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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().

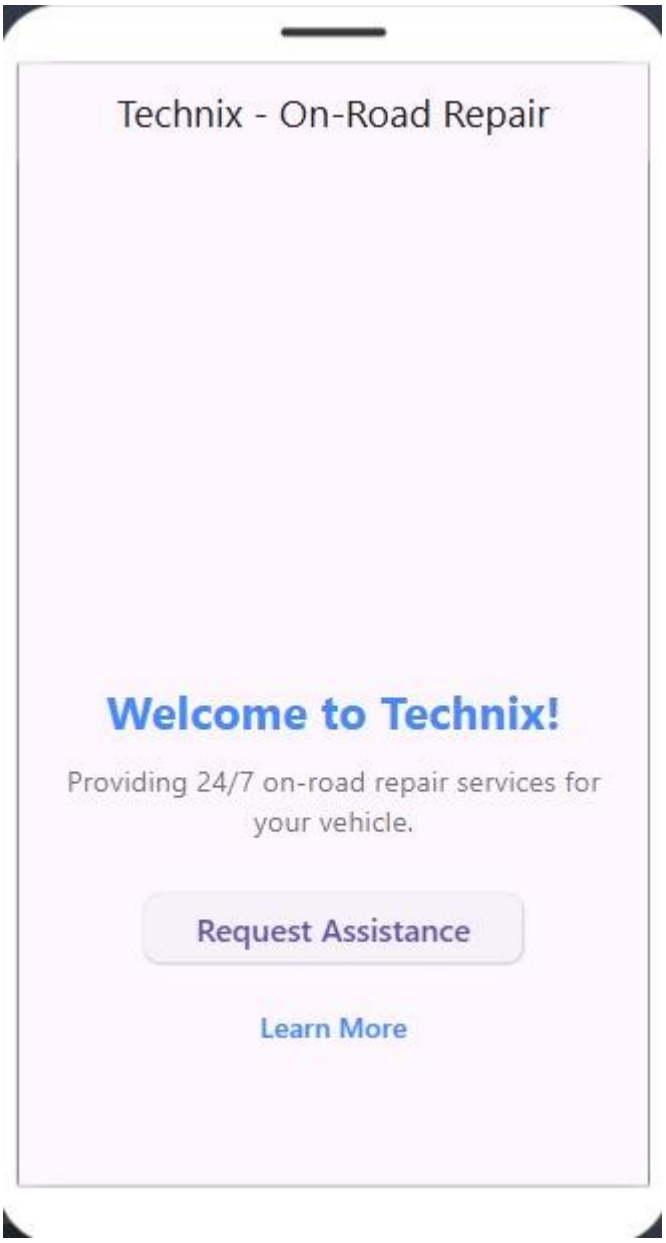
CODE:

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

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

class TechnixApp extends StatelessWidget {
 @override
 Widget build(BuildContext context) {
  return MaterialApp(
   debugShowCheckedModeBanner: false,
   theme: ThemeData(
    primarySwatch: Colors.blue,
    textTheme: GoogleFonts.poppinsTextTheme(),
   ),
   home: HomeScreen(),
  );
 }
}

class HomeScreen extends StatelessWidget {
 @override
 Widget build(BuildContext context) {
  return Scaffold(
   backgroundColor: Colors.blueAccent,
   appBar: AppBar(
    title: Text("Technix - Roadside Assistance"),
    backgroundColor: Colors.black87,
   ),
   body: Center(
    child: Column(
     mainAxisAlignment: MainAxisAlignment.center,
     children: [
      Text(
       "Need a Mechanic?",
       style: TextStyle(
        fontSize: 24,
        fontWeight: FontWeight.bold,
        color: Colors.white,
       ),
```

```
          ),
          SizedBox(height: 20),
          ElevatedButton(
           style: ElevatedButton.styleFrom(
            backgroundColor: Colors.orange,
            padding: EdgeInsets.symmetric(horizontal: 30, vertical: 15),
            shape: RoundedRectangleBorder(
             borderRadius: BorderRadius.circular(10),
            ),
           ),
           onPressed: () {
            Navigator.push(
             context,
             MaterialPageRoute(builder: (context) => RequestMechanicScreen()),
            );
           },
           child: Text(
            "Request a Mechanic",
            style: TextStyle(fontSize: 18, color: Colors.white),
           ),
          ),
         ],
        ),
       ),
      );
  }
}

class RequestMechanicScreen extends StatefulWidget {
  @override
  _RequestMechanicScreenState createState() => _RequestMechanicScreenState();
}

class _RequestMechanicScreenState extends State<RequestMechanicScreen> {
  TextEditingController _locationController = TextEditingController();

  void _submitRequest() {
    Fluttertoast.showToast(msg: "Mechanic Requested at ${_locationController.text}", toastLength:
Toast.LENGTH_SHORT);
  }

  @override
  Widget build(BuildContext context) {
```

```
    return Scaffold(
      appBar: AppBar(
        title: Text("Request a Mechanic"),
        backgroundColor: Colors.black87,
      ),
      body: Padding(
        padding: EdgeInsets.all(20.0),
        child: Column(
          children: [
            TextField(
              controller: _locationController,
              decoration: InputDecoration(
                labelText: "Enter Your Location",
                border: OutlineInputBorder(),
              ),
            ),
            SizedBox(height: 20),
            ElevatedButton(
              onPressed: _submitRequest,
              style: ElevatedButton.styleFrom(
                backgroundColor: Colors.green,
                padding: EdgeInsets.symmetric(horizontal: 30, vertical: 15),
              ),
              child: Text("Submit Request", style: TextStyle(fontSize: 16, color: Colors.white)),
            ),
          ],
        ),
      ),
    );
  }
}
```

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.