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MPL Practical 02

Aim: To design a Flutter UI by including common widgets.

Theory:

Flutter UI Design using Common Widgets

Flutter is a framework used for building mobile applications for Android and iOS. It allows developers to create beautiful and responsive user interfaces using widgets. Widgets are the basic building blocks of a Flutter app, and everything in Flutter is a widget, including buttons, text fields, and layout structures.

Common Widgets in Flutter

Flutter provides many built-in widgets that help in designing the UI of an application. Some of the commonly used widgets are:

1. Scaffold – Provides a basic structure with an app bar, body, and floating action button.
2. AppBar – Displays the title of the application and actions like buttons.
3. Text – Used to display text content in the app.
4. ListView – Helps in displaying a list of items in a scrollable manner.
5. Card – Used to display information inside a container with a shadow effect.
6. ElevatedButton – A button that performs an action when pressed.
7. TextField – Allows users to input text.
8. AlertDialog – Displays a pop-up dialog with options.

Implementation in Our Code

In our Sports Community Builder app, we have designed a simple user interface using common Flutter widgets. The main objective of this app is to allow users to form teams in their locality for instant play.

Features Implemented:

1. Displaying a List of Teams – We use `ListView.builder()` to show a list of available teams.
2. Adding a New Team – A `TextField` inside an `AlertDialog` allows users to enter a new team name.
3. Interactive Buttons – An `ElevatedButton` lets users create new teams.
4. Cards for Team Display – Each team name is displayed inside a `Card` for better presentation.
5. State Management – The list of teams is stored in a `List<String>` and updated dynamically using `setState()`.

CODE:

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

void main() {
  runApp(MyApp());
}

class MyApp extends StatelessWidget {
  const MyApp({super.key});

  @override
  Widget build(BuildContext context) {
    return MaterialApp(
      debugShowCheckedModeBanner: false,
      home: HomeScreen(),
    );
  }
}

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

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

class _HomeScreenState extends State<HomeScreen> {
  List<String> teams = ["Lions", "Tigers", "Eagles"];
  TextEditingController teamController = TextEditingController();

  void addTeam() {
    String newTeam = teamController.text.trim();
    if (newTeam.isNotEmpty) {
      setState(() {
        teams.add(newTeam);
      });
      teamController.clear();
      Navigator.pop(context);
    }
  }

  void openAddTeamDialog() {
    showDialog(
      context: context,
      builder: (context) {
        return AlertDialog(
          title: Text("Create a New Team"),
          content: TextField(
```

```

        controller: teamController,
        decoration: InputDecoration(hintText: "Enter team name"),
    ),
    actions: [
        TextButton(
            onPressed: () => Navigator.pop(context),
            child: Text("Cancel"),
        ),
        ElevatedButton(
            onPressed: addTeam,
            child: Text("Create"),
        ),
    ],
);
},
);
}

```

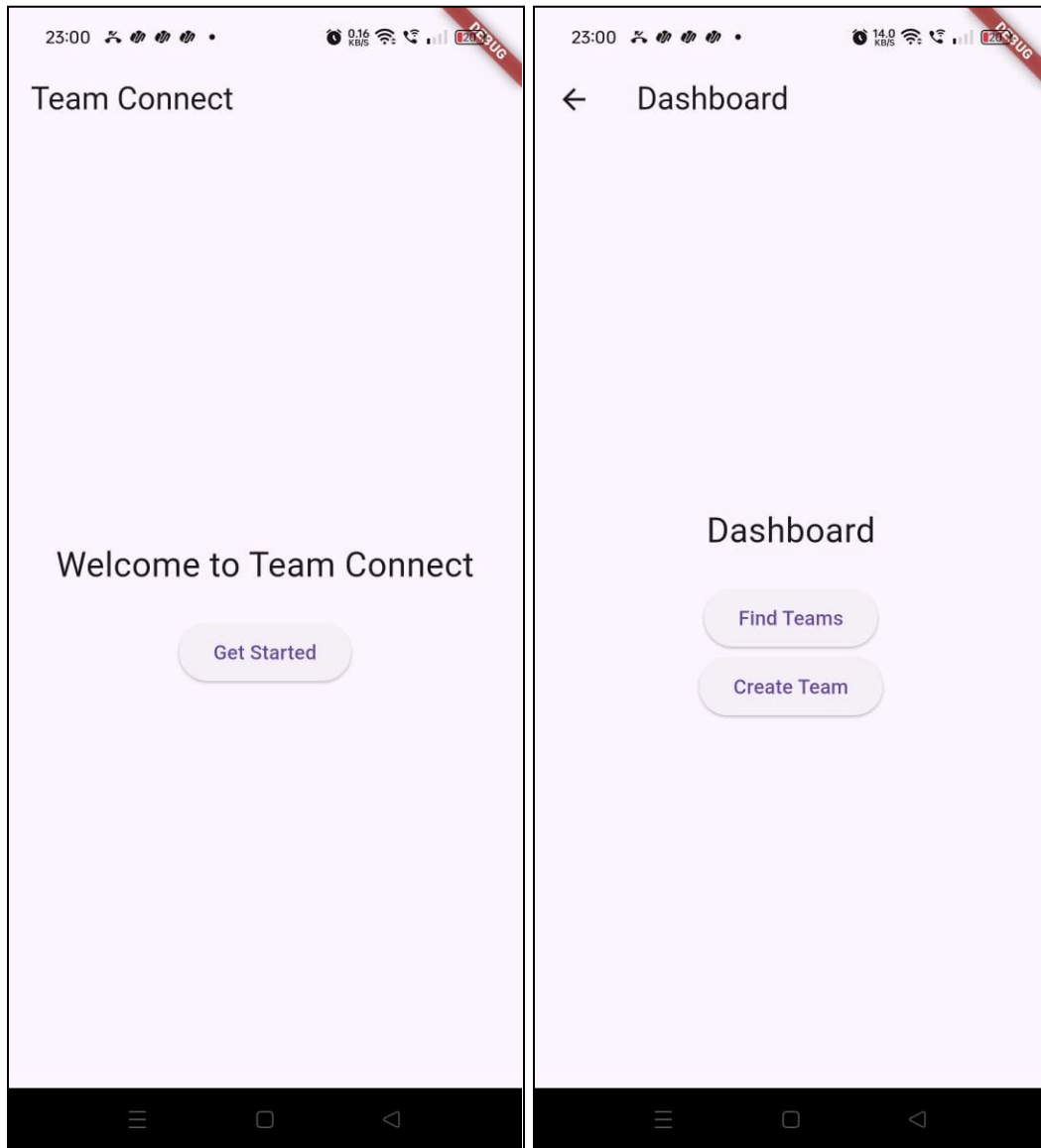
```

@override
Widget build(BuildContext context) {
    return Scaffold(
        appBar: AppBar(title: Text("Sports Community Builder")),
        body: Padding(
            padding: EdgeInsets.all(10),
            child: Column(
                children: [
                    Expanded(
                        child: ListView.builder(
                            itemCount: teams.length,
                            itemBuilder: (context, index) {
                                return Card(
                                    margin: EdgeInsets.symmetric(vertical: 5),
                                    child: ListTile(
                                        title: Text(teams[index]),
                                        trailing: Icon(Icons.sports_soccer),
                                    ),
                                );
                            },
                        ),
                    SizedBox(height: 10),
                    ElevatedButton(
                        onPressed: openAddTeamDialog,
                        child: Text("Create a New Team"),
                    ),
                ],
            ),
        ),
    );
}

```

```
);  
}  
}
```

OUTPUT:



Conclusion:

In this experiment, we successfully designed the UI for our Sports Community Builder app using common Flutter widgets like `ListView`, `Card`, `TextField`, and `ElevatedButton`. Initially, we faced errors related to updating the list dynamically and handling the pop-up dialog, but we resolved them by using `setState()` for real-time UI updates and ensuring proper text input handling.