

## **MPL Practical 05**

**Aim:** To apply navigation, routing and gestures in Flutter App.

### **Theory:**

Navigation and routing are essential in Flutter applications to allow users to move between different screens. Flutter provides Navigator for managing screen transitions using push(), pop(), and pushNamed(). Named routes help in maintaining clean and structured navigation.

Gestures enhance user interaction by detecting taps, swipes, long presses, and double taps using the GestureDetector widget. This makes the app more user-friendly and dynamic.

### **Implementation in MedLink App**

In this experiment, we implemented:

- Named Routes for structured navigation between screens.
- Swipe Right Gesture to navigate back.
- Tap, Double Tap & Long Press gestures for interactive elements.
- Snackbar Feedback to provide real-time responses.

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### **lib/main.dart**

```
import 'package:flutter/material.dart';
import 'screens/home_screen.dart';
import 'screens/login_screen.dart';
import 'screens/signup_screen.dart';
import 'screens/symptom_checker.dart';
import 'screens/medicine_reminder.dart';
import 'screens/emergency_map.dart';
```

```
void main() {
  runApp(MedLinkApp());
}
```

```
class MedLinkApp extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    return MaterialApp(
      debugShowCheckedModeBanner: false,
      title: 'MedLink',
      theme: ThemeData(
```

```
    primaryColor: Color(0xFF007BFF),
    colorScheme: ColorScheme.light(
      primary: Color(0xFF007BFF),
      secondary: Color(0xFF20C997),
      background: Color(0xFFF5F5F5),
      surface: Colors.white,
    ),
    fontFamily: 'Montserrat',
  ),
  initialRoute: '/',
  routes: {
    '/': (context) => LoginScreen(),
    '/signup': (context) => SignupScreen(),
    '/home': (context) => HomeScreen(),
    '/symptom_checker': (context) => SymptomCheckerScreen(),
    '/medicine_reminder': (context) => MedicineReminderScreen(),
    '/emergency_map': (context) => EmergencyMapScreen(),
  },
);
}
```

### **lib/screens/home\_screen.dart**

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

class HomeScreen extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    return Scaffold(
      appBar: AppBar(
        leading: Icon(
          FontAwesomeIcons.stethoscope, // Use FontAwesome if it's the correct icon
          color: Colors.white,
        ),
        title: Text(
          'MedLink',
          style: TextStyle(
            fontFamily: 'Poppins',
            fontWeight: FontWeight.bold,

```

```
    ),
    ),
    backgroundColor: Theme.of(context).colorScheme.primary,
  ),
  body: GestureDetector(
    onHorizontalDragEnd: (details) {
      if (details.primaryVelocity! > 0) {
        Navigator.pop(context); // Swipe right to go back
      }
    },
    child: Padding(
      padding: const EdgeInsets.all(20.0),
      child: GridView.count(
        crossAxisCount: 2,
        crossAxisSpacing: 16,
        mainAxisSpacing: 16,
        children: [
          FeatureTile(
            title: 'Symptom Checker',
            icon: FontAwesomeIcons.diagnoses,
            color: Theme.of(context).colorScheme.primary,
            route: '/symptom_checker',
          ),
          FeatureTile(
            title: 'Medicine Reminder',
            icon: FontAwesomeIcons.pills,
            color: Theme.of(context).colorScheme.secondary,
            route: '/medicine_reminder',
          ),
          FeatureTile(
            title: 'Emergency Map',
            icon: FontAwesomeIcons.mapMarkedAlt,
            color: Color(0xFFFFF6B6B),
            route: '/emergency_map',
          ),
        ],
      ),
    ),
  );
```

```
}  
}
```

```
class FeatureTile extends StatelessWidget {  
  final String title;  
  final IconData icon;  
  final Color color;  
  final String route;  
  
  const FeatureTile({  
    required this.title,  
    required this.icon,  
    required this.color,  
    required this.route,  
  });  
  
  @override  
  Widget build(BuildContext context) {  
    return GestureDetector(  
      onTap: () {  
        Navigator.pushNamed(context, route);  
      },  
      child: Container(  
        decoration: BoxDecoration(  
          color: Colors.white,  
          borderRadius: BorderRadius.circular(16),  
          boxShadow: [  
            BoxShadow(  
              color: Colors.black.withOpacity(0.05),  
              blurRadius: 10,  
              offset: Offset(0, 4),  
            ),  
          ],  
        ),  
        child: Column(  
          mainAxisAlignment: MainAxisAlignment.center,  
          children: [  
            Icon(  
              icon,  
              size: 40,
```

```
        color: color,
      ),
      SizedBox(height: 12),
      Text(
        title,
        style: TextStyle(
          fontFamily: 'Montserrat',
          fontWeight: FontWeight.w600,
          fontSize: 14,
        ),
        textAlign: TextAlign.center,
      ),
    ],
  ),
);
}
```

**lib/screens/symptom\_checker.dart**

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

```
class SymptomCheckerScreen extends StatefulWidget {
  @override
  _SymptomCheckerScreenState createState() => _SymptomCheckerScreenState();
}
```

```
class _SymptomCheckerScreenState extends State<SymptomCheckerScreen> {
  final List<String> commonSymptoms = [
    'Headache',
    'Fever',
    'Cough',
    'Sore Throat',
    'Fatigue',
    'Shortness of Breath',
    'Nausea'
  ];
```

```
  final List<bool> selectedSymptoms = List.filled(7, false);
```

```
@override
Widget build(BuildContext context) {
  return WillPopScope(
    onWillPop: () async {
      Navigator.of(context).pushReplacementNamed('/home');
      return false;
    },
    child: Scaffold(
      appBar: AppBar(
        leading: BackButton(
          color: Colors.white, // Ensure it's visible
          onPressed: () {
            Navigator.of(context).pushReplacementNamed('/home');
          },
        ),
        title: Text(
          'Symptom Checker',
          style: TextStyle(
            color: Colors.white,
            fontWeight: FontWeight.bold,
          ),
        ),
        backgroundColor: Color(0xFF007BFF),
      ),
      body: SingleChildScrollView(
        child: Padding(
          padding: const EdgeInsets.all(16.0),
          child: Column(
            crossAxisAlignment: CrossAxisAlignment.start,
            children: [
              // Header with image
              Center(
                child: Column(
                  children: [
                    GestureDetector(
                      onDoubleTap: () {
                        _showHint(context);
                      },
                    child: Container(
                      height: 180,
```

```
        width: 280,
        decoration: BoxDecoration(
          color: Colors.grey.shade100,
          borderRadius: BorderRadius.circular(12),
        ),
        child: Image.asset(
          'assets/images/symptom_checker.png',
          fit: BoxFit.contain,
        ),
      ),
    ),
    SizedBox(height: 24),
    Text(
      'How are you feeling today?',
      style: TextStyle(
        fontFamily: 'Poppins',
        fontSize: 22,
        fontWeight: FontWeight.bold,
        color: Color(0xFF007BFF),
      ),
    ),
    SizedBox(height: 12),
    Text(
      'Select your symptoms below',
      style: TextStyle(
        fontFamily: 'Montserrat',
        fontSize: 16,
        color: Colors.grey[600],
      ),
    ),
  ],
),
),
SizedBox(height: 32),

// Symptoms list
Container(
  padding: EdgeInsets.symmetric(vertical: 8, horizontal: 4),
  child: Text(
```

```

        'Common Symptoms',
        style: TextStyle(
          fontFamily: 'Poppins',
          fontSize: 20,
          fontWeight: FontWeight.w600,
        ),
      ),
    ),
  ),
  SizedBox(height: 8),
  Container(
    decoration: BoxDecoration(
      color: Colors.white,
      borderRadius: BorderRadius.circular(12),
      boxShadow: [
        BoxShadow(
          color: Colors.grey.withOpacity(0.1),
          spreadRadius: 1,
          blurRadius: 2,
          offset: Offset(0, 1),
        ),
      ],
    ),
  ),
  child: ListView.separated(
    shrinkWrap: true,
    physics: NeverScrollableScrollPhysics(),
    itemCount: commonSymptoms.length,
    separatorBuilder: (context, index) => Divider(height: 1),
    itemBuilder: (context, index) {
      return GestureDetector(
        onLongPress: () {
          ScaffoldMessenger.of(context).showSnackBar(
            SnackBar(
              content: Text('Symptom: ${commonSymptoms[index]}'),
              duration: Duration(seconds: 2),
            ),
          );
        },
        child: CheckboxListTile(
          title: Text(

```



```
commonSymptoms[index],  
    style: TextStyle(  
      fontFamily: 'Montserrat',  
      fontSize: 16,  
      fontWeight: FontWeight.w500,  
    ),  
  ),  
  value: selectedSymptoms[index],  
  activeColor: Color(0xFF007BFF),  
  checkColor: Colors.white,  
  onChanged: (bool? value) {  
    setState() {  
      selectedSymptoms[index] = value ?? false;  
    };  
  },  
),  
);  
},  
),  
),  
  
SizedBox(height: 36),  
  
// Check button  
Center(  
  child: ElevatedButton(  
    onPressed: () {  
      _showResultDialog(context);  
    },  
    style: ElevatedButton.styleFrom(  
      backgroundColor: Color(0xFF007BFF),  
      foregroundColor: Colors.white,  
      elevation: 2,  
      shape: RoundedRectangleBorder(  
        borderRadius: BorderRadius.circular(10),  
      ),  
      padding: EdgeInsets.symmetric(horizontal: 32, vertical: 16),  
    ),  
    child: Text(  
      'Check Symptoms',
```

```
        style: TextStyle(
          fontFamily: 'Montserrat',
          fontSize: 16,
          fontWeight: FontWeight.bold,
        ),
      ),
    ),
  ],
),
),
),
);
}
```

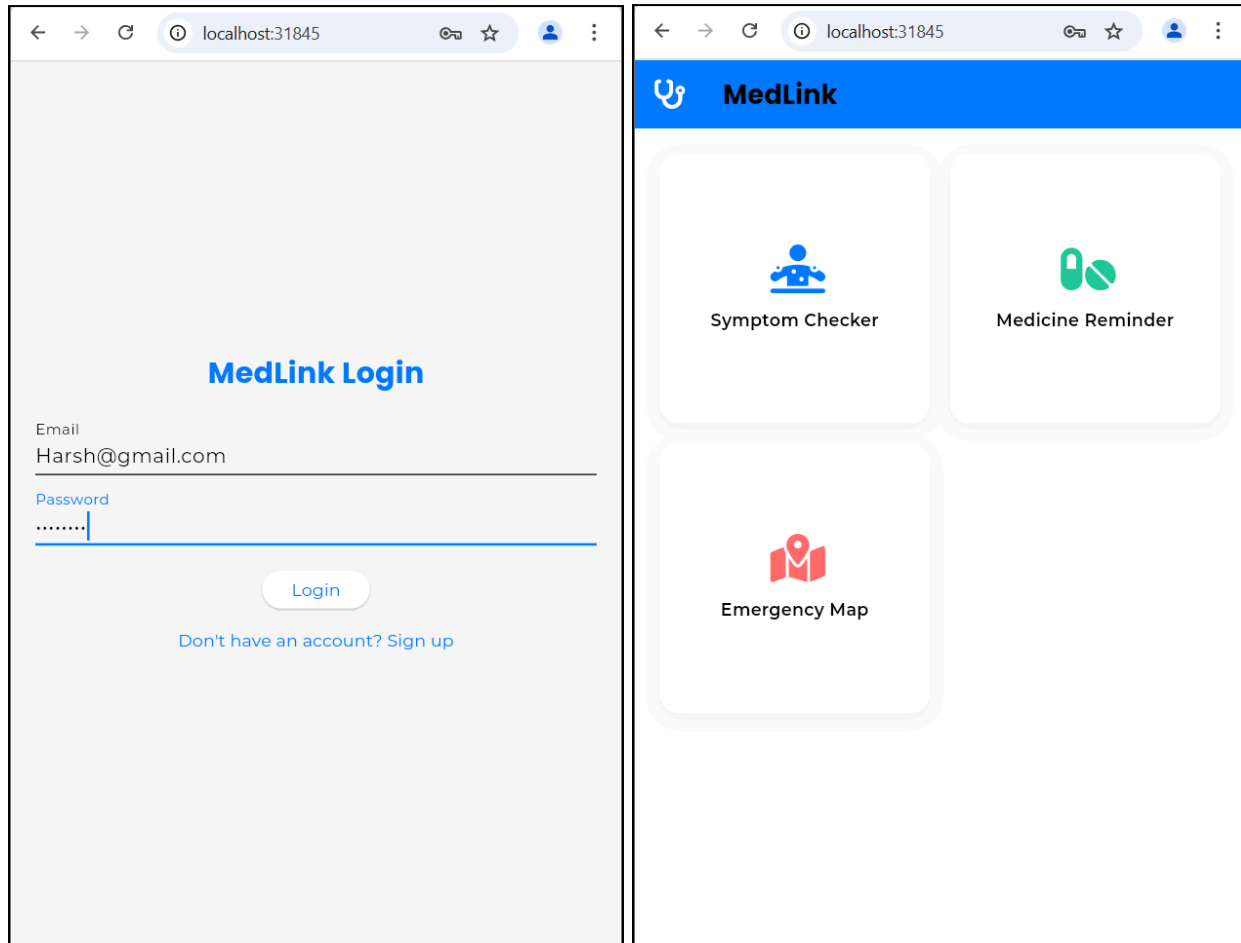
```
void _showResultDialog(BuildContext context) {
  showDialog(
    context: context,
    builder: (BuildContext context) {
      return AlertDialog(
        shape: RoundedRectangleBorder(
          borderRadius: BorderRadius.circular(16),
        ),
        title: Row(
          children: [
            Icon(
              Icons.health_and_safety,
              color: Color(0xFF007BFF),
              size: 28,
            ),
            SizedBox(width: 12),
            Text(
              'Analysis Result',
              style: TextStyle(
                fontFamily: 'Poppins',
                fontWeight: FontWeight.bold,
                fontSize: 20,
                color: Color(0xFF007BFF),
              ),
            ),
          ],
        ),
      );
    },
  );
}
```

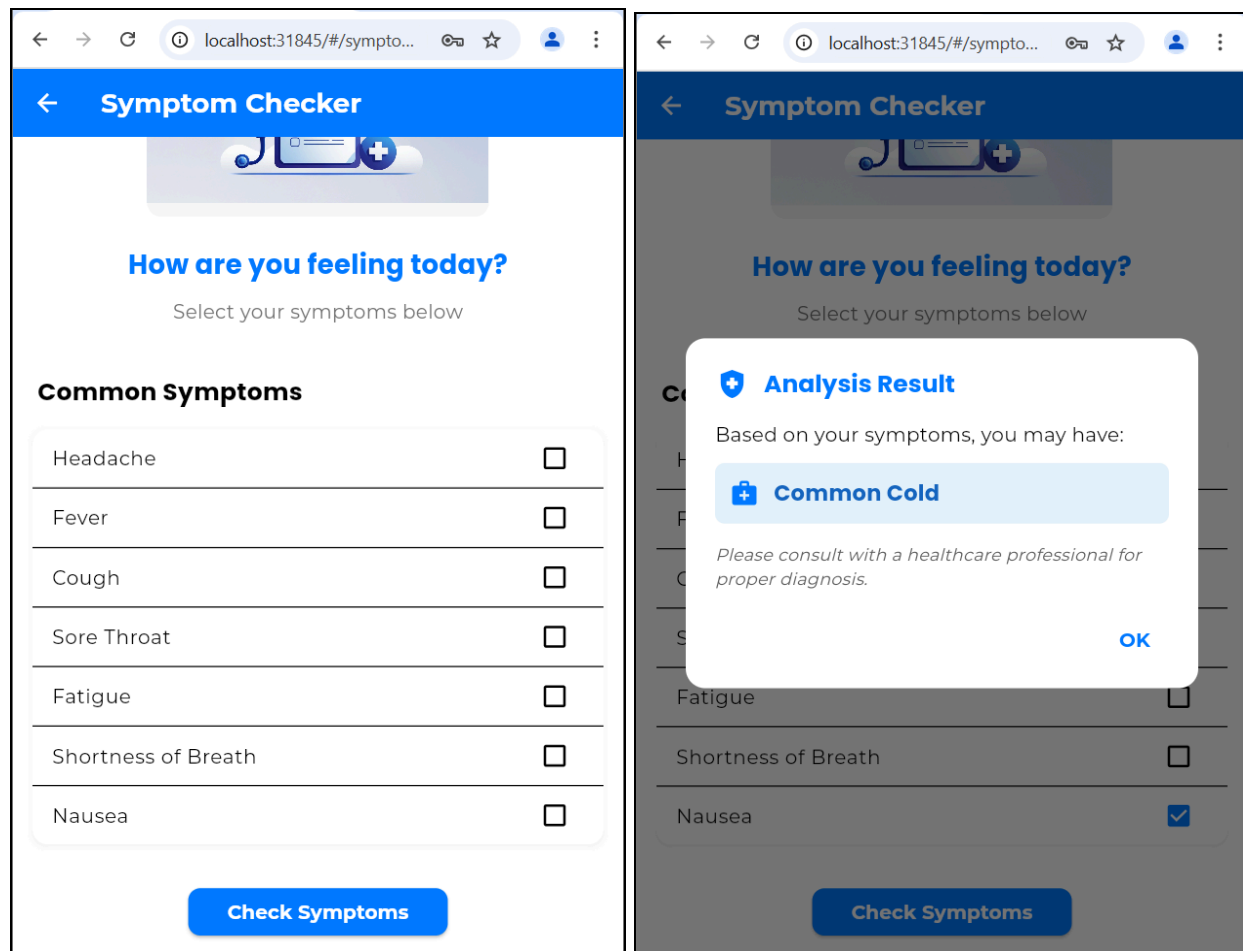
```
    ),  
  ],  
),  
content: Column(  
  mainAxisAlignment: MainAxisAlignment.min,  
  crossAxisAlignment: CrossAxisAlignment.start,  
  children: [  
    Text(  
      'Based on your symptoms, you may have:',  
      style: TextStyle(  
        fontFamily: 'Montserrat',  
        fontWeight: FontWeight.w500,  
        fontSize: 16,  
      ),  
    ),  
    SizedBox(height: 12),  
    Container(  
      padding: EdgeInsets.all(12),  
      decoration: BoxDecoration(  
        color: Colors.blue.shade50,  
        borderRadius: BorderRadius.circular(8),  
      ),  
      child: Row(  
        children: [  
          Icon(Icons.medical_services, color: Color(0xFF007BFF)),  
          SizedBox(width: 12),  
          Expanded(  
            child: Text(  
              'Common Cold',  
              style: TextStyle(  
                fontFamily: 'Poppins',  
                fontWeight: FontWeight.w600,  
                fontSize: 18,  
                color: Colors.blue.shade800,  
              ),  
            ),  
          ),  
        ],  
      ),  
    ),  
  ],  
),  
),
```

```
        SizedBox(height: 16),
        Text(
          'Please consult with a healthcare professional for proper diagnosis.',
          style: TextStyle(
            fontFamily: 'Montserrat',
            fontStyle: FontStyle.italic,
            color: Colors.grey.shade700,
          ),
        ),
      ],
    ),
    actions: [
      TextButton(
        style: TextButton.styleFrom(
          foregroundColor: Color(0xFF007BFF),
        ),
        child: Text(
          'OK',
          style: TextStyle(
            fontFamily: 'Montserrat',
            fontWeight: FontWeight.bold,
            fontSize: 16,
          ),
        ),
        onPressed: () {
          Navigator.of(context).pop();
        },
      ),
    ],
  );
}
```

```
void _showHint(BuildContext context) {
  ScaffoldMessenger.of(context).showSnackBar(
    SnackBar(
      content: Text('Double-tap on the image for a health tip!'),
      duration: Duration(seconds: 2),
      backgroundColor: Color(0xFF007BFF),
    ),
  );
}
```

```
),  
);  
}  
}
```





## Conclusion

In this experiment, we successfully implemented named routes, swipe gestures for navigation, and tap interactions to enhance user experience in the MedLink app. Initially, we faced issues with gesture detection conflicts and incorrect route navigation, but we resolved them by properly handling GestureDetector callbacks and using structured named routes for smooth transitions.