

Experiment no 5

Name: Soham Satpute

Div: D15A

Roll No: 51

Aim :- To apply navigation routing gestures in flutter app

Theory :-

In Flutter, navigation refers to the process of moving between different screens (routes) in an application. A route is a widget that represents a screen, and Flutter provides multiple ways to manage navigation efficiently.

➤ Navigation in Flutter

Navigation is essential for defining the workflow of an application. Flutter manages navigation using the Navigator widget, which maintains a stack of routes.

Types of Navigation in Flutter:

1. Stack-Based Navigation (Using Navigator.push() & Navigator.pop())
2. Named Routes (For Structured Navigation)
3. Gesture-Based Navigation (Swipe, Tap, etc.)

1. Stack-Based Navigation

Flutter follows a stack-based approach where new screens are pushed onto the stack and removed when they are no longer needed.

- Navigator.push() – Adds a new screen (route) to the navigation stack.
- Navigator.pop() – Removes the current screen and returns to the previous one.

This approach is useful for small apps or simple screen transitions.

2. Named Routes

Named routes provide a more structured way to manage navigation by defining route names inside the MaterialApp widget.

Advantages of Named Routes:

Makes navigation cleaner and more manageable.
Ideal for large applications with multiple screens.
Avoids code duplication for repeated navigation logic.

Named routes help in organizing navigation paths systematically.

3. Gesture-Based Navigation

Flutter provides the GestureDetector widget, which enables interaction-based navigation using gestures such as:

- Tap Gesture – Navigate to a new screen when the user taps.
- Swipe Gesture – Navigate back when the user swipes right.
- Drag Gesture – Move between screens using drag gestures.

Gestures improve user experience by making the app more interactive and intuitive.

Code :

Main.dart:

```
import 'package:flutter/material.dart';
import 'pages/welcome_page.dart';
import 'pages/signup_page.dart';
import 'pages/login_page.dart';
import 'pages/home_page.dart';
import 'pages/join_meeting_page.dart';
import
'pages/schedule_meeting_page.dart';
import 'pages/new_meeting_page.dart';
// Import new meeting page

void main() async {

WidgetsFlutterBinding.ensureInitialized();
runApp(ZoomWorkplaceApp());
```

}

```
class ZoomWorkplaceApp extends
StatelessWidget {
@Override
Widget build(BuildContext context) {
return MaterialApp(
debugShowCheckedModeBanner:
false,
initialRoute: '/',
routes: {
'/': (context) => WelcomePage(),
'/signup': (context) => SignUpPage(),
'/login': (context) => LoginPage(),
'/home': (context) => HomePage(),
'/join': (context) =>
JoinMeetingPage(),
'/schedule': (context) =>
ScheduleMeetingPage(),
'/new-meeting': (context) =>
```

```
NewMeetingPage(),
},
);
}
}
```

Home_page.dart:

```
import 'package:flutter/material.dart';
import 'new_meeting_page.dart';
import 'join_meeting_page.dart';
import 'schedule_meeting_page.dart';

class HomePage extends StatefulWidget {
  @override
  _HomePageState createState() =>
  _HomePageState();
}


```

```
class _HomePageState extends
State<HomePage> {
  bool isDarkMode = false;

  @override
  Widget build(BuildContext context) {
    return MaterialApp(
      theme: isDarkMode ?
      ThemeData.dark() : ThemeData.light(),
      debugShowCheckedModeBanner:
      false,
      home: Scaffold(
        appBar: AppBar(
          title: Text("Meet & Chat"),
          actions: [
            IconButton(
              icon: Icon(isDarkMode ?
              Icons.light_mode : Icons.dark_mode),
              onPressed: () => setState(() =>
```

```
isDarkMode = !isDarkMode),
            ),
            ],
            ),
            body: Padding(
              padding: EdgeInsets.all(20),
              child: Column(
                children: [
                  Row(
                    mainAxisAlignment:
                    MainAxisAlignment.spaceAround,
                    children: [
                      _buildButton(Icons.videocam,
                      "New Meeting", () {
                        Navigator.push(context,
                        MaterialPageRoute(builder: (context) =>
                        NewMeetingPage()));
                      }),
                      _buildButton(Icons.add, "Join",
                      () {
                        Navigator.push(context,
                        MaterialPageRoute(builder: (context) =>
                        JoinMeetingPage()));
                      }),
                      _buildButton(Icons.calendar_today,
                      "Schedule", () {
                        Navigator.push(context,
                        MaterialPageRoute(builder: (context) =>
                        ScheduleMeetingPage()));
                      }),
                      _buildButton(Icons.screen_share, "Share
                      Screen"),
                    ],
                  ),
                ],
              ),
            ),
            SizedBox(height: 30),
```

```

        Text("Find People and Start
Chatting", style: TextStyle(fontSize: 18)),
        SizedBox(height: 10),
        ElevatedButton(onPressed: () {},),
child: Text("Add Contacts")),
],
),
),
),
bottomNavigationBar:
BottomNavigationBar(
items: [
    BottomNavigationBarItem(icon:
Icon(Icons.chat), label: "Meet & Chat"),
    BottomNavigationBarItem(icon:
Icon(Icons.message), label: "Messages"),
    BottomNavigationBarItem(icon:
Icon(Icons.contacts), label: "Contacts"),
    BottomNavigationBarItem(icon:
Icon(Icons.more_horiz), label: "More"),
],
),
),
);
}

```

```

Widget _buildButton(IconData icon,
String label, [VoidCallback? onTap]) {
return GestureDetector(
onTap: onTap,
child: Column(
children: [
CircleAvatar(radius: 25, child:
Icon(icon, size: 30, color: Colors.white),
backgroundColor: Colors.blue),
SizedBox(height: 5),
Text(label),
],
),
),
),
),
),
bottomNavigationBar:
BottomNavigationBar(
items: [
    BottomNavigationBarItem(icon:
Icon(Icons.chat), label: "Meet & Chat"),
    BottomNavigationBarItem(icon:
Icon(Icons.message), label: "Messages"),
    BottomNavigationBarItem(icon:
Icon(Icons.contacts), label: "Contacts"),
    BottomNavigationBarItem(icon:
Icon(Icons.more_horiz), label: "More"),
],
),
),
),
);
}

```

```

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

class ScheduleMeetingPage extends
StatefulWidget {
@Override
_ScheduleMeetingPageState
createState() =>
_ScheduleMeetingPageState();
}

class _ScheduleMeetingPageState
extends State<ScheduleMeetingPage>
{
final TextEditingController
_titleController =
 TextEditingController();
DateTime _selectedDate =
DateTime.now();
TimeOfDay _selectedTime =
TimeOfDay.now();
}
```

```
bool _requirePasscode = true;
bool _enableWaitingRoom = false;
Future<void> _selectDate(BuildContext context) {
  async {
    final DateTime? picked = await showDatePicker(
      context: context,
      initialDate: _selectedDate,
      firstDate: DateTime.now(),
      lastDate: DateTime(2100),
    );
    if (picked != null) {
      setState(() => _selectedDate =
        picked);
    }
  }
}

Future<void> _selectTime(BuildContext context) {
  async {
    final TimeOfDay? picked = await showTimePicker(
      context: context,
      initialTime: _selectedTime,
    );
    if (picked != null) {
      setState(() => _selectedTime =
        picked);
    }
  }
}

void _scheduleMeeting() {
  if (_titleController.text.isNotEmpty) {
    ScaffoldMessenger.of(context).showSnackBar(
      SnackBar(content: Text('Meeting Scheduled Successfully!')),
    );
    Navigator.pop(context);
  } else {
    ScaffoldMessenger.of(context).showSnackBar(
      SnackBar(content: Text('Please enter a meeting title')),
    );
  }
}
```

```
        onTap: () =>
    _selectDate(context),
),
ListTile(
    title: Text("Select Time"),
    trailing:
Icon(Icons.access_time, color:
Colors.blue),
onTap: () =>
    _selectTime(context),
),
SwitchListTile(
    title: Text("Require Meeting
Passcode"),
    value: _requirePasscode,
    onChanged: (value) =>
    setState(() => _requirePasscode =
value),
),
SwitchListTile(
    title: Text("Enable Waiting
Room"),
    value: _enableWaitingRoom,
    onChanged: (value) =>
    setState(() => _enableWaitingRoom =
value),
),

```

@override
Widget build(BuildContext context) {
 return Scaffold(
 appBar: AppBar(title:
 Text("Schedule Meeting"),
 body: Padding(
 padding: EdgeInsets.all(20),
 child: Column(
 crossAxisAlignment:
 CrossAxisAlignment.start,
 children: [
 TextField(
 controller: _titleController,
 decoration:
 InputDecoration(labelText: "Meeting
Title"),
),
 SizedBox(height: 20),
 ListTile(
 title: Text("Starts:
\${_selectedDate.toLocal()} at
\${_selectedTime.format(context)}"),
 trailing:
Icon(Icons.calendar_today, color:
Colors.blue),

```
),
SizedBox(height: 30),
Center(
  child: ElevatedButton(
    onPressed:
      _scheduleMeeting,
    style:
      ElevatedButton.styleFrom(
        padding:
          EdgeInsets.symmetric(vertical: 12,
horizontal: 30),
        shape:
          RoundedRectangleBorder(borderRadius:
            BorderRadius.circular(10)),
      ),
    child: Text("Schedule", style:
      TextStyle(fontSize: 18)),
  ),
),
],
),
);
}
}

welcome_page:
```

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

class WelcomePage extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    return Scaffold(
      backgroundColor:
        Colors.blue.shade700, // Matches the
      image background
      body: SafeArea(
        child: Column(
          children: [
            Align(
              alignment: Alignment.topLeft,
              child: Padding(
                padding: EdgeInsets.all(16),
                child: Icon(Icons.settings,
                  color: Colors.white, size: 28), // Settings
              ),
            ),
            Spacer(),
            Text(
              'zoom',
              style: TextStyle(fontSize: 40,

```

```
color: Colors.white, fontWeight:  
      FontWeight.bold),  
    ),  
  Text(  
    'Workplace',  
    style: TextStyle(fontSize: 28,  
      color: Colors.white),  
    ),  
  Spacer(),  
  Container(  
    width: double.infinity,  
    padding:  
      EdgeInsets.symmetric(horizontal: 20,  
        vertical: 30),  
    decoration: BoxDecoration(  
      color: Colors.white,  
      borderRadius:  
        BorderRadius.only(topLeft:  
          Radius.circular(30), topRight:  
          Radius.circular(30)),  
      boxShadow:  
        [BoxShadow(color: Colors.black12,  
          spreadRadius: 1, blurRadius: 10)],  
    ),  
    child: Column(  
      mainAxisSize:  
        MainAxisSize.min,  
      children: [  
        Text('Welcome', style:  
          TextStyle(fontSize: 24, fontWeight:  
            FontWeight.bold)),  
        SizedBox(height: 5),  
        Text('Get started with your  
          account', style: TextStyle(fontSize: 16,  
            color: Colors.grey)),  
        SizedBox(height: 30),  
        _buildButton(context, 'Join  
          a meeting', Colors.blue, Colors.white,  
          () {}),  
        SizedBox(height: 15),  
        _buildButton(context, 'Sign  
          up', Colors.grey.shade300,  
          Colors.black, () {  
            Navigator.pushNamed(context,  
              '/signup');  
          }),  
        SizedBox(height: 10),  
        _buildButton(context, 'Sign  
          in', Colors.grey.shade300,  
          Colors.black, () {
```

```
Navigator.pushNamed(context,  
  '/login');  
},  
],  
,  
,  
],  
,  
);  
}  
  
Widget _buildButton(BuildContext  
context, String text, Color bgColor,  
Color textColor, VoidCallback  
onPressed) {  
  return SizedBox(  
    width: double.infinity,  
    child: ElevatedButton(  
      onPressed: onPressed,  
      style: ElevatedButton.styleFrom(  
        backgroundColor: bgColor,  
        padding:  
        EdgeInsets.symmetric(vertical: 15),  
        shape:  
        RoundedRectangleBorder(borderRadius:  
          BorderRadius.circular(10)),  
        child: Text(text, style:  
          TextStyle(fontSize: 18, color:  
            textColor)),  
      ),  
    );  
}  
  
new_meeting_page:  
import 'dart:math';  
import 'package:flutter/material.dart';  
  
class NewMeetingPage extends  
StatefulWidget {  
  @override  
  _NewMeetingPageState  
  createState() =>  
  _NewMeetingPageState();  
}  
  
class _NewMeetingPageState extends  
State<NewMeetingPage> {  
  String meetingId = "";  
  int selectedDuration = 30; // Default  
duration in minutes
```

```
@override
void initState() {
    super.initState();
    meetingId = _generateMeetingId();
}

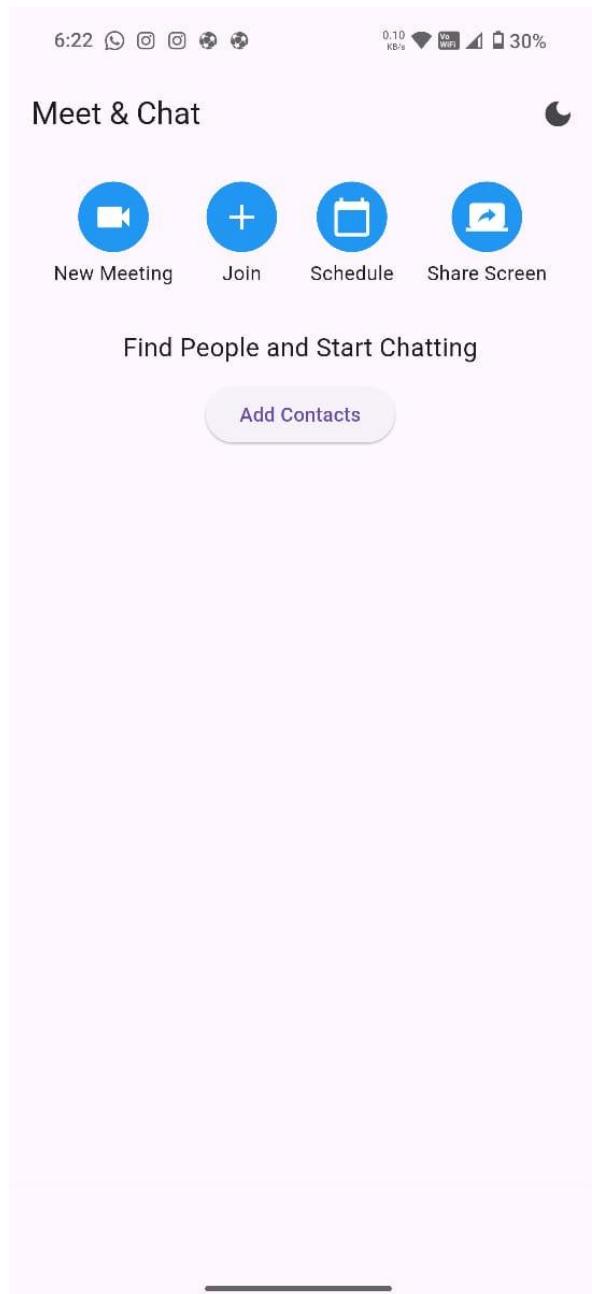
String _generateMeetingId() {
    return (Random().nextInt(900000) +
100000).toString(); // 6-digit Meeting
ID
}

void _createMeeting() {
    ScaffoldMessenger.of(context).showS
nackBar(
    SnackBar(content: Text("Meeting
Created: $meetingId\nDuration:
$selectedDuration mins")),
);
    Navigator.pop(context);
}

@override
Widget build(BuildContext context) {
    return Scaffold(
        appBar: AppBar(title: Text("New
Meeting")),
        body: Center( // Centers the
content
            child: Padding(
                padding: EdgeInsets.all(20),
                child: Column(
                    mainAxisAlignment:
MainAxisSize.min,
                    crossAxisAlignment:
CrossAxisAlignment.center, // Aligns
items in center
                    children: [
                        Container(
                            padding: EdgeInsets.all(15),
                            decoration: BoxDecoration(
                                color: Colors.blue.shade50,
                                borderRadius:
BorderRadius.circular(10),
                            ),
                        ),
                        child: Column(
                            children: [
                                Text("Generated Meeting
ID", style: TextStyle(fontSize: 16,
fontWeight: FontWeight.bold)),
                            ],
                        ),
                    ],
                ),
            ),
        ),
    );
}
```

```
SizedBox(height: 8),  
SelectableText(meetingId,  
style: TextStyle(fontSize: 20,  
fontWeight: FontWeight.bold, color:  
Colors.blue)),  
],  
,  
,  
SizedBox(height: 20),  
Text("Select Duration  
(minutes)", style: TextStyle(fontSize:  
16)),  
DropdownButton<int>(  
value: selectedDuration,  
items: [15, 30, 45,  
60].map((duration) {  
return  
DropdownMenuItem<int>(  
value: duration,  
child: Text("$duration  
mins"),  
);  
}).toList(),  
onChanged: (value) =>  
setState(() => selectedDuration =  
value!),  
),  
ElevatedButton(  
 onPressed: _createMeeting,  
style:  
ElevatedButton.styleFrom(  
padding:  
EdgeInsets.symmetric(vertical: 12,  
horizontal: 30),  
shape:  
RoundedRectangleBorder(borderRadii:  
us: BorderRadius.circular(10)),  
,  
child: Text("Create Meeting",  
style: TextStyle(fontSize: 18)),  
,  
],  
,  
),  
},  
);  
}  
};
```

Output



6:24 0.00 KB/s 30%

← Schedule Meeting

Meeting Title

Starts: 2025-03-04 06:24:10.491243 at 

Select Time 

Require Meeting Passcode 

Enable Waiting Room 

Schedule

6:24 0.07 KB/s 30%

← New Meeting

Generated Meeting ID

407606

Select Duration (minutes)

30 mins ▾

Create Meeting

Create Account

 Full Name

 Age

 Email

 Password

Sign Up

Welcome Back

 Email

 Password

Login