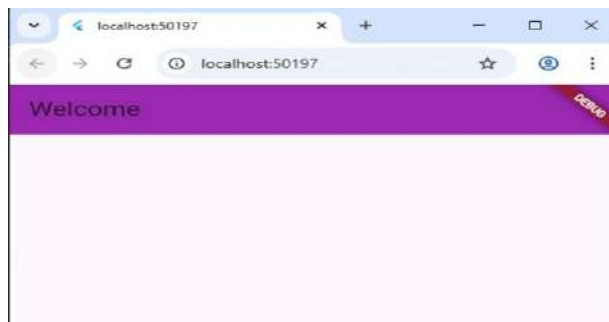## b) Write a simple dart program to understand the language basics.

```dart
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:

3. b) Implement media queries and breakpoints for responsiveness.
PROGRAM:

```
import 'package:flutter/material.dart';
void main() {
 runApp(MyApp());
}
class MyApp extends
StatelessWidget {
 @override
 Widget build(BuildContext
 context) {
  return MaterialApp(
    title: 'Responsive UI with Media Queries', theme: ThemeData(
    primarySwatch: Colors.blue,
  ),
    home:
    ResponsiveHomePage(),
  );
 }
}
class ResponsiveHomePage extends
StatelessWidget {
 @override
 Widget build(BuildContext context) {
  return
   Scaffold(
    appBar: AppBar(
     title: Text('Responsive UI with Media Queries'),
    ),
    body: LayoutBuilder(
     builder: (BuildContext context, BoxConstraints constraints) {
      if (constraints.maxWidth < 600) {
       return _buildMobileLayout();
      } else if (constraints.maxWidth < 1200) {
       return _buildTabletLayout();
      } else {
       return _buildDesktopLayout();
      }
```
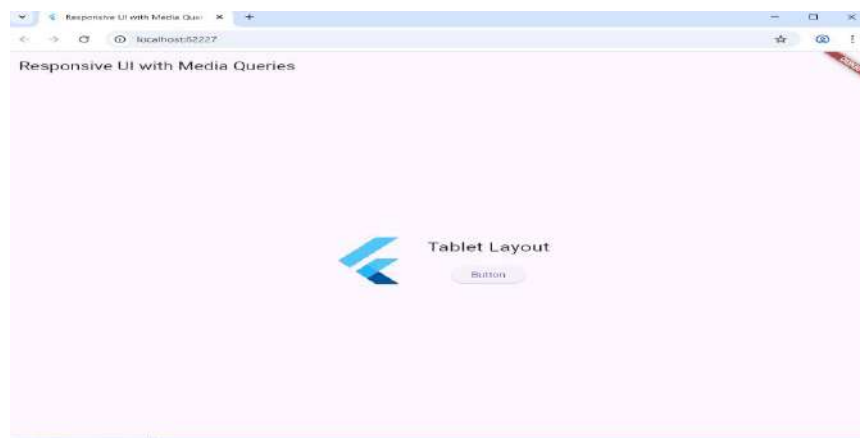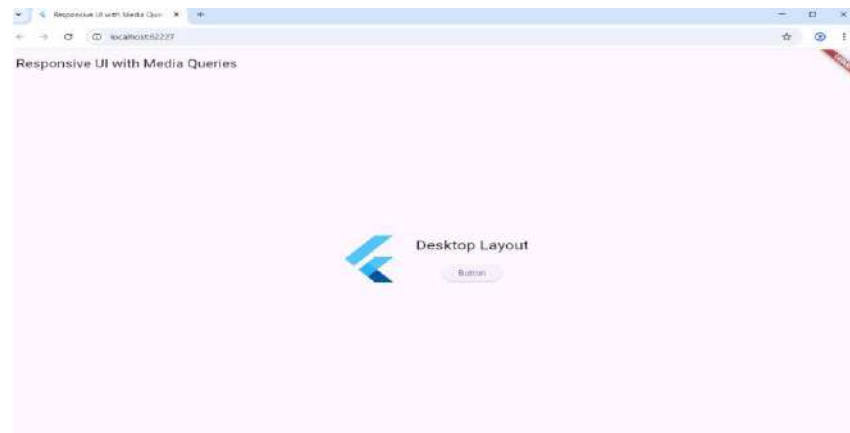
```
      },
    ),
  );
}
Widget _buildMobileLayout() {
  return Center(
    child: Column(
      mainAxisAlignment: MainAxisAlignment.center,
      children: <Widget>[
        FlutterLogo(size: 100),
        SizedBox(height: 20),
        Text(
          'Mobile Layout',
          style: TextStyle(fontSize: 24),
        ),
        SizedBox(height: 20),
        ElevatedButton(
          onPressed: () {},
          child: Text('Button'),
        ),
      ],
    ),
  );
}
Widget
_buildTabletLayout() {
  return
    Center(
      child:
      Row(
        mainAxisAlignment: MainAxisAlignment.center,
        children: <Widget>[
          FlutterLogo(size: 100),
          SizedBox(width: 20),
          Column(
            mainAxisAlignment: MainAxisAlignment.center,
            children: <Widget>[
              Text(
                'Tablet Layout',
```

```
            style: TextStyle(fontSize: 24),
          ),
          SizedBox(height: 20),
          ElevatedButton(
           onPressed: () {},
           child: Text('Button'),
          ),
        ],
       ),
      ],
     ),
    );
  }
  Widget _buildDesktopLayout() {
   return
    Center(
     child: Row(
      mainAxisAlignment: MainAxisAlignment.center,
      children: <Widget>[
       FlutterLogo(size: 100),
       SizedBox(width: 20),
       Column(
        mainAxisAlignment: MainAxisAlignment.center,
        children: <Widget>[
         Text(
          'Desktop Layout',
          style: TextStyle(fontSize: 24),
         ),
         SizedBox(height: 20),
         ElevatedButton(
          onPressed: () {},
          child: Text('Button'),
         ),
        ],
       ),
      ],
     ),
    );
```

```
}
}
```

OUTPUT:

4. a) Setup navigation between different screens using navigator

PROGRAM:

```dart
import 'package:flutter/material.dart';
void main() {
runApp(MyApp());
}
class MyApp extends StatelessWidget {
@override
Widget build(BuildContext context) {
return MaterialApp(
title: 'Navigation Example',
theme: ThemeData(
primarySwatch: Colors.blue,
),
home: FirstScreen(),
);
}
}
class FirstScreen extends StatelessWidget {
@override
Widget build(BuildContext context) {
return Scaffold(
appBar: AppBar(
title: Text('First Screen'),
),
body: Center(
child: ElevatedButton(
onPressed: () {
// Navigate to the second screen
Navigator.push(
context,
MaterialPageRoute(builder: (context) => SecondScreen()),
);
},
child: Text('Go to Second Screen'),
),
),
);
}
```
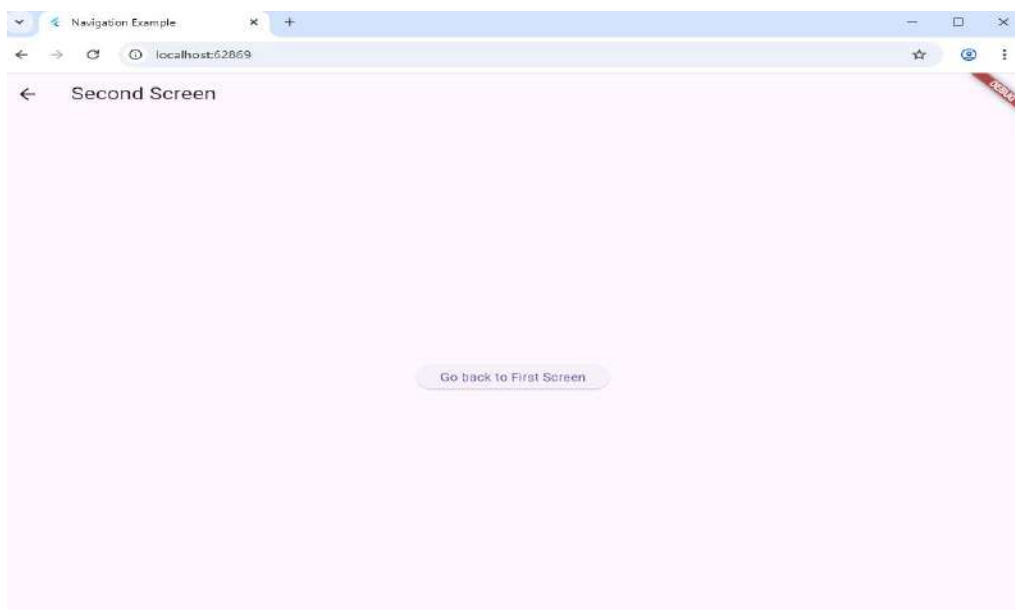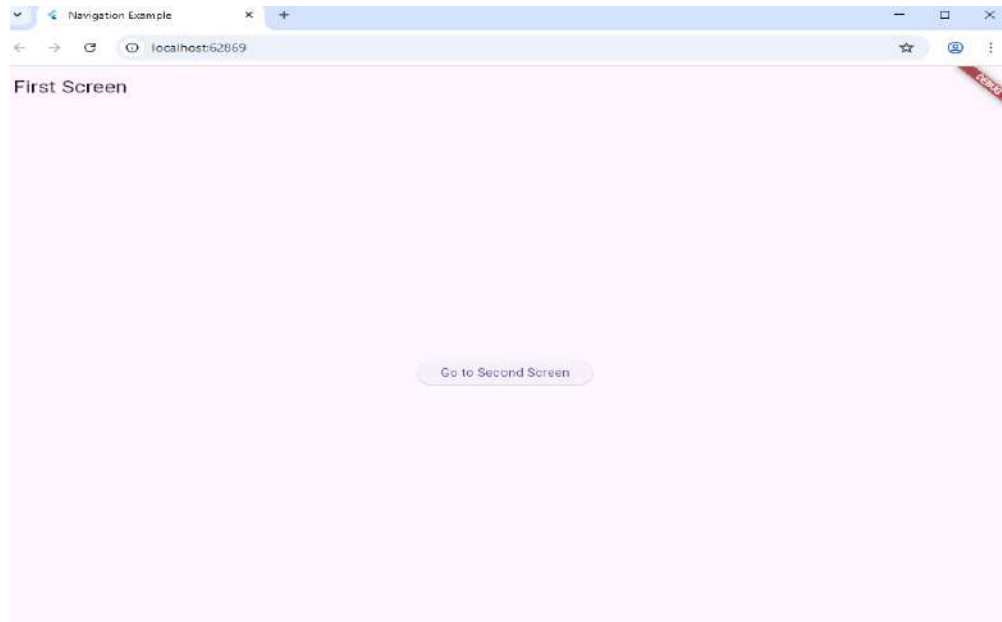
| 2 | 3 | P | 3 | 1 | A | 4 | 2 | | |

```
}

class SecondScreen extends StatelessWidget {
@override
Widget build(BuildContext context) {
return Scaffold(
appBar: AppBar(
title: Text('Second Screen'),
),
body: Center(
child: ElevatedButton(
onPressed: () {
// Navigate back to the first screen
Navigator.pop(context);
},
child: Text('Go back to First Screen'),
),
),
);
}
}
```

OUTPUT:

| 2 | 3 | P | 3 | 1 | A | 4 | 2 | | |

7. a) Design a form with various input fields.

Form with various input fields such as text fields, checkboxes, radio buttons, and a dropdown menu.

PROGRAM:

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

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

class MyApp extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    return MaterialApp(
      title: 'Form Example',
      theme: ThemeData(
        primarySwatch: Colors.blue,
      ),
      home: FormPage(),
    );
  }
}

class FormPage extends StatefulWidget {
  @override
  _FormPageState createState() => _FormPageState();
}

class _FormPageState extends State<FormPage> {
  final _formKey = GlobalKey<FormState>();
  String? _name;
  String? _email;
  bool _subscribeToNewsletter = false;
  String _selectedCountry = 'USA';

  @override

  Widget build(BuildContext context) {
```

| 2 | 3 | P | 3 | 1 | A | 4 | 2 | | |

```
    return Scaffold(
      appBar: AppBar(
        title: Text('Form Example'),
      ),
      body: Padding(
        padding: EdgeInsets.all(20.0),
        child: SingleChildScrollView(
          child: Form(
            key: _formKey,
            child: Column(
              crossAxisAlignment: CrossAxisAlignment.start,
              children: <Widget>[
                // Name TextFormField
                TextFormField(
                  decoration: InputDecoration(labelText: 'Name'),
                  onSaved: (value) {
                    _name = value ?? '';
                  },
                ),
                SizedBox(height: 20),

                // Email TextFormField
                TextFormField(
                  decoration: InputDecoration(labelText: 'Email'),
                  onSaved: (value) {
                    _email = value ?? '';
                  },
                ),
                SizedBox(height: 20),

                // Subscribe Checkbox
                Row(
                  children: <Widget>[
                    Checkbox(
                      value: _subscribeToNewsletter,
                      onChanged: (bool? value) {
                        setState(() {
                          _subscribeToNewsletter = value ?? false;
                        });
```

```dart
        },
      ),
      Text('Subscribe to Newsletter'),
    ],
  ),
  SizedBox(height: 20),

  // Country Dropdown
  Row(
    children: <Widget>[
      Text('Country: '),
      SizedBox(width: 20),
      DropdownButton<String>(
        value: _selectedCountry,
        onChanged: (String? value) {
          setState(() {
            _selectedCountry = value ?? 'USA';
          });
        },
        items: <String>['USA', 'Canada', 'UK', 'Australia']
            .map<DropdownMenuItem<String>>((String value) {
          return DropdownMenuItem<String>(
            value: value,
            child: Text(value),
          );
        }).toList(),
      ),
    ],
  ),
  SizedBox(height: 20),

  // Submit Button
  ElevatedButton(
    onPressed: () {
      _formKey.currentState!.save(); // Save form data
      print('Name: $_name');
      print('Email: $_email');
      print('Subscribe to Newsletter: $_subscribeToNewsletter');
      print('Country: $_selectedCountry');
```
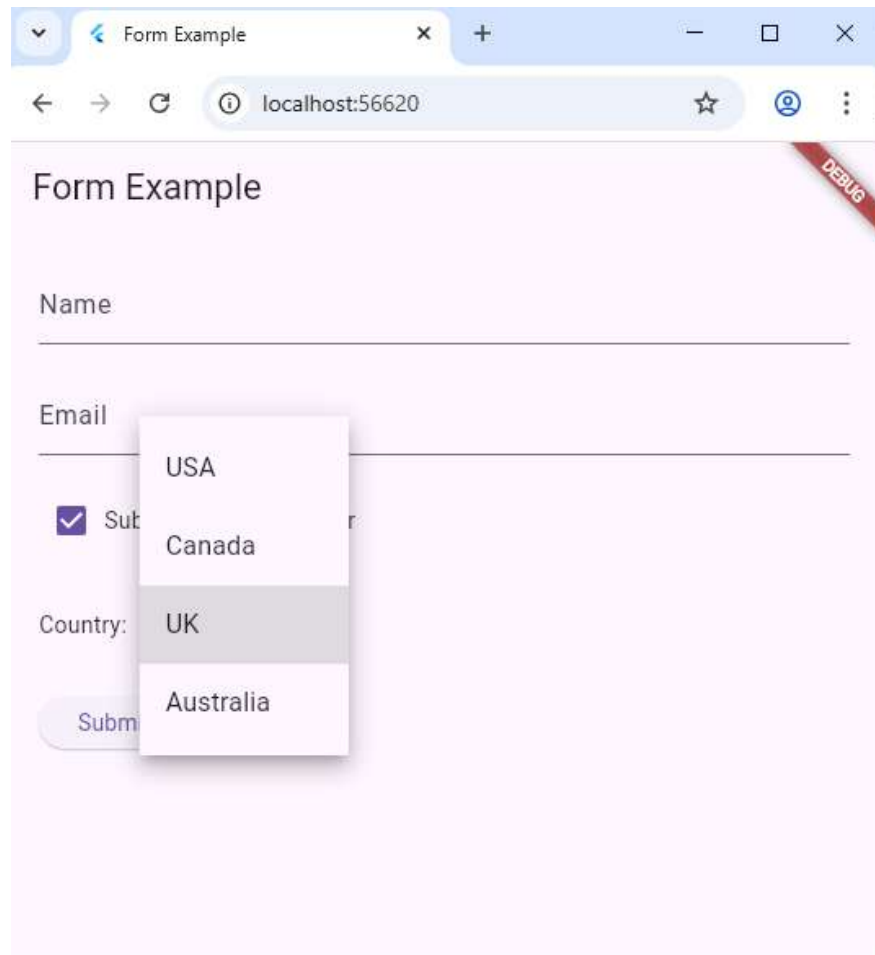
| 2 | 3 | P | 3 | 1 | A | 4 | 2 | | |

```
        },
        child: Text('Submit'),
      ),
    ],
   ),
  ),
 ),
);
}
}
```

OUTPUT: