MPL EXPERIMENT 2

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AIM: To design Flutter UI by including common widgets

1,Introduction

Flutter is an open-source UI framework by Google that enables developers to build cross-platform applications with a single codebase. The UI in Flutter is built using **widgets**, which are the fundamental building blocks of the application.

Widgets in Flutter can be classified into various categories, such as structural widgets, layout widgets, interactive widgets, and styling widgets. These widgets help in designing complex UI components efficiently and responsively.

2. Types of widgets

Flutter widgets are classified into the following types based on their functionality:

1. Structural Widgets (Scaffolding Widgets)

These widgets define the basic structure of an application.

- **Scaffold:** Provides a framework with an app bar, body, floating action button, drawer, etc.
- AppBar: Displays the top navigation bar with titles, actions, and menus.
- **Drawer:** A side navigation panel for navigating through different screens.

2. Layout Widgets

These widgets help in arranging other widgets on the screen.

• Container: A flexible widget for holding and styling child widgets.

- Column: Arranges widgets vertically.
- Row: Arranges widgets horizontally.
- Stack: Allows widgets to be placed on top of each other.
- Expanded: Expands widgets to fill available space.
- SizedBox: Provides spacing between widgets.

3. Interactive Widgets

These widgets accept user input and interactions.

- **TextField:** Allows users to enter text input.
- ElevatedButton: A clickable button with elevation.
- OutlinedButton: A button with an outlined border.
- IconButton: A clickable icon button.
- GestureDetector: Detects gestures like tap, swipe, and drag.
- Switch: A toggle button for enabling/disabling options.

4. Styling & Display Widgets

These widgets help in styling and displaying content.

- Text: Displays text content.
- Image: Displays an image from assets or a URL.
- Icon: Displays an icon from Material or custom icons.
- Card: A box with elevation and rounded corners for content display.
- **Chip:** A small, compact element that represents information.

5. Scrolling & List Widgets

These widgets handle large lists and scrolling content.

- ListView: Displays a scrollable list of items.
- GridView: Displays items in a grid format.
- SingleChildScrollView: Makes a child widget scrollable.
- PageView: Creates swipeable pages.

3. Commonly used widgets:

1. Scaffold (Basic Page Structure)

A Scaffold provides a basic structure for a screen, including an **AppBar**, **Floating Action Button**, **Drawer**, and **Body**.

2. Container (A Flexible Box for UI Design)

A Container is used for styling, padding, and positioning elements.

3. Row and Column (Arranging Widgets)

A *Row* arranges widgets horizontally, while a *Column* arranges them vertically.

4. Stack (Overlapping Widgets)

A Stack places widgets on top of each other.

5.ListView (Scrollable List)

A ListView is used for displaying a scrollable list of items.

6. Elevated Button (Clickable Button)

Buttons provide user interactions in Flutter.

7. TextField (User Input Field)

A TextField allows users to enter data.

Code:

1. day_exercises_row.dart:

```
import 'package:flutter/material.dathildren: [
import
                                   Padding(
'package:healtho gym/common/color extension.dart';
                                    padding: const EdgeInsets.symmetric(
                                     horizontal: 15.
class DayExerciseRow extends StatelessWidget {
                                     vertical: 15,
 final Map obj;
                                    ),
 final VoidCallback onPressed;
                                    child: Row(
                                     crossAxisAlignment: CrossAxisAlignment.start,
 const DayExerciseRow({super.key, required this.obj,
                                     children: [
required this.onPressed});
                                      ClipRRect(
                                        borderRadius: BorderRadius.circular(
 @override
                                         10.
 Widget build(BuildContext context) {
                                        ),
  return InkWell(
                                        child: ClipRRect(
   onTap: onPressed,
                                         borderRadius: BorderRadius.circular(10),
   child: Container(
                                         child: Image.asset(
     decoration: BoxDecoration(
                                          obj["image"],
      color: TColor.txtBG,
      border: Border.all(color: TColor.board, width: 1).
      borderRadius: BorderRadius.circular(19), 60,
                                          fit: BoxFit.cover,
     ),
                                         ),
     child: Column(
```

```
),
                                                width: 80,
                                                child: Text(
           ),
           const SizedBox(
                                                 "Sets",
             width: 25,
                                                 style: TextStyle(
           ),
                                                  color: TColor.primaryText,
                                                  fontSize: 12,
           Expanded(
             child: Column(
                                                 ),
              crossAxisAlignment:
                                                ),
CrossAxisAlignment.start,
                                              ),
              children: [
                                              Expanded(
               Text(
                                                child: Text(
                 obj["name"],
                                                 obj["sets"],
                 style: TextStyle(
                                                 style: TextStyle(
                  color: TColor.primaryText,
                                                  color: TColor.placeholder,
                  fontSize: 14,
                                                  fontSize: 12,
                 ),
                                                 ),
               ),
               const SizedBox(
                height: 4,
                                             ],
               ),
                                            ),
               Row(
                                            Row(
                 children: [
                                             children: [
                  SizedBox(
                                              SizedBox(
```

```
child: Text(
                                child: Text(
     "Reps",
                                  "Reset",
     style: TextStyle(
                                  style: TextStyle(
      color: TColor.primaryText, color: TColor.primaryText,
      fontSize: 12,
                                   fontSize: 12,
     ),
                                  ),
                                ),
                               ),
  Expanded(
                               Expanded(
   child: Text(
                                child: Text(
     obj["reps"],
                                  obj["rest"],
     style: TextStyle(
                                  style: TextStyle(
      color: TColor.placeholder, color: TColor.placeholder,
                                   fontSize: 12,
      fontSize: 12,
     ),
                                  ),
   ),
],
                              ],
),
Row(
 children: [
  SizedBox(
                        ),
```

width: 80,

width: 80,

```
const SizedBox(
                               Image.asset(
                                obj["is_complete"]
     width: 30,
                                   ? "assets/img/check tick.png"
   ),
                                   : "assets/img/uncheck.png",
    Image.asset(
     "assets/img/next.png",
                               width: 20,
     width: 12,
                               ),
     color: TColor.placeholder, const SizedBox(
                                 width: 8,
                               ),
  ],
 ),
                               Text(
                                 "Mark as completed",
Container(
                                style: TextStyle(
                                  color: obj["is complete"]
 color: TColor.board,
                                    ? const Color(0xff27AE60)
 height: 2,
                                    : TColor.placeholder,
),
                                  fontSize: 14,
Padding(
 padding: const EdgeInsets.symnfertrild(eight: FontWeight.w600,
  horizontal: 15,
                                ),
  vertical: 15,
 ),
                              ],
 child: Row(
                             ),
  mainAxisAlignment: MainAxisAlignment.center,
  children: [
                          ],
```

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

```
2. icon_title_subtitle_button.dart
import 'package:flutter/material.dart';
import 'package:healtho_gym/common/color_extension.dart';
class IconTitleSubtitleButton extends StatelessWidget {
 final String title;
 final String subtitle;
 final String icon;
 final VoidCallback onPressed;
 const IconTitleSubtitleButton(
   {super.key,
   required this.title,
   required this.subtitle,
   required this.icon,
   required this.onPressed});
 @override
```

Widget build(BuildContext context) {

```
return Padding(
 padding: const EdgeInsets.symmetric(horizontal: 20),
 child: InkWell(
  onTap: onPressed,
  child: Container(
   padding: const EdgeInsets.symmetric(horizontal: 20, vertical: 15),
   decoration: BoxDecoration(
      color: TColor.btnBG, borderRadius: BorderRadius.circular(15)),
   child: Row(
    children: [
      Image.asset(
       icon,
       width: 50,
       height: 50,
       fit: BoxFit.cover,
      ),
      const SizedBox(
       width: 15,
      ),
      Expanded(
       child: Column(
        crossAxisAlignment: CrossAxisAlignment.start,
        children: [
          Text(
```

```
title,
              style: TextStyle(
                 color: TColor.primaryText,
                 fontSize: 15,
                 fontWeight: FontWeight.w600),
             ),
             Text(
              subtitle,
              style: TextStyle(
                color: TColor.primaryText,
                fontSize: 12,
              ),
             ),
           ],
          ),
         ),
  );
}
```

3. number_title_subtitle_button.dart:

```
import 'package:flutter/material.dart';
import 'package:healtho gym/common/color extension.dart';
class NumberTitleSubtitleButton extends StatelessWidget {
 final String title;
 final String subtitle;
 final String number;
 final VoidCallback onPressed;
 const NumberTitleSubtitleButton(
   {super.key,
   required this.title,
   required this.subtitle,
   required this.number,
   required this.onPressed});
 @override
 Widget build(BuildContext context) {
  return Padding(
   padding: const EdgeInsets.symmetric(vertical: 10),
   child: InkWell(
     onTap: onPressed,
     child: Container(
```

```
padding: const EdgeInsets.symmetric(
 horizontal: 20,
 vertical: 15,
),
decoration: BoxDecoration(
  color: TColor.txtBG,
  border: Border.all(color: TColor.board, width: 1),
  borderRadius: BorderRadius.circular(15)),
child: Row(
 children: [
  Expanded(
   child: Row(
     crossAxisAlignment: CrossAxisAlignment.start,
     children: [
      Text(
       number,
       style: TextStyle(
        color: TColor.placeholder,
        fontSize: 17,
        fontWeight: FontWeight.w600,
       ),
      const SizedBox(
       width: 15,
```

```
),
 Expanded(
  child: Column(
    crossAxisAlignment: CrossAxisAlignment.start,
    children: [
     Text(
      title,
      style: TextStyle(
        color: TColor.primaryText,
        fontSize: 15,
       fontWeight: FontWeight.w600,
      ),
     ),
     Text(
      subtitle,
      style: TextStyle(
        color: TColor.primaryText,
       fontSize: 12,
      ),
     ),
   ],
  ),
 ),
],
```

```
),
         ),
         Image.asset(
          "assets/img/next.png",
          width: 10,
          color: TColor.secondaryText,
         )
       ],
      ),
     ),
  );
   4. radio_button.dart
import 'package:flutter/material.dart';
import 'package:healtho_gym/common/color_extension.dart';
class RadioButton extends StatelessWidget {
 final String title;
 final bool isSelect;
```

final VoidCallback onPressed;

```
const RadioButton(
  {super.key,
  required this.title,
  required this.isSelect,
  required this.onPressed});
@override
Widget build(BuildContext context) {
 return Padding(
  padding: const EdgeInsets.symmetric(
   horizontal: 20,
   vertical: 15,
  ),
  child: InkWell(
   onTap: onPressed,
   child: Row(
     children: [
      Container(
       width: 20,
       height: 20,
       decoration: BoxDecoration(
          color: isSelect? TColor.primary: TColor.inactive,
          borderRadius: BorderRadius.circular(10)),
      ),
```

```
const SizedBox(
        width: 20,
       ),
       Expanded(
        child: Text(
          title,
          style: TextStyle(
           color: TColor.primaryText,
           fontSize: 13,
          ),
        ),
       ),
      ],
     ),
  );
   5. round_button.dart:
import 'package:flutter/material.dart';
import 'package:healtho_gym/common/color_extension.dart';
enum RoundButtonType { primary, line }
```

```
class RoundButton extends StatelessWidget {
 final String title;
 final RoundButtonType type;
 final double height;
 final double fontSize;
 final FontWeight fontWeight;
 final double width;
 final String? image;
 final bool isPadding;
 final double radius;
 final VoidCallback onPressed;
 const RoundButton(
   {super.key,
   required this.title,
   this.type = RoundButtonType.primary,
   this.height = 50,
   this.fontSize = 14,
   this.radius = 25,
   this.fontWeight = FontWeight.w600,
   this.width = double.maxFinite,
   this.isPadding = true,
   required this.onPressed, this.image});
```

@override

```
Widget build(BuildContext context) {
 return InkWell(
   borderRadius: BorderRadius.circular(25),
  onTap: onPressed,
  child: Container(
   margin: EdgeInsets.symmetric(horizontal: isPadding? 20:0),
   padding: const EdgeInsets.symmetric(horizontal: 20),
   width: width,
   decoration: BoxDecoration(
      color:
        type == RoundButtonType.primary ? TColor.primary : TColor.txtBG,
      border: type == RoundButtonType.line
        ? Border.all(color: TColor.board)
        : null,
      borderRadius: BorderRadius.circular(radius)),
   height: height,
   child: Row(
     children: [
      if(image != null)
      SizedBox(
       width: 60,
       child: Image.asset(image!, width: 20, height: 20,),
      ),
```

```
Expanded(
         child: Text(
          title,
          textAlign: TextAlign.center,
          style: TextStyle(
            color: type == RoundButtonType.primary
               ? TColor.btnPrimaryText
               : TColor.btnSecondaryText,
            fontSize: fontSize,
            fontWeight: fontWeight),
        ),
       ),
        if(image != null)
        Container(
        width: 60,
        )
      ],
  );
}
```

class RoundSelectButton extends StatelessWidget {

```
final String title;
final RoundButtonType type;
final double height;
final double fontSize;
final FontWeight fontWeight;
final double width;
final String? image;
final bool isPadding;
final VoidCallback onPressed;
const RoundSelectButton(
  {super.key,
  required this.title,
  this.type = RoundButtonType.primary,
  this.height = 50,
  this.fontSize = 14,
  this.fontWeight = FontWeight.w600,
  this.width = double.maxFinite,
  this.isPadding = true,
  required this.onPressed,
  this.image});
@override
Widget build(BuildContext context) {
 return InkWell(
```

```
borderRadius: BorderRadius.circular(25),
onTap: onPressed,
child: Container(
 margin: EdgeInsets.symmetric(horizontal: isPadding? 20:0),
 padding: const EdgeInsets.symmetric(horizontal: 20),
 width: width,
 decoration: BoxDecoration(
   color:
      type == RoundButtonType.primary ? TColor.primary : TColor.txtBG,
   border: type == RoundButtonType.line
      ? Border.all(color: TColor.board)
      : null,
   borderRadius: BorderRadius.circular(25)),
 height: height,
 child: Row(
  children: [
   if (image != null)
     SizedBox(
      width: 60,
      child: Image.asset(
       image!,
       width: 20,
       height: 20,
      ),
```

```
),
       Expanded(
         child: Text(
          title,
          textAlign: TextAlign.left,
          style: TextStyle(
             color: type == RoundButtonType.primary
               ? TColor.btnPrimaryText
               : TColor.btnSecondaryText,
            fontSize: fontSize,
            fontWeight: fontWeight),
         ),
       ),
       if (image != null)
         Container(
          width: 60,
      ],
  );
}
```

6. round_dropdown.dart

```
import 'package:flutter/material.dart';
import 'package:healtho gym/common/color extension.dart';
class RoundDropDown extends StatelessWidget {
final String hintText;
 final List list;
 final dynamic value;
 final bool isPadding;
 final Function(dynamic)? didChange;
 const RoundDropDown({
  super.key,
  required this.hintText,
  required this.list,
  this.value,
  this.isPadding = false,
  this.didChange,
 });
 @override
 Widget build(BuildContext context) {
  return Container(
```

```
height: 50,
margin: EdgeInsets.symmetric(horizontal: isPadding? 20:0),
padding: const EdgeInsets.symmetric(horizontal: 20),
decoration: BoxDecoration(
  color: TColor.txtBG,
  border: Border.all(color: TColor.board, width: 1),
  borderRadius: BorderRadius.circular(10)),
child: DropdownButtonHideUnderline(
 child: DropdownButton(
  isExpanded: true,
  value: value,
  icon: Image.asset(
   "assets/img/down.png",
   width: 15,
  ),
  hint: Text(
   hintText.
   style: TextStyle(color: TColor.secondaryText, fontSize: 15),
  ),
  items: list
     .map(
      (obj) => DropdownMenuItem(
       value: obj,
```

```
child: Text(
            obj["name"] as String? ?? "",
            style: TextStyle(
             color: TColor.primaryText,
            ),
         .toList(),
      onChanged: didChange,
    ),
  7. round_text_field.dart
import 'package:flutter/material.dart';
import 'package:healtho_gym/common/color_extension.dart';
class RoundTextField extends StatelessWidget {
 final String hintText;
 final TextEditingController? controller;
 final TextInputType? keyboardType;
```

```
final double radius;
final bool obscureText;
final Widget? right;
final bool isPadding;
final String? icon; // Added icon parameter
const RoundTextField({
 super.key,
 required this.hintText,
 this.controller,
 this.keyboardType,
 this.radius = 25,
 this.obscureText = false,
 this.right,
 this.isPadding = false,
 this.icon, // Added icon parameter
});
@override
Widget build(BuildContext context) {
 return Container(
  height: 50,
  margin: EdgeInsets.symmetric(horizontal: isPadding? 20:0),
```

```
decoration: BoxDecoration(
  color: TColor.txtBG,
  border: Border.all(color: TColor.board, width: 1),
  borderRadius: BorderRadius.circular(radius)),
child: TextField(
 controller: controller,
 keyboardType: keyboardType,
 obscureText: obscureText,
 style: TextStyle(color: TColor.primaryText, fontSize: 16),
 decoration: InputDecoration(
  contentPadding: const EdgeInsets.symmetric(horizontal: 20),
  enabledBorder: InputBorder.none,
  focusedBorder: InputBorder.none,
  hintText: hintText,
  prefixIcon: icon != null // Use the icon as a prefixIcon
     ? Padding(
       padding: const EdgeInsets.all(12.0),
       child: Image.asset(icon!),
      )
     : null,
  suffixIcon: right,
  hintStyle: TextStyle(
   color: TColor.placeholder,
```

```
fontSize: 15,
       fontWeight: FontWeight.w600,
      ),
     ),
  );
}
  8. round_title_value_button.dart
import 'package:flutter/material.dart';
import 'package:healtho gym/common/color extension.dart';
class RoundTitleValueButton extends StatelessWidget {
 final String title;
 final String value;
 final VoidCallback onPressed;
 const RoundTitleValueButton({
  super.key,
  required this.title,
  required this.value,
  required this.onPressed,
 });
```

@override

```
Widget build(BuildContext context) {
 return Padding(
  padding: const EdgeInsets.symmetric(horizontal: 20, vertical: 15),
  child: InkWell(
   borderRadius: BorderRadius.circular(25),
   onTap: onPressed,
   child: Container(
     padding: const EdgeInsets.symmetric(horizontal: 20),
     decoration: BoxDecoration(
       color: TColor.txtBG,
       border: Border.all(color: TColor.board, width: 1),
       borderRadius: BorderRadius.circular(25)),
     height: 50,
     child: Row(
      children: [
       Expanded(
        child: Text(
          title,
          textAlign: TextAlign.center,
          style: TextStyle(
           color: TColor.btnSecondaryText,
```

```
fontSize: 15,
          fontWeight: FontWeight.w600,
         ),
       ),
      Expanded(
       flex: 2,
       child: Text(
         value,
         textAlign: TextAlign.center,
         style: TextStyle(
          color: TColor.btnSecondaryText,
          fontSize: 15,
          fontWeight: FontWeight.w600,
         ),
       ),
     ],
);
```

```
}
  9. secrtion_button.dart
import 'package:flutter/material.dart';
import 'package:healtho gym/common/color extension.dart';
class SectionButton extends StatelessWidget {
 final String title;
 final VoidCallback onPressed;
 const SectionButton(
   {super.key, required this.title, required this.onPressed});
 @override
 Widget build(BuildContext context) {
  return InkWell(
   onTap: onPressed,
   child: Padding(
    padding: const EdgeInsets.symmetric(horizontal: 20, vertical: 8),
    child: Row(
      mainAxisAlignment: MainAxisAlignment.spaceBetween,
```

children: [

Text(

title,

```
style: TextStyle(
          color: TColor.primaryText,
          fontSize: 15,
          fontWeight: FontWeight.w600,
         ),
       ),
       Text(
         "More",
         style: TextStyle(
          color: TColor.primary,
          fontSize: 15,
}
```

10. title_subtitle_button.dart

```
import 'package:flutter/material.dart';
import 'package:healtho gym/common/color extension.dart';
class TitleSubtitleButton extends StatelessWidget {
 final String title;
 final String subtitle;
 final VoidCallback onPressed;
 const TitleSubtitleButton(
   {super.key,
   required this.title,
   required this.subtitle,
   required this.onPressed});
 @override
 Widget build(BuildContext context) {
  return Padding(
   padding: const EdgeInsets.symmetric(vertical: 10),
   child: InkWell(
     onTap: onPressed,
     child: Container(
      padding: const EdgeInsets.symmetric(horizontal: 20, vertical: 15),
      decoration: BoxDecoration(
```

```
color: TColor.txtBG,
 border: Border.all(color: TColor.board, width: 1),
 borderRadius: BorderRadius.circular(10),
),
child: Column(
 crossAxisAlignment: CrossAxisAlignment.center,
 children: [
  Text(
   title,
    style: TextStyle(
      color: TColor.primaryText,
      fontSize: 14,
      fontWeight: FontWeight.w600),
  ),
  Text(
    subtitle,
    style: TextStyle(
     color: TColor.primaryText,
     fontSize: 12,
    ),
  ),
 ],
),
```

```
),
   ),
  );
 11. title_value_row.dart
import 'package:flutter/material.dart';
import 'package:healtho_gym/common/color_extension.dart';
class TitleValueRow extends StatelessWidget {
 final String title;
 final String value;
 const TitleValueRow({super.key, required this.title, required this.value});
 @override
 Widget build(BuildContext context) {
  return Padding(
   padding: const EdgeInsets.symmetric(vertical: 15),
   child: Column(
     crossAxisAlignment: CrossAxisAlignment.start,
     children: [
      Text(
```

```
title,
       style: TextStyle(
         color: TColor.placeholder,
         fontSize: 14,
       ),
      const SizedBox(
       height: 4,
      ),
      Text(
       value,
       style: TextStyle(
         color: TColor.primaryText,
         fontSize: 14,
         fontWeight: FontWeight.w600,
       ),
     ],
  );
}
```

12. top_tab_button.dart

```
import 'package:flutter/material.dart';
import 'package:healtho gym/common/color extension.dart';
class TopTabButton extends StatelessWidget {
 final String title;
 final bool isSelect;
 final VoidCallback onPressed;
 const TopTabButton(
   {super.key,
   required this.title,
   required this.isSelect,
   required this.onPressed});
 @override
 Widget build(BuildContext context) {
  return InkWell(
   onTap: onPressed,
   child: Container(
     height: 40,
     padding: const EdgeInsets.symmetric(horizontal: 20),
     decoration: BoxDecoration(
```

```
border: Border(
          bottom: BorderSide(
             color: isSelect ? TColor.primary : Colors.transparent,
             width: 3))),
     alignment: Alignment.center,
     child: Text(
      title,
      style: TextStyle(
         color: isSelect ? TColor.primary : Colors.white,
         fontSize: 14,
         fontWeight: FontWeight.normal),
     ),
   ),
  );
}
```















