

## **MAD and PWA Lab**

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### **Experiment - 5**

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

#### **Theory:**

Navigation:

Navigation is a fundamental aspect of mobile app development that involves transitioning between different screens or pages. In Flutter, the Navigator class plays a central role in managing the navigation stack, allowing developers to push and pop routes as users move through the app.

Navigator Class:

The Navigator class handles the navigation stack, maintaining a history of routes. The push method adds a new route to the stack, typically triggered by user actions. The pop method removes the current route from the stack, enabling backward navigation.

Routing:

Routing in Flutter involves defining and organizing the paths or routes within the application. Routes represent different screens or pages, and their effective use is crucial for structuring the app's architecture.

MaterialPageRoute and CupertinoPageRoute:

MaterialPageRoute is employed in apps following Material Design principles, providing a standard Android-style transition between screens.

CupertinoPageRoute is used for iOS-style designs, ensuring a consistent and native user experience. Named Routes:

Named routes offer a more organized and readable approach to navigation.

By assigning names to routes, such as '/details', developers can easily navigate to specific screens using `Navigator.pushNamed`.

### Gestures in Flutter:

Gestures enhance user interaction by allowing the app to respond to touch or mouse inputs. In Flutter, the `GestureDetector` widget is instrumental in recognizing and handling various gestures.

### GestureDetector Widget:

The `GestureDetector` widget is used to detect a variety of gestures, including taps, drags, and long presses.

By wrapping UI components with `GestureDetector`, developers can specify callback functions to execute when specific gestures are detected. Gesture Recognizers:

Flutter provides gesture recognizers for more complex gestures, such as panning, pinching, and swiping.

These recognizers, when combined with a `GestureDetector`, enable the app to respond to a broader range of user inputs. `InkWell` and `InkResponse`:

The `InkWell` and `InkResponse` widgets bring a material ripple effect to touchable UI components.

Integrating these widgets enhances the visual feedback during user interactions, contributing to a more polished and intuitive user experience.

### Code:

#### `profile_screen.dart`

```
import 'package:flutter/material.dart';
import '../common/colo_extension.dart';
import '../common_widget/round_button.dart';
import '../common_widget/setting_row.dart';
import '../common_widget/title_subtitle_cell.dart';
import 'package:animated_toggle_switch/animated_toggle_switch.dart';
```

```
class ProfileView extends StatefulWidget {
  const ProfileView({super.key});
```

```

@override
State<ProfileView> createState() => _ProfileViewState();
}

class _ProfileViewState extends State<ProfileView> {
  bool positive = false;

  List accountArr = [
    {"image": "assets/img/p_personal.png", "name": "Personal Data", "tag": "1"},
    {"image": "assets/img/p_achi.png", "name": "Achievement", "tag": "2"},
    {
      "image": "assets/img/p_activity.png",
      "name": "Activity History",
      "tag": "3"
    },
    {
      "image": "assets/img/p_workout.png",
      "name": "Workout Progress",
      "tag": "4"
    }
  ];

  List otherArr = [
    {"image": "assets/img/p_contact.png", "name": "Contact Us", "tag": "5"},
    {"image": "assets/img/p_privacy.png", "name": "Privacy Policy", "tag": "6"},
    {"image": "assets/img/p_setting.png", "name": "Setting", "tag": "7"},
  ];

  @override
  Widget build(BuildContext context) {
    return Scaffold(
      appBar: AppBar(
        backgroundColor: TColor.white,
        centerTitle: true,
        elevation: 0,
        leadingWidth: 0,
        title: Text(
          "Profile",
          style: TextStyle(
            color: TColor.black, fontSize: 16, fontWeight: FontWeight.w700),
        ),
      actions: [
        InkWell(
          onTap: () {},
          child: Container(
            margin: const EdgeInsets.all(8),
            height: 40,
            width: 40,
            alignment: Alignment.center,
            decoration: BoxDecoration(
              color: TColor.lightGray,
              borderRadius: BorderRadius.circular(10)),

```

```

        child: Image.asset(
          "assets/img/more_btn.png",
          width: 15,
          height: 15,
          fit: BoxFit.contain,
        ),
      ),
    ),
  ],
),
backgroundColor: TColor.white,
body: SingleChildScrollView(
  child: Container(
    padding: const EdgeInsets.symmetric(vertical: 15, horizontal: 25),
    child: Column(
      crossAxisAlignment: CrossAxisAlignment.stretch,
      children: [
        Row(
          children: [
            ClipRRect(
              borderRadius: BorderRadius.circular(30),
              child: Image.asset(
                "assets/img/u2.png",
                width: 50,
                height: 50,
                fit: BoxFit.cover,
              ),
            ),
            const SizedBox(
              width: 15,
            ),
            Expanded(
              child: Column(
                crossAxisAlignment: CrossAxisAlignment.start,
                children: [
                  Text(
                    "Vrushabh Ghuse",
                    style: TextStyle(
                      color: TColor.black,
                      fontSize: 14,
                      fontWeight: FontWeight.w500,
                    ),
                  ),
                  Text(
                    "Lose a Fat Program",
                    style: TextStyle(
                      color: TColor.gray,
                      fontSize: 12,
                    ),
                  ),
                ],
              ),
            ),
          ],
        ),
      ],
    ),
  ),
),

```

```

    ),
  ),
  SizedBox(
    width: 70,
    height: 25,
    child: RoundButton(
      title: "Edit",
      type: RoundButtonType.bgGradient,
      fontSize: 12,
      fontWeight: FontWeight.w400,
      onPressed: () {
        // Navigator.push(
        //   context,
        //   MaterialPageRoute(
        //     builder: (context) => const ActivityTrackerView(),
        //   ),
        // );
      },
    ),
  ),
],
),
const SizedBox(
  height: 15,
),
const Row(
  children: [
    Expanded(
      child: TitleSubtitleCell(
        title: "180cm",
        subtitle: "Height",
      ),
    ),
    SizedBox(
      width: 15,
    ),
    Expanded(
      child: TitleSubtitleCell(
        title: "65kg",
        subtitle: "Weight",
      ),
    ),
    SizedBox(
      width: 15,
    ),
    Expanded(
      child: TitleSubtitleCell(
        title: "22yo",
        subtitle: "Age",
      ),
    ),
  ),
),

```

```

    ],
  ),
  const SizedBox(
    height: 25,
  ),
  Container(
    padding:
      const EdgeInsets.symmetric(vertical: 10, horizontal: 15),
    decoration: BoxDecoration(
      color: TColor.white,
      borderRadius: BorderRadius.circular(15),
      boxShadow: const [
        BoxShadow(color: Colors.black12, blurRadius: 2)
      ],
    child: Column(
      crossAxisAlignment: CrossAxisAlignment.start,
      children: [
        Text(
          "Account",
          style: TextStyle(
            color: TColor.black,
            fontSize: 16,
            fontWeight: FontWeight.w700,
          ),
        ),
        const SizedBox(
          height: 8,
        ),
        ListView.builder(
          physics: const NeverScrollableScrollPhysics(),
          shrinkWrap: true,
          itemCount: accountArr.length,
          itemBuilder: (context, index) {
            var iObj = accountArr[index] as Map? ?? {};
            return SettingRow(
              icon: iObj["image"].toString(),
              title: iObj["name"].toString(),
              onPressed: () {},
            );
          },
        )
      ],
    ),
  ),
  const SizedBox(
    height: 25,
  ),
  Container(
    padding:
      const EdgeInsets.symmetric(vertical: 10, horizontal: 15),
    decoration: BoxDecoration(

```

```

color: TColor.white,
borderRadius: BorderRadius.circular(15),
boxShadow: const [
  BoxShadow(color: Colors.black12, blurRadius: 2)
]),
child: Column(
  crossAxisAlignment: CrossAxisAlignment.start,
  children: [
    Text(
      "Notification",
      style: TextStyle(
        color: TColor.black,
        fontSize: 16,
        fontWeight: FontWeight.w700,
      ),
    ),
    const SizedBox(
      height: 8,
    ),
    SizedBox(
      height: 30,
      child: Row(
        crossAxisAlignment: CrossAxisAlignment.center,
        children: [
          Image.asset("assets/img/p_notification.png",
            height: 15, width: 15, fit: BoxFit.contain),
          const SizedBox(
            width: 15,
          ),
          Expanded(
            child: Text(
              "Pop-up Notification",
              style: TextStyle(
                color: TColor.black,
                fontSize: 12,
              ),
            ),
          ),
        ],
      ),
      CustomAnimatedToggleSwitch<bool>(
        current: positive,
        values: [false, true],
        dif: 0.0,
        indicatorSize: Size.square(30.0),
        animationDuration:
          const Duration(milliseconds: 200),
        animationCurve: Curves.linear,
        onChanged: (b) => setState(() => positive = b),
        iconBuilder: (context, local, global) {
          return const SizedBox();
        },
        defaultCursor: SystemMouseCursors.click,

```

```

onTap: () => setState(() => positive = !positive),
iconsTappable: false,
wrapperBuilder: (context, global, child) {
  return Stack(
    alignment: Alignment.center,
    children: [
      Positioned(
        left: 10.0,
        right: 10.0,

        height: 30.0,
        child: DecoratedBox(
          decoration: BoxDecoration(
            gradient: LinearGradient(
              colors: TColor.secondaryG),
            borderRadius:
              const BorderRadius.all(
                Radius.circular(50.0)),
          ),
        )),
      child,
    ],
  );
},
foregroundIndicatorBuilder: (context, global) {
  return SizedBox.fromSize(
    size: const Size(10, 10),
    child: DecoratedBox(
      decoration: BoxDecoration(
        color: TColor.white,
        borderRadius: const BorderRadius.all(
          Radius.circular(50.0)),
        boxShadow: const [
          BoxShadow(
            color: Colors.black38,
            spreadRadius: 0.05,
            blurRadius: 1.1,
            offset: Offset(0.0, 0.8))
        ],
      ),
    ),
  );
},
),
]),
)
],
),
),
const SizedBox(
  height: 25,

```

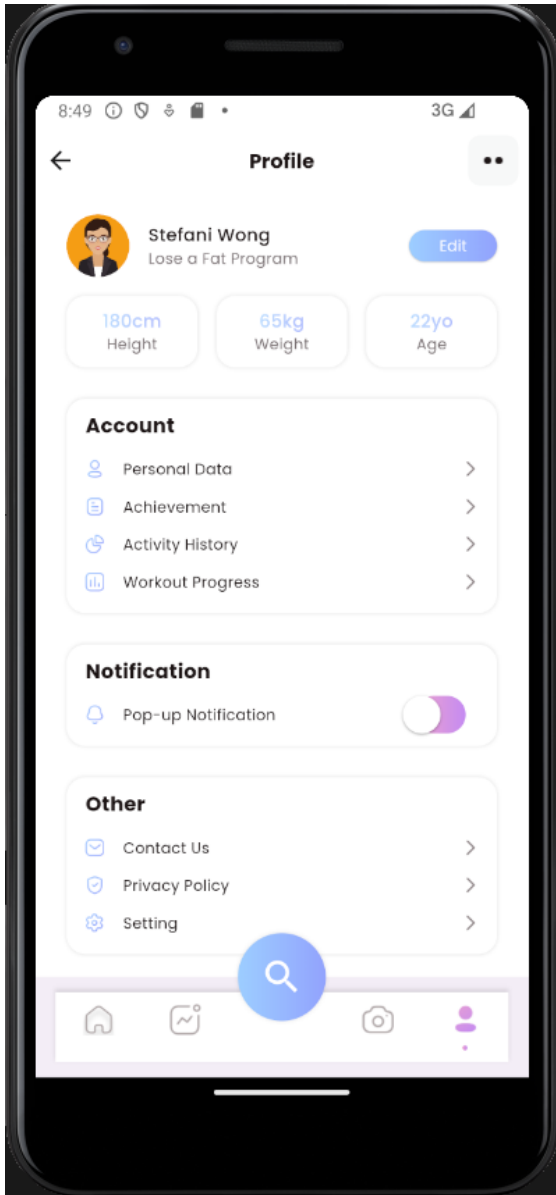
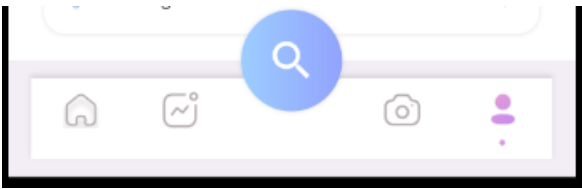


```

),
Container(
  padding:
    const EdgeInsets.symmetric(vertical: 10, horizontal: 15),
  decoration: BoxDecoration(
    color: TColor.white,
    borderRadius: BorderRadius.circular(15),
    boxShadow: const [
      BoxShadow(color: Colors.black12, blurRadius: 2)
    ],
  child: Column(
    crossAxisAlignment: CrossAxisAlignment.start,
    children: [
      Text(
        "Other",
        style: TextStyle(
          color: TColor.black,
          fontSize: 16,
          fontWeight: FontWeight.w700,
        ),
      ),
      const SizedBox(
        height: 8,
      ),
      ListView.builder(
        physics: const NeverScrollableScrollPhysics(),
        padding: EdgeInsets.zero,
        shrinkWrap: true,
        itemCount: otherArr.length,
        itemBuilder: (context, index) {
          var iObj = otherArr[index] as Map? ?? {};
          return SettingRow(
            icon: iObj["image"].toString(),
            title: iObj["name"].toString(),
            onPressed: () {},
          );
        },
      ),
    ],
  ),
),
),
),
),
);
}
}

```

**Output:**



## Conclusion:

In this experiment, we have successfully created routing in the bottom navigation bar and connected all pages successfully using Navigator class and implemented it successfully.