

EXP 5

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

THEORY:

Navigation: In Flutter, navigation refers to the ability to move between different screens or "routes" within your app. Flutter provides a Navigator class which manages a stack of Route objects. Each route typically corresponds to a different screen or page in your app. You can push new routes onto the navigator's stack to navigate forward, and pop routes off the stack to navigate backward. Navigation can be triggered by user actions such as tapping on buttons or by programmatically invoking navigation methods.

Routing: Routing in Flutter involves defining the routes for different screens in your app and handling navigation between these routes. You can define routes using the MaterialApp widget's routes parameter, which maps route names to builder functions that create the corresponding screens. For example, you can define a route named "/home" that maps to a function that builds the home screen widget. When you want to navigate to a particular route, you use the Navigator to push that route onto the stack.

Gestures: Gestures in Flutter refer to user interactions such as tapping, swiping, dragging, pinching, etc. Flutter provides a rich set of widgets and classes for handling gestures, such as GestureDetector, InkWell, Draggable, Dismissible, etc. These widgets allow you to detect various types of gestures and respond to them accordingly. For exple, you can wrap a widget with a GestureDetector to detect taps and then perform some action in response to the tap event.

To apply these concepts in your Flutter app, you would typically do the following:

- Define the routes for different screens in your app using the MaterialApp widget's routes parameter.
- Implement navigation logic to navigate between screens using the Navigator class, either in response to user actions or programmatically.
- Use gesture detection widgets like GestureDetector to detect user gestures and trigger navigation or other actions in response to those gestures.

CODE:

```
//home.dart  
import 'package:discord/pages/login.dart';  
import 'package:flutter/material.dart';  
import 'package:discord/pages/sidebar.dart';  
import 'package:discord/pages/chatpage.dart';
```

```

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

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

class _HomePageState extends State<HomePage> {
  bool _isSidebarVisible = false;
  int _selectedIndex = 0;

  @override
  Widget build(BuildContext context) {
    return Scaffold(
      appBar: AppBar(
        backgroundColor: Colors.black,
        leading: GestureDetector(
          onTap: () {
            _toggleSidebarVisibility();
          },
          child: const Icon(Icons.menu),
        ),
        title: const Text('Home Page'),
      ),
      body: Row(
        children: [
          // Slim Sidebar
          Visibility(
            visible: _isSidebarVisible,
            child: Container(
              width: 80,
              color: Colors.grey[900],
              child: ListView(
                children: [
                  ChannelTile(imagePath: 'assets/images/profile_image1.jpg'),
                  ChannelTile(imagePath: 'assets/images/banner1.jpg'),
                  ChannelTile(imagePath: 'assets/images/profile_image.jpg'),
                  // Add more ChannelTiles as needed
                ],
              ),
            ),
          ],
        ),
      ),
    );
  }
}

```

```

    ),
  ),
),

// Main Content
Expanded(
  child: SingleChildScrollView(
    child: Column(
      children: [
        // Profile Banner Image
        Container(
          width: MediaQuery.of(context).size.width,
          height: 200,
          decoration: const BoxDecoration(
            image: DecorationImage(
              image: AssetImage('assets/images/banner1.jpg'),
              fit: BoxFit.cover,
            ),
          ),
        ),
        child: Stack(
          children: [
            Container(
              // Profile Image
              padding: const EdgeInsets.fromLTRB(10, 50, 10, 10),
              alignment: Alignment.bottomLeft,
              child: const CircleAvatar(
                backgroundImage:
                  AssetImage('assets/images/profile_image1.jpg'),
                radius: 40,
              ),
            ),
            // Settings Icon
            Positioned(
              top: 10,
              right: 10,
              child: Container(
                decoration: BoxDecoration(
                  color: Colors.grey[400],
                  shape: BoxShape.circle,
                ),
              ),
            ),
          ],
        ),
      ],
    ),
  ),
),

```

```

        child: IconButton(
          icon: const Icon(Icons.settings,
            color: Colors.white),
          onPressed: () {},
        ),
      ),
    ),
  ],
),
// Bio Section
Container(
  margin: const EdgeInsets.all(16.0),
  padding: const EdgeInsets.all(16.0),
  decoration: BoxDecoration(
    color: const Color.fromARGB(255, 39, 38, 38),
    borderRadius: BorderRadius.circular(10.0),
  ),
  alignment: Alignment.centerLeft,
  child: Column(
    crossAxisAlignment: CrossAxisAlignment.start,
    children: [
      const Text(
        'Susmita Santi',
        style: TextStyle(
          fontSize: 20,
          color: Colors.white,
          fontWeight: FontWeight.bold,
        ),
      ),
      const SizedBox(height: 4),
      const Text(
        'susmitasanti04',
        style: TextStyle(
          fontSize: 16,
          color: Colors.grey,
        ),
      ),
      const SizedBox(height: 10),
      const Text(

```

```

        'This is a short bio of myself. It like listening to music.',
        style: TextStyle(
          fontSize: 16,
          color: Colors.grey,
        ),
      ),
      const SizedBox(height: 10),
      Row(
        children: [
          Expanded(
            child: ElevatedButton.icon(
              onPressed: () {},
              icon: const Icon(Icons.edit),
              label: const Text('Edit Status'),
              style: ElevatedButton.styleFrom(
                backgroundColor: Colors.grey.shade300,
                foregroundColor: Colors.black,
              ),
            ),
          ),
          const SizedBox(width: 10),
          Expanded(
            child: ElevatedButton.icon(
              onPressed: () {},
              icon: const Icon(Icons.person),
              label: const Text('Edit Profile'),
              style: ElevatedButton.styleFrom(
                backgroundColor: Colors.grey.shade300,
                foregroundColor: Colors.black,
              ),
            ),
          ),
        ],
      ),
    ],
  ),
),
// About Me Section
Container(
  margin: const EdgeInsets.only(

```

```

        left: 16.0, right: 16.0, top: 8.0, bottom: 16.0),
padding: const EdgeInsets.all(16.0),
decoration: BoxDecoration(
  color: const Color.fromARGB(255, 39, 38, 38),
  borderRadius: BorderRadius.circular(10.0),
),
alignment: Alignment.centerLeft,
child: const Column(
  crossAxisAlignment: CrossAxisAlignment.start,
  children: [
    Text(
      'About Me',
      style: TextStyle(
        fontSize: 20,
        color: Colors.grey,
      ),
    ),
    SizedBox(height: 10),
    Text(
      'This is a short bio of myself. It like listening to music.',
      style: TextStyle(
        fontSize: 16,
        color: Colors.grey,
      ),
    ),
    SizedBox(height: 10),
  ],
),
),
// Picture and Its Description Section
Container(
  margin: const EdgeInsets.only(
    left: 16.0, right: 16.0, top: 8.0, bottom: 16.0),
padding: const EdgeInsets.all(16.0),
decoration: BoxDecoration(
  color: const Color.fromARGB(255, 39, 38, 38),
  borderRadius: BorderRadius.circular(10.0),
),
child: Row(
  crossAxisAlignment: CrossAxisAlignment.start,

```

```

children: [
  // Picture
  Container(
    width: 100.0,
    height: 100.0,
    decoration: BoxDecoration(
      image: const DecorationImage(
        image: AssetImage('assets/images/banner1.jpg'),
        fit: BoxFit.cover,
      ),
      borderRadius: BorderRadius.circular(8.0),
    ),
  ),

  const SizedBox(width: 16.0),

  // Picture Description
  const Expanded(
    child: Column(
      crossAxisAlignment: CrossAxisAlignment.start,
      children: [
        Text(
          'Picture Title',
          style: TextStyle(
            fontSize: 18.0,
            fontWeight: FontWeight.bold,
            color: Colors.white,
          ),
        ),
        SizedBox(height: 8.0),
        Text(
          'The description of Rose in the corresponding picture.',
          style: TextStyle(
            fontSize: 16.0,
            color: Colors.white,
          ),
        ),
      ],
    ),
  ),
],
),
),

```

```
    ],  
  ),  
),  
],  
),  
),  
),  
],  
),
```

```
  bottomNavigationBar: BottomNavigationBar(  
    type: BottomNavigationBarType.fixed,  
    backgroundColor: Colors.black87,  
    selectedItemColor: Colors.white,  
    unselectedItemColor: Colors.grey,  
    showSelectedLabels: false,  
    showUnselectedLabels: false,  
    currentIndex: _selectedIndex,  
    onTap: (index) {  
      // Handle page navigation based on index  
      _handlePageNavigation(index);  
    },  
    items: [  
      BottomNavigationBarItem(  
        icon: Icon(Icons.cloud),  
        label: 'Servers',  
      ),  
      BottomNavigationBarItem(  
        icon: Icon(Icons.message),  
        label: 'Messages',  
      ),  
      BottomNavigationBarItem(  
        icon: Icon(Icons.notifications),  
        label: 'Notifications',  
      ),  
      BottomNavigationBarItem(  
        icon: Icon(Icons.person),  
        label: 'You',  
      ),  
    ],  
  ),  
),
```



```
);  
}
```

```
void _handlePageNavigation(int index) {  
  setState(() {  
    _selectedIndex = index;  
  });
```

```
  // Navigate to the selected page  
  switch (_selectedIndex) {  
    case 1:  
      Navigator.push(  
        context,  
        MaterialPageRoute(builder: (context) => const ChatPage()),  
      );  
      break;
```

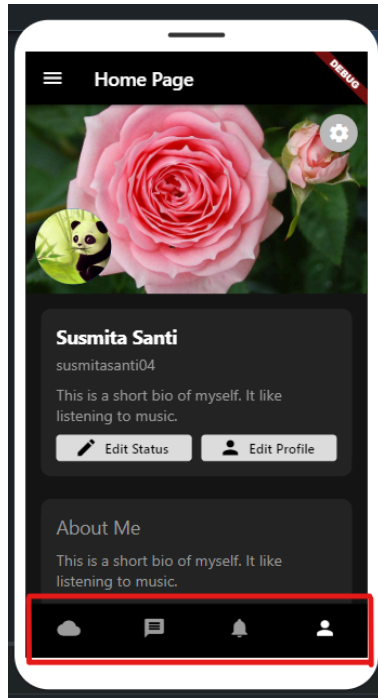
```
    case 3:  
      Navigator.push(  
        context,  
        MaterialPageRoute(builder: (context) => LoginPage()),  
      );  
      break;
```

```
    // Add cases for other pages if needed  
  }  
}
```

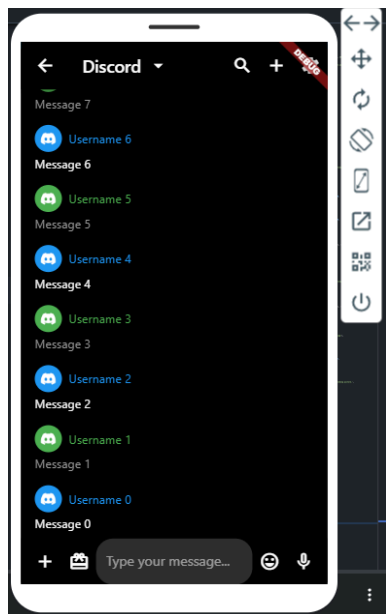
```
void _toggleSidebarVisibility() {  
  setState(() {  
    _isSidebarVisible = !_isSidebarVisible;  
  });  
}
```

SCREENSHOT:

Following is the Home Page:

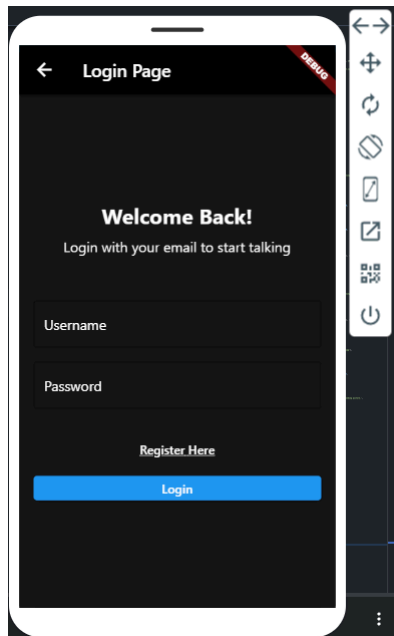


On selecting message icon, you get navigated to the following page:



On clicking Back Button, you go back to the Home Page.

Similarly, on selecting profile icon, you get navigated to the following page:



CONCLUSION:

In conclusion, navigation, routing, and gestures are essential aspects of building user-friendly and interactive Flutter apps