img3.jpg", Colors.deepOrange],
  ];

  // list of cart items
  List _cartItems = [];

  get cartItems => _cartItems;

  get shopItems => _shopItems;

  // add item to cart
  void addItemToCart(int index) {
    _cartItems.add(_shopItems[index]);
    notifyListeners();
  }

  // remove item from cart
  void removeItemFromCart(int index) {
    _cartItems.removeAt(index);
    notifyListeners();
  }

  // calculate total price
  String calculateTotal() {
    double totalPrice = 0;
    for (int i = 0; i < cartItems.length; i++) {
      totalPrice += double.parse(cartItems[i][1]);
    }
    return totalPrice.toStringAsFixed(2);
  }
}

```

## **Components:**

### **ceramic\_item\_tile.dart**

```

import 'package:flutter/cupertino.dart';
import 'package:flutter/material.dart';
import 'package:google_fonts/google_fonts.dart';

class GroceryItemTile extends StatelessWidget {
  final String itemName;
  final String itemPrice;
  final String imagePath;
  final color;
  void Function()? onPressed;

  GroceryItemTile({
    super.key,
    required this.itemName,

```



```

        required this.itemPrice,
        required this.imagePath,
        required this.color,
        required this.onPressed,
    });





































    @override
    Widget build(BuildContext context) {
        return Padding(
            padding: const EdgeInsets.all(12),
            child: Container(
                decoration: BoxDecoration(
                    borderRadius: BorderRadius.circular(12),
                    color: color[100],
                ),
                child: Column(
                    mainAxisAlignment: MainAxisAlignment.spaceEvenly,
                    crossAxisAlignment: CrossAxisAlignment.center,
                    children: [
                        // item image
                        Padding(
                            padding: const EdgeInsets.symmetric(horizontal: 40.0),
                            child: Image.asset(
                                imagePath,
                                height: 64,
                            ),
                        ),

                        // item name
                        Text(
                            itemName,
                            style: TextStyle(
                                fontSize: 16,
                            ),
                        ),

                        MaterialButton(
                            onPressed: onPressed,
                            color: color,
                            child: Text(
                                '\$' + itemPrice,
                                style: TextStyle(
                                    color: Colors.white,
                                    fontWeight: FontWeight.bold,
                                ),
                            ),
                        ),
                    ],
                ),
            ),
        );
    }
}

```

Output:

10:46 AM | 0.1KB/s                                       



## LOGIN

 sharan@gmail.com

 .....

**LOGIN**

DONT HAVE A ACCOUNT!!  
[SIGNUP](#)

10:47 AM | 1.5KB/s

Vo WiFi Vo WiFi 82%



# We deliver Ceramic Products at your doorstep

New items everyday

Get Started



Chennai, India



Welcome Buyers,

**Let's order Ceramic Industry  
Products for you**

## New Arrivals



Stylish Pots

\$100.00



Plates and Cups

\$200.00



Floor Tiles

\$150.00



Toiletary

\$400.00





Chennai, India



Welcome Buyers,

**Let's order Ceramic Industry  
Products for you**

## New Arrivals



Pipes

\$50.00



Gas Fire Radiant

\$500.00



Roof Tiles

\$250.00



Bricks

\$330.00





Chennai, India



Welcome Buyers,

**Let's order Ceramic Industry  
Products for you**

## New Arrivals



TableWare

**\$600.00**



Green Vase

**\$90.00**



Staring Set

**\$350.00**



CookWare

**\$420.00**



Chennai, India



Welcome Buyers,

**Let's order Ceramic Industry  
Products for you**

### New Arrivals

\$350.00

\$420.00



3 Combo Pots

\$280.00



Full Set Combo

\$400.00



Bluish Cups

\$140.00







# My Cart

Total Price

**\$0.00**

Pay Now >



# My Cart



Floor Tiles

\$150.00



Gas Fire Radiant

\$500.00



TableWare

\$600.00



CookWare

\$420.00



3 Combo Pots

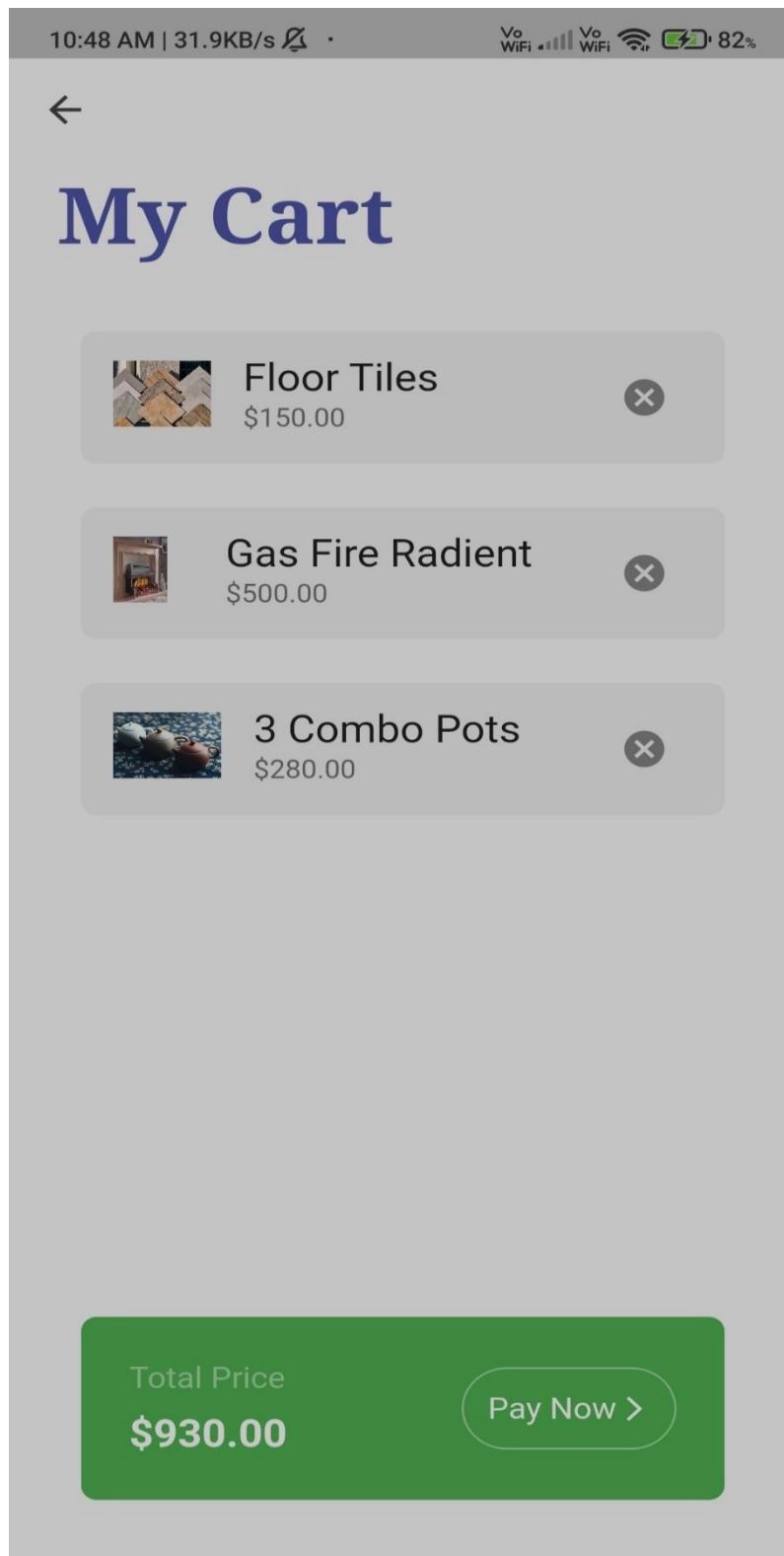
\$280.00



Total Price

**\$1950.00**

Pay Now >



**Result:**

The project has been tested and it has run successfully.