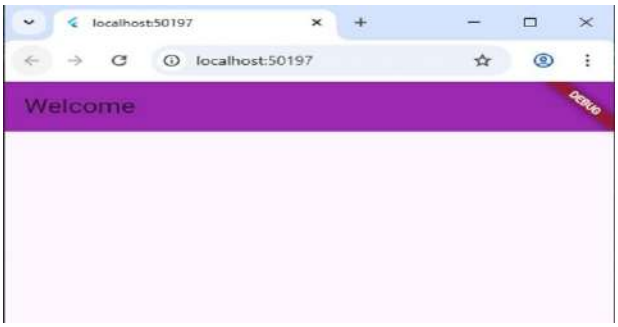
b) Write a simple dart program to understand the language basics.

```
import 'package:flutter/material.dart';
void main() {
  runApp(Abc());
}
class Abc extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    return MaterialApp(
      home: Def(),
    );
  }
}
class Def extends StatelessWidget {
  const Def({super.key});
@override
  Widget build(BuildContext context) {
    return Scaffold(
      appBar: AppBar(
        title: Text("Welcome"),
        backgroundColor: Colors.purple,
      ),
      body: Column(
        children: [
          //Widgets
        ],
      ),
    );
  }
}
```

OUTPUT:



Reg No:

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1.c) Write a Dart console program that prints your name, checks age with conditionals, uses a loop to count from 1 to 5, and defines a function to return the sum of two numbers.

PROGRAM:

```
int addNumbers(int a, int b) {
  return a + b;
}
void main() {
  // 1. Print your name
  String name = "Chandini"; // you can replace with your own name
  print("My name is $name");

  // 2. Check age with conditionals
  int age = 22; // change value to test
  if (age >= 18) {
    print("You are an adult.");
  } else {
    print("You are a minor.");
  }

  // 3. Loop to count from 1 to 5
  print("Counting from 1 to 5:");
  for (int i = 1; i <= 5; i++) {
    print(i);
  }

  // 4. Use the sum function
  int x = 10, y = 20;
  int result = addNumbers(x, y);
  print("The sum of $x and $y is $result");
}
```

7 b) Implement form validation and error handling.

PROGRAM:

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

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

class MyApp extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    return MaterialApp(
      title: 'Form Example',
      home: Scaffold(
        appBar: AppBar(
          title: Text('Form Example'),
        ),
        body: SingleChildScrollView(
          padding: EdgeInsets.all(16),
          child: FormWidget(),
        ),
      ),
    );
  }
}

class FormWidget extends StatefulWidget {
  @override
  _FormWidgetState createState() => _FormWidgetState();
}

class _FormWidgetState extends State<FormWidget> {
  final _formKey = GlobalKey<FormState>();

  String? _name;
  String? _email;
  String? _password;
  String? _phone;
```

```
String? _address;
 @override
 Widget build(BuildContext context) {
  return Form(
    key: _formKey,
    child: Column(
      crossAxisAlignment: CrossAxisAlignment.start,
      children: <Widget>[
        // Name field
        TextFormField(
          decoration: InputDecoration(labelText: 'Name'),
          validator: (value) {
            if (value == null || value.isEmpty) {
              return 'Please enter your name';
            }
            return null;
          },
          onSaved: (value) => _name = value,
        ),
        SizedBox(height: 16),

        // Email field
        TextFormField(
          decoration: InputDecoration(labelText: 'Email'),
          keyboardType: TextInputType.emailAddress,
          validator: (value) {
            if (value == null || value.isEmpty) {
              return 'Please enter your email';
            }
            if (!RegExp(r'\S+@\S+\.\S+').hasMatch(value)) {
              return 'Please enter a valid email';
            }
            return null;
          },
          onSaved: (value) => _email = value,
        ),
        SizedBox(height: 16),
```

```
// Password field
  TextFormField(
    decoration: InputDecoration(labelText: 'Password'),
    obscureText: true,
    validator: (value) {
      if (value == null || value.isEmpty) {
        return 'Please enter a password';
      }
      if (value.length < 6) {
        return 'Password must be at least 6 characters';
      }
      return null;
    },
    onSaved: (value) => _password = value,
  ),
  SizedBox(height: 16),

  // Phone field
  TextFormField(
    decoration: InputDecoration(labelText: 'Phone'),
    keyboardType: TextInputType.phone,
    validator: (value) {
      if (value == null || value.isEmpty) {
        return 'Please enter your phone number';
      }
      return null;
    },
    onSaved: (value) => _phone = value,
  ),
  SizedBox(height: 16),

  // Address field
  TextFormField(
    decoration: InputDecoration(labelText: 'Address'),
    maxLines: 3,
    validator: (value) {
      if (value == null || value.isEmpty) {
        return 'Please enter your address';
```

```
            }
            return null;
          },
          onSaved: (value) => _address = value,
        ),
        SizedBox(height: 16),

        // Submit button
        ElevatedButton(
          onPressed: _submitForm,
          child: Text('Submit'),
        ),
      ],
    ),
  );
}

void _submitForm() {
  if (_formKey.currentState!.validate()) {
    _formKey.currentState!.save();

    // Print form data
    print('Form submitted:');
    print('Name: $_name');
    print('Email: $_email');
    print('Password: $_password');
    print('Phone: $_phone');
    print('Address: $_address');

    // Optional: Show confirmation on screen
    ScaffoldMessenger.of(context).showSnackBar(
      SnackBar(content: Text('Form submitted successfully!')),
    );
  }
 }
}
```


Reg No:

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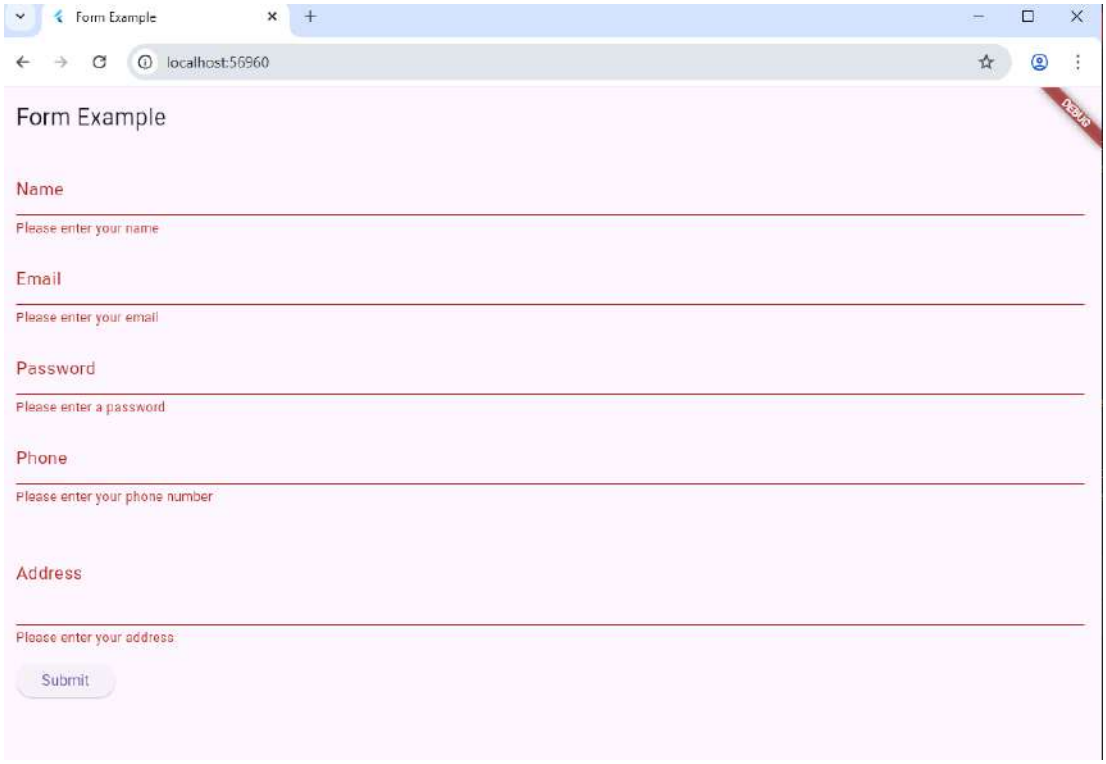
OUTPUT:


Form Example
localhost:56960
Form Example
DEBUG
Name
Please enter your name
Email
Please enter your email
Password
Please enter a password
Phone
Please enter your phone number
Address
Please enter your address
Submit

9. a) Fetch data from REST API

dependancy in pubspec.yaml:

```
dependencies:
  flutter:
    sdk: flutter
  http: ^1.1.0
```

In your terminal, run:

flutter pub get

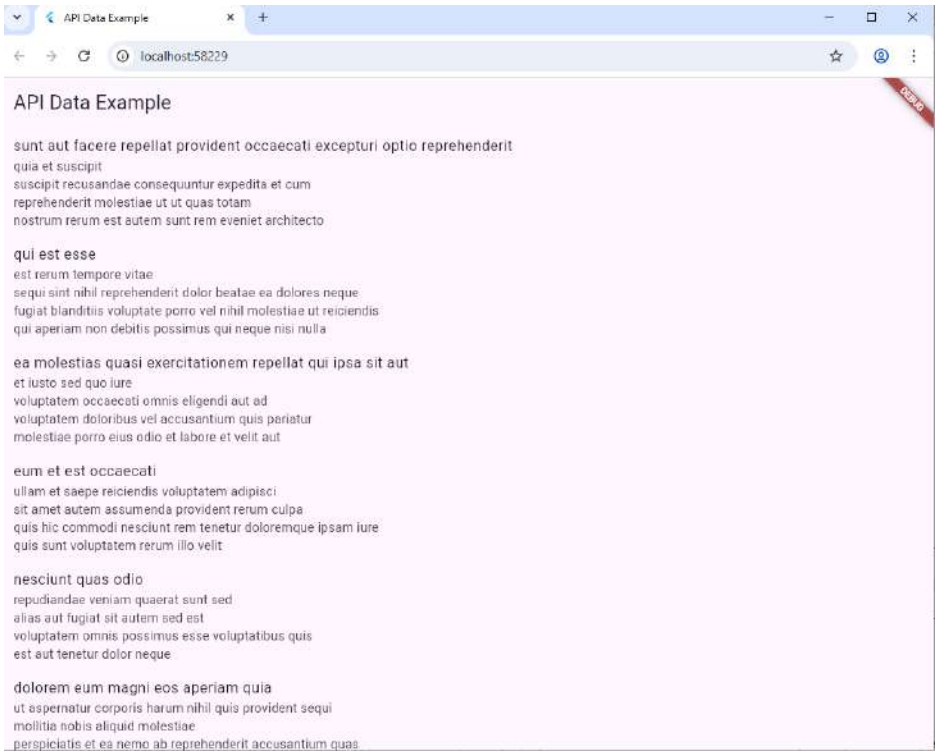
PROGRAM:

```
import 'dart:convert';
import 'package:flutter/material.dart';
import 'package:http/http.dart' as http;

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

class MyApp extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    return MaterialApp(
      title: 'API Data Example',
      home: HomePage(),
    );
  }
}

class HomePage extends StatefulWidget {
  @override
  _HomePageState createState() => _HomePageState();
}

class _HomePageState extends State<HomePage> {
  List<dynamic> _data = [];
  bool _isLoading = true;
```

```
String? _error;

@override
void initState() {
  super.initState();
  _fetchDataFromApi();
}

Future<void> _fetchDataFromApi() async {
  try {
    final response = await http
        .get(Uri.parse('https://jsonplaceholder.typicode.com/posts'));

    if (response.statusCode == 200) {
      setState(() {
        _data = json.decode(response.body);
        _isLoading = false;
      });
    } else {
      setState(() {
        _error = 'Failed to load data';
        _isLoading = false;
      });
    }
  } catch (e) {
    setState(() {
      _error = e.toString();
      _isLoading = false;
    });
  }
}

@override
Widget build(BuildContext context) {
  return Scaffold(
    appBar: AppBar(
      title: Text('API Data Example'),
    ),
```

```
      body: _isLoading
          ? Center(child: CircularProgressIndicator())
          : _error != null
          ? Center(child: Text('Error: $_error'))
          : ListView.builder(
        itemCount: _data.length,
        itemBuilder: (context, index) {
          return ListTile(
            title: Text(_data[index]['title'] ?? ''),
            subtitle: Text(_data[index]['body'] ?? ''),
          );
        },
      ),
    );
  }
}
```

OUTPUT:



Reg No:

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