

## **EXPERIMENT NO:05**

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

### **Theory:**

#### **Navigation, Routing, and Gestures in Flutter App Development**

Flutter provides a powerful and flexible way to manage navigation, routing, and user gestures in mobile applications. Understanding these concepts is crucial for creating smooth, user-friendly, and efficient applications. Below is a detailed explanation of each aspect

#### **Navigation in Flutter**

Navigation in Flutter refers to moving from one screen (or page) to another within the application. Flutter uses the concept of a **Navigator** and **Routes** to handle navigation.

#### **Navigator Class**

Flutter provides various methods for navigation:

The Navigator class manages a stack of routes (screens) and allows transitioning between them. Flutter uses a stack-based approach where each new screen is pushed onto the stack, and when you go back, it is popped from the stack.

#### **Basic Navigation Methods**

- **push():** Adds a new route to the navigation stack.
- **pop():** Removes the current route and returns to the previous screen.
- **pushReplacement():** Replaces the current route with a new route.
- **pushAndRemoveUntil():** Pushes a new route and removes all previous routes until a condition is met.

Code :

### Login page:

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

class LoginPage extends StatelessWidget {
  final TextEditingController mobileController = TextEditingController();

  @override
  Widget build(BuildContext context) {
    return Scaffold(
      backgroundColor: Colors.white,
      body: SafeArea(
        child: Column(
          children: [
            // Full Banner Section with Image
            Container(
              width: double.infinity,
              height: 200,
              decoration: BoxDecoration(
                gradient: LinearGradient(
                  colors: [Colors.yellow.shade100, Colors.pink.shade100],
                  begin: Alignment.topLeft,
                  end: Alignment.bottomRight,
                ),
              ),
            ),
            child: Image.asset(
              'assets/images/shopping_cart.png', // Replace with your image
              fit: BoxFit.cover, // Ensures the image covers the entire container
            ),
          ],
        ),

        const SizedBox(height: 20),

        // Login or Signup Text
        Padding(
          padding: const EdgeInsets.symmetric(horizontal: 16.0),
          child: Row(
            children: [
              Text(
                "Login ",
                style: TextStyle(
                  fontSize: 18,
                  fontWeight: FontWeight.bold,
                  color: Colors.black,
                ),
              ),
              Text(
                "or Signup",
                style: TextStyle(
                  fontSize: 18,
                  color: Colors.black54,
                ),
              ),
            ],
          ),
        ),
      ),
    );
  }
}
```

```

const SizedBox(height: 20),

// Input Field
Padding(
  padding: const EdgeInsets.symmetric(horizontal: 16.0),
  child: TextField(
    controller: mobileController,
    keyboardType: TextInputType.phone,
    decoration: InputDecoration(
      hintText: "Mobile Number",
      hintStyle: TextStyle(color: Colors.grey),
      border: OutlineInputBorder(
        borderRadius: BorderRadius.circular(8),
      ),
      focusedBorder: OutlineInputBorder(
        borderRadius: BorderRadius.circular(8),
        borderSide: BorderSide(
          color: Colors.pink.shade300,
          width: 2,
        ),
      ),
    ),
    contentPadding: const EdgeInsets.symmetric(horizontal: 16),
  ),
),
),
),
),

```

```

const SizedBox(height: 20),

// Continue Button
Padding(
  padding: const EdgeInsets.symmetric(horizontal: 16.0),
  child: SizedBox(
    width: double.infinity,
    child: ElevatedButton(
      onPressed: () {
        // Navigate to Home Page
        Navigator.pushNamed(context, '/home');
      },
      style: ElevatedButton.styleFrom(
        backgroundColor: Colors.pink.shade300,
        padding: const EdgeInsets.symmetric(vertical: 16),
        shape: RoundedRectangleBorder(
          borderRadius: BorderRadius.circular(8),
        ),
      ),
      child: Text(
        "CONTINUE",
        style: TextStyle(
          fontSize: 16,
          color: Colors.white,
          fontWeight: FontWeight.bold,
        ),
      ),
    ),
  ),
),
),
),
),
),

```

```

const SizedBox(height: 20),

// Don't have an account? Sign up

```

```

Row(
  mainAxisAlignment: MainAxisAlignment.center,
  children: [
    Text(
      "Don't have an account? ",
      style: TextStyle(color: Colors.black54),
    ),
    GestureDetector(
      onTap: () {
        // Navigate to Sign Up Page
        Navigator.pushNamed(context, '/signup');
      },
      child: Text(
        "Sign up",
        style: TextStyle(
          color: Colors.pink.shade300,
          fontWeight: FontWeight.bold,
        ),
      ),
    ),
  ],
),
],
),
],
),
),
);
}
}

```

**On click on login button it navigates to Home Page**

**Home Page:**

```

import 'package:flutter/material.dart';

class HomePage extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    return Scaffold(
      backgroundColor: Colors.white,
      appBar: AppBar(
        backgroundColor: Colors.white,
        elevation: 0,
        title: Row(
          children: [
            Text(
              "Myntra",
              style: TextStyle(
                fontWeight: FontWeight.bold,
                color: Colors.black,
              ),
            ),
            Spacer(),
            Text(
              "BECOME INSIDER >",
              style: TextStyle(
                color: Colors.orange,
                fontWeight: FontWeight.bold,
                fontSize: 12,
              ),
            ),
          ],
        ),
      ),
    );
  }
}

```

```

    ),
    ),
  ],
),
actions: [
  Icon(Icons.notifications_none, color: Colors.black),
  SizedBox(width: 16),
  Icon(Icons.favorite_border, color: Colors.black),
  SizedBox(width: 16),
  Icon(Icons.account_circle, color: Colors.black),
  SizedBox(width: 16),
],
),
body: SingleChildScrollView(
  child: Column(
    crossAxisAlignment: CrossAxisAlignment.start,
    children: [
      // Search Bar
      Padding(
        padding: const EdgeInsets.all(16.0),
        child: TextField(
          decoration: InputDecoration(
            hintText: "Search for brands and products",
            prefixIcon: Icon(Icons.search),
            border: OutlineInputBorder(
              borderRadius: BorderRadius.circular(8),
            ),
          ),
        ),
      ),
      // HIM / HER Banner
      Padding(
        padding: const EdgeInsets.symmetric(horizontal: 16.0),
        child: ClipRRect(
          borderRadius: BorderRadius.circular(10),
          child: Image.asset(
            "assets/images/1.png",
            width: double.infinity, // Full width
            height: 200, // Fixed height
            fit: BoxFit.cover, // Ensures proper coverage
          ),
        ),
      ),
      SizedBox(height: 16),
      // Price Store Section
      _buildPriceStore(),
      // All-Time Faves Section
      Padding(
        padding: const EdgeInsets.all(16.0),
        child: Text(
          "ALL-TIME FAVES\nCurated For You",
          style: TextStyle(
            fontWeight: FontWeight.bold,
            fontSize: 16,
          ),
        ),
      ),
    ],
  ),
),

```

```

    ),
    _buildFavesGrid(),
  ],
),
),
),

// Bottom Navigation Bar
bottomNavigationBar: BottomNavigationBar(
  type: BottomNavigationBarType.fixed,
  selectedItemColor: Colors.pink,
  unselectedItemColor: Colors.grey,
  items: [
    BottomNavigationBarItem(
      icon: Icon(Icons.home),
      label: "Home",
    ),
    BottomNavigationBarItem(
      icon: Icon(Icons.category),
      label: "Categories",
    ),
    BottomNavigationBarItem(
      icon: Icon(Icons.person),
      label: "Profile",
    ),
  ],
  onTap: (index) {
    String currentRoute = ModalRoute.of(context)?.settings.name ?? "";
    String newRoute = "";

    switch (index) {
      case 0:
        newRoute = '/home';
        break;
      case 1:
        newRoute = '/categories';
        break;
      case 2:
        newRoute = '/profile';
        break;
    }

    if (currentRoute != newRoute) {
      Navigator.pushNamed(context, newRoute);
    }
  },
),
);
}

```

```

Widget _buildPriceStore() {
  return Container(
    color: Colors.orange.shade100,
    child: Column(
      crossAxisAlignment: CrossAxisAlignment.center,
      children: [
        Padding(
          padding: const EdgeInsets.all(16.0),
          child: Text(
            "PRICE STORE",
            style: TextStyle(

```

```

        fontWeight: FontWeight.bold,
        color: Colors.orange,
        fontSize: 16,
      ),
    ),
  ),
  Row(
    mainAxisAlignment: MainAxisAlignment.spaceAround,
    children: [
      _buildPriceTile("Under ₹99"),
      _buildPriceTile("Under ₹199"),
      _buildPriceTile("Under ₹299"),
      _buildPriceTile("Under ₹399"),
    ],
  ),
],
),
);
}

```

```

Widget _buildPriceTile(String text) {
  return Container(
    height: 80,
    width: 80,
    decoration: BoxDecoration(
      border: Border.all(color: Colors.orange, width: 2),
      borderRadius: BorderRadius.circular(8),
    ),
    child: Center(
      child: Text(
        text,
        textAlign: TextAlign.center,
        style: TextStyle(
          fontWeight: FontWeight.bold,
          color: Colors.orange,
        ),
      ),
    ),
  );
}

```

```

Widget _buildFavesGrid() {
  return Padding(
    padding: const EdgeInsets.all(16.0),
    child: GridView.count(
      shrinkWrap: true,
      crossAxisCount: 2,
      crossAxisSpacing: 16,
      mainAxisSpacing: 16,
      childAspectRatio: 0.75, // Adjusted for better image fit
      physics: NeverScrollableScrollPhysics(),
      children: [
        _buildFaveItem("Under ₹799", "assets/images/item1.png"),
        _buildFaveItem("Under ₹699", "assets/images/item2.png"),
        _buildFaveItem("Under ₹599", "assets/images/item3.png"),
        _buildFaveItem("Under ₹499", "assets/images/item4.png"),
      ],
    ),
  );
}

```

```

Widget _buildFavelItem(String price, String imagePath) {
  return Column(
    crossAxisAlignment: CrossAxisAlignment.start,
    children: [
      ClipRRect(
        borderRadius: BorderRadius.circular(8),
        child: Image.asset(
          imagePath,
          height: 140, // Increased height for better visibility
          width: double.infinity,
          fit: BoxFit.cover, // Ensures the image fits well
        ),
      ),
      SizedBox(height: 8),
      Text(
        price,
        style: TextStyle(
          fontWeight: FontWeight.bold,
        ),
      ),
    ],
  );
}

```

**On click on categories at bottom it navigates to categories page:**

```

import 'package:flutter/material.dart';

class CategoriesPage extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    return Scaffold(
      backgroundColor: Colors.white,
      appBar: AppBar(
        backgroundColor: Colors.white,
        elevation: 0,
        title: Text(
          "Categories",
          style: TextStyle(
            fontWeight: FontWeight.bold,
            color: Colors.black,
          ),
        ),
      ),
      leading: IconButton(
        icon: Icon(Icons.arrow_back, color: Colors.black),
        onPressed: () {
          Navigator.pop(context);
        },
      ),
      body: Padding(
        padding: const EdgeInsets.all(16.0),
        child: GridView.builder(
          gridDelegate: SliverGridDelegateWithFixedCrossAxisCount(
            crossAxisCount: 2,
            crossAxisSpacing: 16,
            mainAxisSpacing: 16,
            childAspectRatio: 0.8,
          ),

```



```

        itemCount: categories.length,
        itemBuilder: (context, index) {
          return _buildCategoryTile(
            categories[index]['name']!,
            categories[index]['image']!,
          );
        },
      ),
    );
  }
}

```

```

Widget _buildCategoryTile(String name, String imagePath) {
  return GestureDetector(
    onTap: () {
      print("$name category clicked");
    },
    child: Column(
      crossAxisAlignment: CrossAxisAlignment.center,
      children: [
        ClipRRect(
          borderRadius: BorderRadius.circular(8),
          child: Image.asset(
            imagePath,
            height: 120,
            width: double.infinity,
            fit: BoxFit.cover,
            errorBuilder: (context, error, stackTrace) {
              return Container(
                height: 120,
                width: double.infinity,
                color: Colors.grey[300],
                child: Icon(Icons.image, size: 50, color: Colors.grey[600]),
              );
            },
          ),
        SizedBox(height: 8),
        Text(
          name,
          style: TextStyle(
            fontWeight: FontWeight.bold,
          ),
        ),
      ],
    ),
  );
}

```

```

// Category List with Names and Image Paths
final List<Map<String, String>> categories = [
  {"name": "Men", "image": "assets/images/men.png"},
  {"name": "Women", "image": "assets/images/women.png"},
  {"name": "Kids", "image": "assets/images/kids.png"},
  {"name": "Footwear", "image": "assets/images/footwear.png"},
  {"name": "Accessories", "image": "assets/images/accessories.png"},
  {"name": "Beauty", "image": "assets/images/beauty.png"},
];

```

