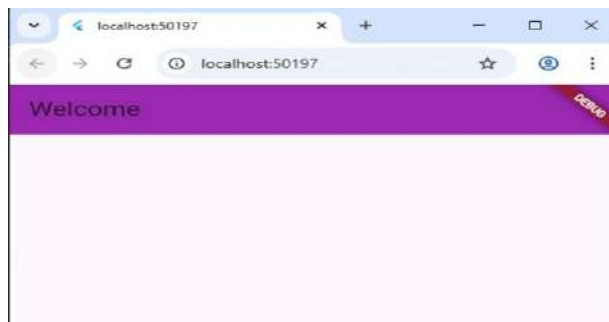## b) Write a simple dart program to understand the language basics.

```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:

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:

```dart
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");
}
```
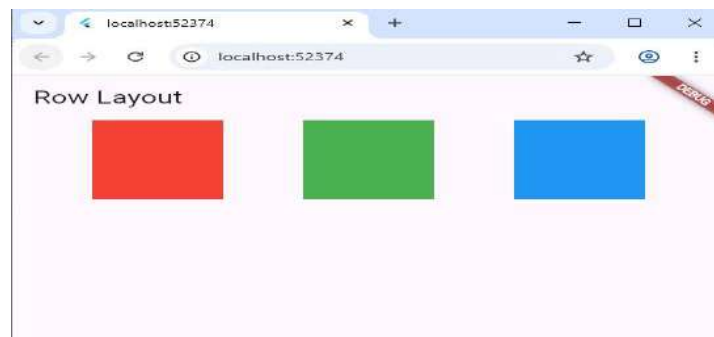
OUTPUT:

```
My name is Chandini

You are an adult.

Counting from 1 to 5:

1

2

3

4

5

The sum of 10 and 20 is 30
```

2) b) Implement different layout structures using Row, Column, and Stack widgets.
PROGRAM: ROW WIDETS.

```dart
import 'package:flutter/material.dart';
void main() {
 runApp(MyApp());
}
class MyApp extends StatelessWidget {
@override
Widget build(BuildContext context) {
 return MaterialApp( home:
 Scaffold(appBar: AppBar(
  title: Text('Row Layout'),
 ),
  body: Row(
   mainAxisAlignment: MainAxisAlignment.spaceEvenly, children:
  <Widget>[
   Container(
    color: Colors.red,
    width: 100, height: 100,
   ), Container(
   color: Colors.green,
   width: 100, height: 100,
  ),
   Container(
    color: Colors.blue, width: 100,
    height: 100,
   ),
  ],
  ),
 ),
 );
}
}
```

OUTPUT:

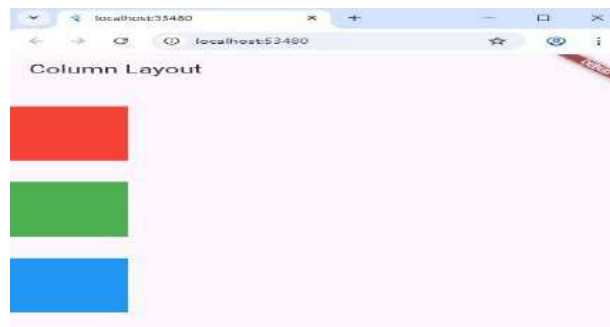| 2 | 3 | P | 3 | 1 | A | 4 | 2 | | |

PROGRAM: COLUMN WIDETS.

```dart
import 'package:flutter/material.dart';
void main() {
  runApp(MyApp());
}
class MyApp extends StatelessWidget {
@override
Widget build(BuildContext context) {
  return MaterialApp( home:
  Scaffold(appBar: AppBar(
    title: Text('Column Layout'),
  ),
    body: Column(
      mainAxisAlignment: MainAxisAlignment.spaceEvenly, children:
    <Widget>[
      Container(
        color: Colors.red, width: 100,
        height: 100,
      ), Container(
      color: Colors.green, width: 100,
      height: 100,
    ), Container(
      color: Colors.blue, width: 100,
      height: 100,
    ),
    ],
    ),
  ),
  );
}
}
```
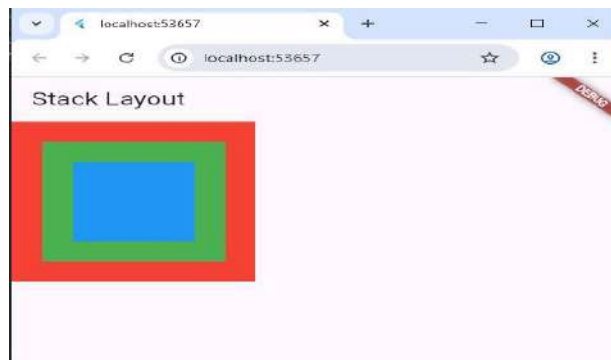
OUTPUT:

PROGRAM: STACK WIDETS.

```
import 'package:flutter/material.dart';
void main() {
 runApp(MyApp());}
class MyApp extends StatelessWidget {
@override
Widget build(BuildContext context) {
 return MaterialApp( home:
 Scaffold(appBar: AppBar(
  title: Text('Stack Layout'),
 ),
  body: Stack(
   alignment: Alignment.center, children:
  <Widget>[
   Container(
    color: Colors.red, width: 200,
    height: 200,
    ),
   Container(
    color: Colors.green, width: 150,
    height: 150,
   ), Container(
   color: Colors.blue, width: 100,
   height: 100,
  ),
  ],
  ),
 ),
 ) ;
} }
```

OUTPUT:

5. a) Learn about stateful and stateless widgets

PROGRAM:

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

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

class MyApp extends StatelessWidget {
 @override
 Widget build(BuildContext context) {
  return MaterialApp(
   home: Scaffold(
    appBar: AppBar(
     title: Text('Cards Example'),
    ),
    body: CardList(),
   ),
  );
 }
}

class CardList extends StatelessWidget {
 @override
 Widget build(BuildContext context) {
  return ListView.builder(
   itemCount: 10,
   itemBuilder: (context, index) {
    return CardItem(
     title: 'Card $index',
     subtitle: 'Subtitle $index',
    );
   },
  );
 }
}

class CardItem extends StatelessWidget {
```

```
  final String title;
  final String subtitle;

  const CardItem({
    Key? key,
    required this.title,
    required this.subtitle,
  }) : super(key: key);

  @override
  Widget build(BuildContext context) {
    return Card(
      margin: EdgeInsets.symmetric(horizontal: 16, vertical: 8),
      child: ListTile(
        title: Text(title),
        subtitle: Text(subtitle),
        leading: CircleAvatar(
          child: Text(title.substring(0, 1)),
        ),
        onTap: () {
          // Handle card tap
        },
      ),
    );
  }
}
```

OUTPUT: