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<u>**MPL EXPT 5**</u>

AIM:
To apply navigation, routing and gestures in Flutter App

THEORY:
Navigation:
Movement between different screens or pages in a Flutter app.
Achieved using widgets like Navigator or MaterialApp.
Triggered by user actions like tapping buttons or selecting items.

Gesture:
User's physical interaction with the touchscreen, like tapping or swiping.
Detected using widgets like GestureDetector.
Used to capture user input and trigger actions or events.

Routing:
Defines and manages navigation paths within the app.
Done using Navigator widget and routes parameter of MaterialApp.
Maps routes to screens or widgets, facilitating structured navigation.

SYNTAX:
Navigation:
```
Navigator.push(
  context,
  MaterialPageRoute(builder: (context) => NextScreen()),
);
```

Routing:
```
MaterialApp(
  routes: {
    '/next': (context) => NextScreen(),
  },
  // Main app content
);
```

Gestures:
```
GestureDetector(
  onTap: () {
    // Handle tap gesture
  },
  child: Container(
```

```
    // Widget content
  ),
);
```

WIDGET AND PROPERTIES:

In this experiment we have focussed on the navigation, gesture and routing widgets and we are using various properties like onpressed, pushnamed, etc.

CODE:

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

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

class MyApp extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    return MaterialApp(
      theme: ThemeData.dark(),
      home: LoginPage(),
      routes: {
        '/profile': (context) =>
            const ProfilePage(), // Route to the profile page
        '/edit_profile': (context) =>
            ChangePasswordPage(), // Route to the password page
      },
    );
  }
}

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

  @override
  Widget build(BuildContext context) {
    return Scaffold(
      body: Padding(
        padding: const EdgeInsets.all(20.0),
```

```
child: Column(
  mainAxisAlignment: MainAxisAlignment.center,
  children: [
    Image.asset(
      'assets/Xicon.png', // Replace with your logo image path
      height: 100,
      width: 100,
    ),
    const SizedBox(height: 20),
    const TextField(
      decoration: InputDecoration(
        labelText: 'Username',
        prefixIcon: Icon(Icons.person),
      ),
    ),
    const SizedBox(height: 10),
    const TextField(
      decoration: InputDecoration(
        labelText: 'Password',
        prefixIcon: Icon(Icons.lock),
      ),
      obscureText: true,
    ),
    const SizedBox(height: 20),
    TextButton(
      onPressed: () {
        Navigator.pushNamed(
            context, '/profile'); // Navigate to profile page
      },
      child: const Text('Sign In'),
    ),
    const SizedBox(height: 10),
    Row(
      mainAxisAlignment: MainAxisAlignment.center,
      children: [
        const Text('Don\'t have an account?'),
        const SizedBox(width: 5),
        TextButton(
          onPressed: () {
```

```dart
                        // Navigate to the sign-up page (not implemented in
this example)
                      },
                      child: const Text('Sign Up'),
                    ),
                  ],
                ),
                const SizedBox(height: 10),
                const Text('Or sign in with'),
                const SizedBox(height: 10),
                Row(
                  mainAxisAlignment: MainAxisAlignment.center,
                  children: [
                    const SizedBox(width: 10),
                    IconButton(
                      icon: const FaIcon(FontAwesomeIcons.facebook),
                      onPressed: () {},
                    ),
                  ],
                ),
              ],
            ),
          ),
        );
    }
}

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

  @override
  Widget build(BuildContext context) {
    return Scaffold(
      appBar: AppBar(
        title: const Text('Profile Page'),
      ),
      drawer: Drawer(
        child: ListView(
          padding: EdgeInsets.zero,
```

```dart
          children: [
            const UserAccountsDrawerHeader(
              accountName: Text('Shravani'), // Replace with actual
username
              accountEmail: null,
              currentAccountPicture: CircleAvatar(
                backgroundImage: NetworkImage(

'https://resize.indiatvnews.com/en/resize/newbucket/1080_-/2023/06/untitle
d-design-2023-06-20t120715-1687246152.jpg',
                ),
              ),
              decoration: BoxDecoration(
                color: Color.fromARGB(255, 52, 52, 52),
              ),
            ),
            ListTile(
              title: const Text('Profile'),
              onTap: () {
                Navigator.pop(context);
              },
            ),
            ListTile(
              title: const Text('Edit Profile'),
              onTap: () {
                Navigator.pop(context);
                Navigator.pushNamed(
                    context, '/edit_profile'); // Navigate to password
page
              },
            ),
          ],
        ),
      ),
      body: Column(
        crossAxisAlignment: CrossAxisAlignment.stretch,
        children: [
          // Header image
          Container(
```

```dart
            height: 170,
            decoration: const BoxDecoration(
              image: DecorationImage(
                image: NetworkImage(

'https://images.shiksha.com/mediadata/images/1553752427phpvP6G9K.png',
                ),
                fit: BoxFit.cover,
              ),
            ),
            child: const Stack(
              children: [
                // Profile picture overlapping header image
                Positioned(
                  top: 100,
                  left: 20,
                  child: CircleAvatar(
                    radius: 50,
                    backgroundImage: NetworkImage(

'https://resize.indiatvnews.com/en/resize/newbucket/1080_-/2023/06/untitle
d-design-2023-06-20t120715-1687246152.jpg',
                    ),
                  ),
                ),
              ],
            ),
          ),
          // Bio container
          Container(
            padding: const EdgeInsets.all(20),
            height: 250,
            child: const Column(
              crossAxisAlignment: CrossAxisAlignment.start,
              children: [
                Row(
                  children: [
                    Icon(Icons.account_circle),
                    SizedBox(width: 10),
```

```dart
                    Text(
                      'Shravani',
                      style:
                          TextStyle(fontSize: 24, fontWeight:
FontWeight.bold),
                    ),
                  ],
                ),
                SizedBox(height: 10),
                Row(
                  children: [
                    Icon(Icons.info),
                    SizedBox(width: 10),
                    Expanded(
                      child: Text(
                        'My flutter project',
                        style: TextStyle(fontSize: 16),
                      ),
                    ),
                  ],
                ),
                SizedBox(height: 10),
                Row(
                  children: [
                    Icon(Icons.location_on),
                    SizedBox(width: 10),
                    Text(
                      'Chembur',
                      style: TextStyle(fontSize: 16),
                    ),
                  ],
                ),
                SizedBox(height: 10),
                Row(
                  children: [
                    Icon(FontAwesomeIcons.birthdayCake),
                    SizedBox(width: 10),
                    Text(
                      'Born 1 Aug 2003',
```

```dart
                    style: TextStyle(fontSize: 16),
                  ),
                  SizedBox(width: 20), // Adjust the width as needed
                  Icon(FontAwesomeIcons.calendarAlt),
                  SizedBox(width: 10),
                  Text(
                    'Joined 1 Feb 2024',
                    style: TextStyle(fontSize: 16),
                  ),
                ],
              ),
            ],
          ),
        ),
        // Tweets
        Expanded(
          child: ListView.builder(
            itemCount: 10, // Number of tweets
            itemBuilder: (context, index) {
              return Card(
                margin: const EdgeInsets.symmetric(
                    horizontal: 10,
                    vertical: 10), // Increased vertical margin
                elevation: 3, // Adds a shadow
                child: ListTile(
                  title: Text('Tweet $index'),
                  subtitle: Text(
                      'Date: ${DateTime.now().toString()}'), // Example
of displaying date, replace with actual tweet date
                ),
              );
            },
          ),
        ),
      ],
    ),
  );
  }
}
```

```dart
// class PasswordPage extends StatelessWidget {
//   const PasswordPage({Key? key}) : super(key: key);

//   @override
//   Widget build(BuildContext context) {
//     return Scaffold(
//       appBar: AppBar(
//         title: const Text('Password Page'),
//       ),
//       body: Center(
//         child: Text('Password Page'),
//       ),
//     );
//   }
// }

class ChangePasswordPage extends StatefulWidget {
  @override
  _ChangePasswordPageState createState() => _ChangePasswordPageState();
}

class _ChangePasswordPageState extends State<ChangePasswordPage> {
  final GlobalKey<FormState> _formKey = GlobalKey<FormState>();
  TextEditingController _passwordController = TextEditingController();
  TextEditingController _confirmPasswordController =
TextEditingController();

  @override
  Widget build(BuildContext context) {
    return Scaffold(
      appBar: AppBar(
        title: Text('Change Password'),
      ),
      body: Padding(
        padding: const EdgeInsets.all(20.0),
        child: Form(
          key: _formKey,
          child: Column(
```
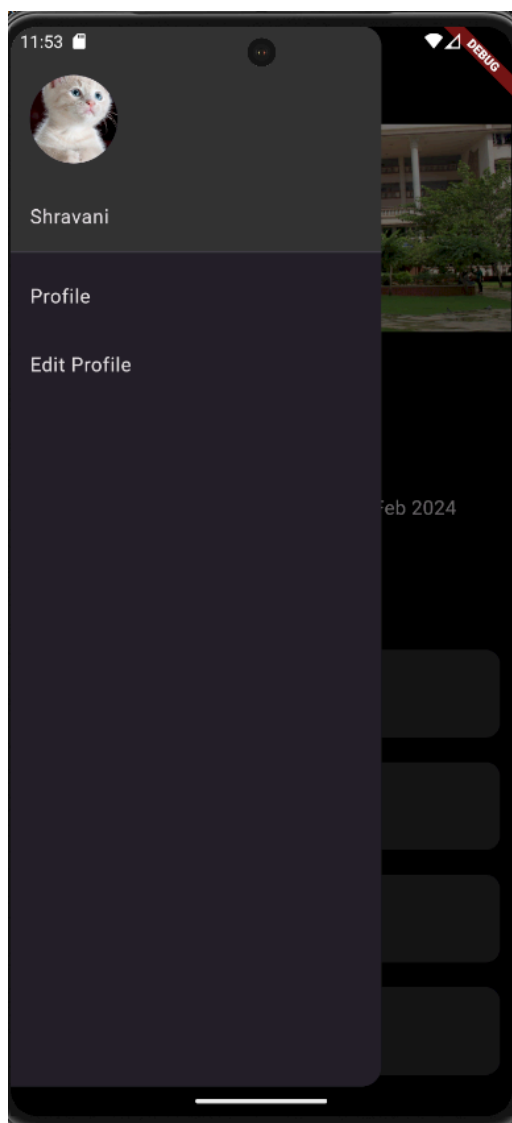
```dart
        crossAxisAlignment: CrossAxisAlignment.start,
        children: [
          TextFormField(
            controller: _passwordController,
            decoration: InputDecoration(
              labelText: 'New Password',
            ),
            validator: (value) {
              if (value!.isEmpty) {
                return 'Password is required';
              }
              if (value.length < 8) {
                return 'Password must be at least 8 characters';
              }
              if (!value.contains(RegExp(r'[!@#$%^&*(),.?":{}|<>]')))
{
                return 'Password must contain at least one symbol';
              }
              return null;
            },
          ),
          SizedBox(height: 20),
          TextFormField(
            controller: _confirmPasswordController,
            decoration: InputDecoration(
              labelText: 'Confirm Password',
            ),
            validator: (value) {
              if (value != _passwordController.text) {
                return 'Passwords do not match';
              }
              return null;
            },
          ),
          SizedBox(height: 20),
          ElevatedButton(
            onPressed: () {
              if (_formKey.currentState!.validate()) {
                Navigator.pushNamed(context, '/password');
```

```dart
                      ScaffoldMessenger.of(context).showSnackBar(
                        SnackBar(
                          content: Text('Password changed successfully.'),
                        ),
                      );
                    }
                  },
                  child: Text('Change Password'),
                ),
              ],
            ),
          ),
        ),
      );
    }

    @override
    void dispose() {
      _passwordController.dispose();
      _confirmPasswordController.dispose();
      super.dispose();
    }
  }
```

OUTPUT:

Clicking on any of these options would navigate to those pages. We have used router, navigation and gestures in this

CONCLUSION:
Learned about navigation, routing and gestures.