

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

```

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Don't have an account? [Sign up](#)

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,
    ),
  ),
),
);
}

```

```

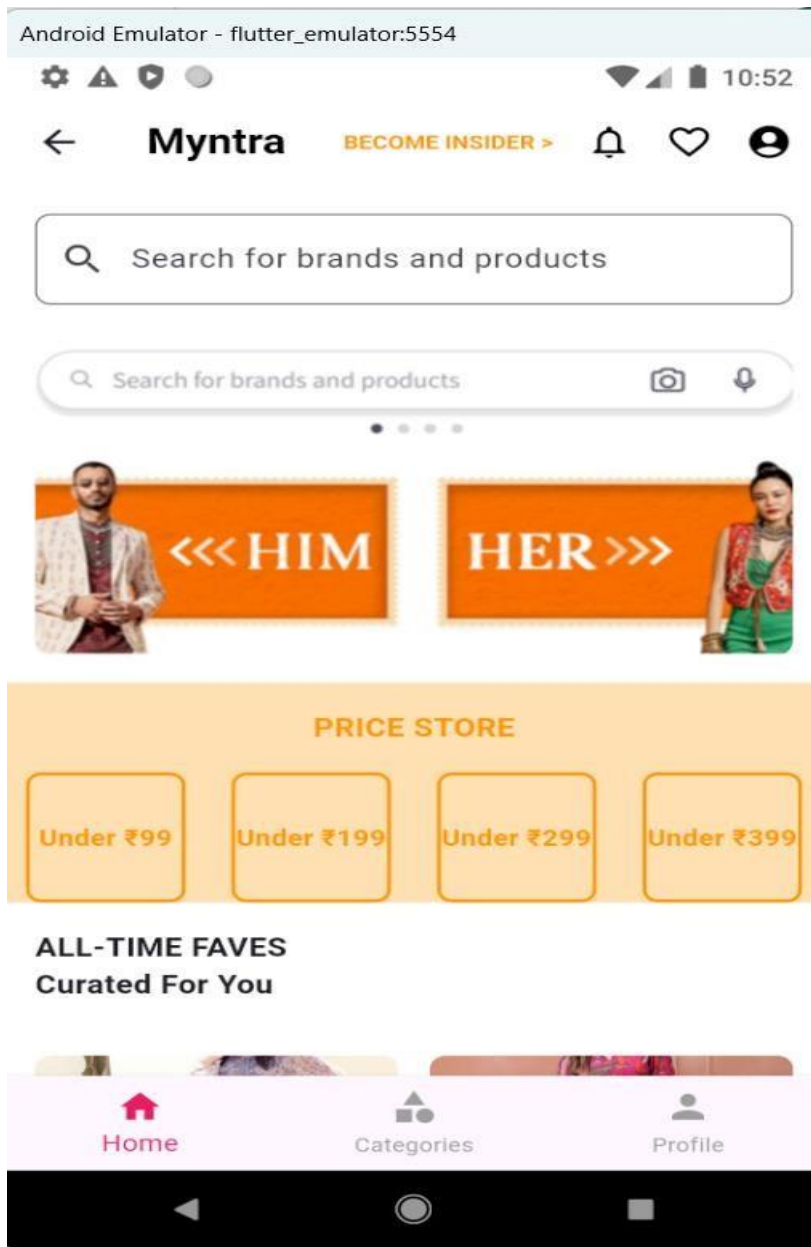
Widget _buildFavesGrid() {
  return Padding(
    padding: const EdgeInsets.all(16.0),
    child: GridView.count(
      shrinkWrap: true,
      crossAxisCount: 2,
      crossAxisSpacing: 16,
      mainAxisSpacing: 16,
      childAspectRatio: 0.75, // Adjusted for better image fit
      physics: NeverScrollableScrollPhysics(),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

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← Categories



Men



Women



Kids



Footwear



```
];
```