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BATCH : B
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MAD PWA LAB-5

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:

HOMEPAGE.DART FILE

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

import 'services.dart';
import 'activity.dart';
import 'account.dart';
import 'map_page.dart'; // Import the MapPage

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

 @override
 State<HomePage> createState() => _HomePageState();
}

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

 @override
 Widget build(BuildContext context) {
  return Scaffold(
    appBar: AppBar(
      title: Text(
```

```dart
        'Uber',
        style: TextStyle(
          color: Colors.black,
          fontWeight: FontWeight.bold,
        ),
      ),
      backgroundColor: Colors.white,
    ),
    backgroundColor: Colors.white,
    body: Container(
      color: Colors.white,
      child: Column(
        children: [
          Container(
            padding: EdgeInsets.all(16),
            color: Colors.white,
            child: TextField(
              onTap: () {
                Navigator.push(context, MaterialPageRoute(builder: (context) =>
MapPage()));
              },
              decoration: InputDecoration(
                hintText: 'Enter pickup point',
                prefixIcon: Icon(Icons.search, color: Colors.black),
                border: OutlineInputBorder(
                  borderRadius: BorderRadius.circular(20.0),
                ),
              ),
            ),
          ),
          Container(
            padding: EdgeInsets.symmetric(vertical: 8.0),
            color: Colors.white,
            child: Row(
              mainAxisAlignment: MainAxisAlignment.spaceEvenly,
              children: [
                buildIcon(
                  icon: FontAwesomeIcons.car,
                  label: 'Trip',
                  onTap: () {
```

```dart
            _onItemTapped(0); // Navigate to Home page
          },
        ),
        buildIcon(
          icon: FontAwesomeIcons.route,
          label: 'Rentals',
          onTap: () {
            _onItemTapped(1); // Navigate to Services page
          },
        ),
        buildIcon(
          icon: FontAwesomeIcons.users,
          label: 'Group ride',
          onTap: () {
            _onItemTapped(2); // Navigate to Activity page
          },
        ),
        buildIcon(
          icon: FontAwesomeIcons.carAlt,
          label: 'Intercity',
          onTap: () {
            _onItemTapped(3); // Navigate to Account page
          },
        ),
      ],
    ),
  ),
  SizedBox(
    height: 20, // Add desired height between widgets
  ),
  SizedBox(
    height: 120, // Adjust the height according to your content
    child: SingleChildScrollView(
      scrollDirection: Axis.horizontal, // Allow horizontal scrolling if needed
      child: Container(
        width: MediaQuery.of(context).size.width - 40, // Adjust width to fit the screen
        margin: EdgeInsets.symmetric(horizontal: 20),
        padding: EdgeInsets.all(20),
        decoration: BoxDecoration(
          borderRadius: BorderRadius.circular(20),
```

```dart
            gradient: LinearGradient(
              colors: [Colors.red, Colors.orange], // Adjust gradient colors as needed
              begin: Alignment.centerLeft,
              end: Alignment.centerRight,
            ),
            boxShadow: [
              BoxShadow(
                color: Colors.grey.withOpacity(0.5),
                spreadRadius: 5,
                blurRadius: 7,
                offset: Offset(0, 3), // changes position of shadow
              ),
            ],
          ),
          child: Column(
            crossAxisAlignment: CrossAxisAlignment.start,
            children: [
              Text(
                "READY? Then let's roll!",
                textAlign: TextAlign.left,
                style: TextStyle(fontSize: 24, fontWeight: FontWeight.bold, color:
Colors.white),
              ),
              // SizedBox(height: 8),
              // Text(
              //   "Tap the icons below to get started",
              //   textAlign: TextAlign.left,
              //   style: TextStyle(fontSize: 16, color: Colors.white),
              // ),
            ],
          ),
        ),
      ),
    ],
  ),
),
bottomNavigationBar: BottomNavigationBar(
  items: <BottomNavigationBarItem>[
    buildNavBarItem(Icons.home, 'Home'),
```

```dart
          buildNavBarItem(Icons.directions_car, 'Services'),
          buildNavBarItem(Icons.notifications, 'Activity'),
          buildNavBarItem(Icons.person, 'Account'),
        ],
        currentIndex: _selectedIndex,
        selectedItemColor: Colors.black,
        unselectedItemColor: Colors.grey[600],
        onTap: _onItemTapped,
        type: BottomNavigationBarType.fixed,
        backgroundColor: Colors.white,
      ),
    );
}

Widget buildIcon({required IconData icon, required String label, required VoidCallback onTap}) {
  return GestureDetector(
    onTap: onTap,
    child: Container(
      width: MediaQuery.of(context).size.width * 0.2,
      height: MediaQuery.of(context).size.width * 0.2,
      decoration: BoxDecoration(
        color: Colors.grey[200], // Change background color
        borderRadius: BorderRadius.circular(10),
        boxShadow: [
          BoxShadow(
            color: Colors.grey.withOpacity(0.5),
            spreadRadius: 2,
            blurRadius: 5,
            offset: Offset(0, 3), // changes position of shadow
          ),
        ],
      ),
      child: Column(
        mainAxisAlignment: MainAxisAlignment.center,
        children: [
          Icon(
            icon,
            color: Colors.black87, // Change icon color
            size: 40,
```

```
      ),
      SizedBox(height: 8),
      Text(
        label,
        style: TextStyle(color: Colors.black87, fontSize: 16, fontWeight:
FontWeight.bold), // Change text color
      ),
    ],
  ),
 ),
 );
}

BottomNavigationBarItem buildNavBarItem(IconData icon, String label) {
 return BottomNavigationBarItem(
  icon: Icon(icon, color: Colors.black),
  label: label,
 );
}

void _onItemTapped(int index) {
 setState(() {
  _selectedIndex = index;
 });

 // Handle navigation
 switch (index) {
  case 0:
  // Navigate to Home page
   break;
  case 1:
  // Navigate to Services page
   Navigator.push(context, MaterialPageRoute(builder: (context) => ServicesPage()));
   break;
  case 2:
  // Navigate to Activity page
   Navigator.push(context, MaterialPageRoute(builder: (context) => ActivityPage()));
   break;
  case 3:
  // Navigate to Account page
```

```dart
          Navigator.push(context, MaterialPageRoute(builder: (context) => ProfilePage()));
          break;
        default:
          break;
    }
  }
}

void main() {
  runApp(MaterialApp(
    home: HomePage(),
    theme: ThemeData(
      appBarTheme: AppBarTheme(
        backgroundColor: Colors.white,
        titleTextStyle: TextStyle(color: Colors.black),
        iconTheme: IconThemeData(color: Colors.black),
      ),
    ),
  ));
}
```

SERVICES.DART FILE

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

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

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

class _ServicesPageState extends State<ServicesPage> {
  final List<Service> services = [
    Service(
      title: 'Taxi Service',
      description:
      'Get a taxi whenever and wherever you need it. Safe and reliable transportation.',
```

```dart
      icon: FontAwesomeIcons.taxi,
      iconBackgroundColor: Colors.blue[400],
    ),
    Service(
      title: 'Food Delivery',
      description:
      'Order food from your favorite restaurants and get it delivered to your doorstep.',
      icon: FontAwesomeIcons.pizzaSlice,
      iconBackgroundColor: Colors.orange[600],
    ),
    Service(
      title: 'Parcel Delivery',
      description:
      'Send and receive parcels quickly and efficiently. Track your package in real-time.',
      icon: FontAwesomeIcons.box,
      iconBackgroundColor: Colors.green,
    ),
    Service(
      title: 'Grocery Delivery',
      description:
      'Have your groceries delivered to your home. Choose from a wide selection of fresh
produce.',
      icon: FontAwesomeIcons.shoppingBag,
      iconBackgroundColor: Colors.purple[400],
    ),
  ];

  @override
  Widget _buildServiceCard(BuildContext context, Service service) {
    List<Color> backgroundColors = [
      Colors.blue[300]!,
      Colors.orange[600]!,
      Colors.green[400]!,
      Colors.purple[300]!,
    ];

    int index = services.indexOf(service) % backgroundColors.length;

    return GestureDetector(
      onTap: () {
```

```dart
        print('Tapped on ${service.title}');
      },
      child: Card(
        margin: EdgeInsets.all(8.0),
        elevation: 4.0,
        color: backgroundColors[index],
        shape: RoundedRectangleBorder(
          borderRadius: BorderRadius.circular(12.0),
        ),
        child: Padding(
          padding: EdgeInsets.all(16.0),
          child: Row(
            children: [
              Container(
                decoration: BoxDecoration(
                  shape: BoxShape.circle,
                  color: service.iconBackgroundColor,
                ),
                padding: EdgeInsets.all(12.0),
                child: Icon(
                  service.icon,
                  size: 48.0,
                  color: Colors.white,
                ),
              ),
              SizedBox(width: 16.0),
              Expanded(
                child: Column(
                  crossAxisAlignment: CrossAxisAlignment.start,
                  children: [
                    Text(
                      service.title,
                      style: TextStyle(
                        fontSize: 24.0,
                        fontWeight: FontWeight.bold,
                        color: Colors.white,
                        fontFamily: 'Montserrat',
                      ),
                    ),
                    SizedBox(height: 8.0),
```

```dart
              Text(
                service.description,
                style: TextStyle(
                  fontSize: 18.0,
                  color: Colors.white,
                  fontFamily: 'Montserrat',
                ),
              ),
            ],
          ),
        ),
      ],
    ),
  ),
  ),
  );
}

@override
Widget build(BuildContext context) {
  return Scaffold(
    appBar: AppBar(
      backgroundColor: Colors.white, // Set app bar background color to white
      iconTheme: IconThemeData(color: Colors.black), // Set icon color to black
      leading: GestureDetector(
        onTap: () {
          Navigator.pop(context);
        },
        child: Padding(
          padding: const EdgeInsets.all(10.0),
          child: Icon(Icons.arrow_back_ios, color: Colors.black),
        ),
      ),
      title: Text(
        'Services',
        style: TextStyle(
          fontFamily: 'Montserrat',
          color: Colors.black, // Set title color to black
        ),
      ),
```

```dart
      ),
      backgroundColor: Colors.grey[200],
      body: ListView.builder(
        itemCount: services.length,
        itemBuilder: (BuildContext context, int index) {
          return _buildServiceCard(context, services[index]);
        },
      ),
    );
  }
}

class Service {
  final String title;
  final String description;
  final IconData icon;
  final Color? iconBackgroundColor;

  Service({
    required this.title,
    required this.description,
    required this.icon,
    this.iconBackgroundColor,
  });
}

void main() {
  runApp(MaterialApp(
    home: ServicesPage(),
  ));
}
```
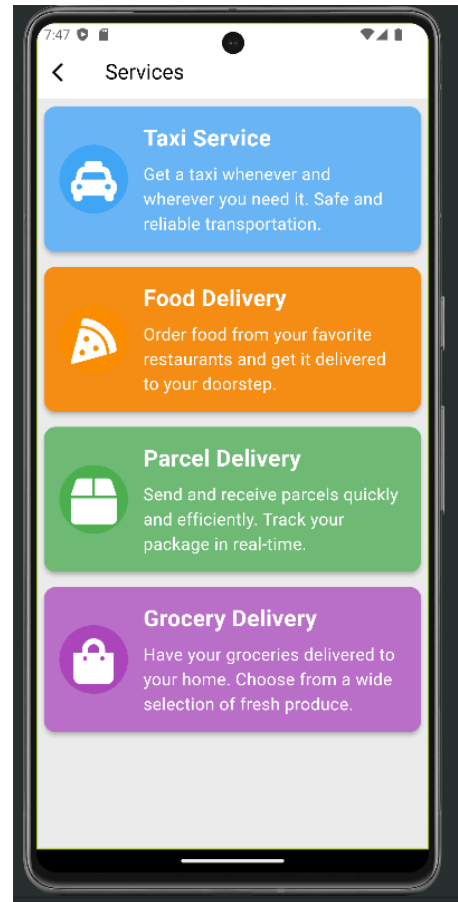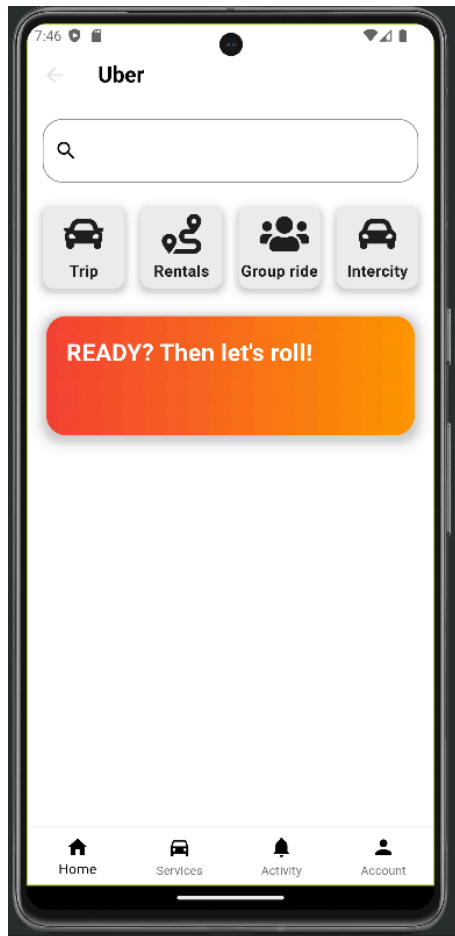
OUTPUT:

Here on the icons present in the home page they will lead to those respective pages.

CONCLUSION:
Learned about navigation, routing and gestures.