**Practical 2 code:**

**Widgets drower , text,img,**

import 'package:flutter/material.dart';

void main() {

runApp(

MaterialApp(

debugShowCheckedModeBanner: false,

home: Scaffold(

appBar: AppBar(

title: const Text('Practical 2'),

backgroundColor: Colors.purple,

),

drawer: const Drawer(

child: Center(

child: Text(style:TextStyle(fontSize: 20),'425\_Devesh\_Ghadigaonkar'),

),

),

body: const Center(

child: Image(

image: NetworkImage(

'https://static1.anpoimages.com/wordpress/wp-content/uploads/2022/06/Android-13-now-purple-widgets-spread.jpg'),

),

)),

),

);

}

**Practical 3A code:(single-Child Layout widget)**

import 'package:flutter/material.dart';

void main() {

runApp(

MaterialApp(

debugShowCheckedModeBanner: false,

home: Scaffold(

appBar: AppBar(

title: const Text('Practical 3A'),

backgroundColor: Color.fromARGB(255, 251, 17, 0)),

body: Center(

//centering the container

child: Padding(

padding: EdgeInsets.all(10),

child: SizedBox(

//enforcing the sized box height and width on containers height and width

height: 200,

width: 200,

child: Container(

//container

width: 100,

height: 100,

decoration: const BoxDecoration(

gradient: LinearGradient(

colors: [Colors.white, Colors.lime, Colors.black],

begin: Alignment.topLeft,

end: Alignment.bottomRight,

),

),

child: const Center(

child: Text('425\_Devesh\_Ghadigaonkar',

style: TextStyle(fontSize: 18),

textAlign: TextAlign.center),

),

),

),

),

),

),

),

);

}

**Practical 3B (multi- child Layout widget):**

**Column :**

import 'package:flutter/material.dart';

void main() {

runApp(

MaterialApp(

debugShowCheckedModeBanner: false,

home: Scaffold(

appBar: AppBar(

title: const Text('Practical 3B'),

backgroundColor: Color.fromARGB(255, 234, 124, 7)

),

body : Center(

child: Column(

mainAxisSize: MainAxisSize.min,

children:[

Container(

child: const Text('425\_Devesh',textAlign: TextAlign.center,style: TextStyle(fontSize: 18),),

width: 200,

height:200,

//color:Colors.amber,

decoration: const BoxDecoration(

gradient: LinearGradient(

colors:[Colors.orange,Colors.white,Colors.green],

begin:Alignment.topLeft,

end:Alignment.bottomRight,

),

),

),

Container(

child: const Text('Ghadigaonkar',textAlign: TextAlign.center,style: TextStyle(fontSize: 18),),

width: 200,

height:200,

//color:Colors.amber,

decoration: const BoxDecoration(

gradient: LinearGradient(

colors:[Colors.orange,Colors.white,Colors.green],

begin:Alignment.topLeft,

end:Alignment.bottomRight,

),

),

),

],

),

),

),

),

);

}

**Row :**

import 'package:flutter/material.dart';

void main() {

runApp(

MaterialApp(

debugShowCheckedModeBanner: false,

home: Scaffold(

appBar: AppBar(

title: const Text('Practical 3B'),

backgroundColor: Color.fromARGB(255, 0, 177, 241)

),

body : Center(

child: Row(

mainAxisSize: MainAxisSize.min,

children:[

Container(

child: const Text('425\_Devesh',textAlign: TextAlign.center,style: TextStyle(fontSize: 20),),

width: 200,

height:200,

decoration: const BoxDecoration(

gradient: LinearGradient(

colors:[Colors.orange,Colors.white,Colors.green],

begin:Alignment.topLeft,

end:Alignment.bottomRight,

),

),

),

Container(

child: const Text('Ghadigaonkar',textAlign: TextAlign.center,style: TextStyle(fontSize: 20),),

width: 200,

height:200,

decoration: const BoxDecoration(

gradient: LinearGradient(

colors:[Colors.orange,Colors.white,Colors.green],

begin:Alignment.topLeft,

end:Alignment.bottomRight,

),

),

),

],

),

),

),

),

);

}

**Expanded :**

import 'package:flutter/material.dart';

void main() {

runApp(

MaterialApp(

debugShowCheckedModeBanner: false,

home: Scaffold(

body:Center(

child: Column(

crossAxisAlignment: CrossAxisAlignment.stretch,

mainAxisSize: MainAxisSize.min,

children:[

Expanded(

child: Container(

color: const Color.fromARGB(255, 251, 19, 3),

width:100,

height:100,

child: const Text('Roll No. 425',textAlign: TextAlign.center,style:TextStyle(fontSize: 20)),

),

),

Align(

alignment: Alignment.center,

child:Container(

color: Color.fromARGB(255, 251, 251, 0),

width:100,

height:100,

child: const Text('Devesh',textAlign: TextAlign.center,style:TextStyle(fontSize: 20)),

),

),

Expanded(

child: Container(

color: Colors.blue,

width:100,

height:100,

child: const Text('Ghadigaonkar',textAlign: TextAlign.center,style:TextStyle(fontSize: 20)),

),

),

]

),

),

),

),

);

}

**Listview :**

import 'package:flutter/material.dart';

void main() {

runApp(

MaterialApp(

debugShowCheckedModeBanner: false,

home: Scaffold(

body:Center(

child: ListView(

children:[

Container(

color:Colors.green,

width:200,

height:300,

child: Text('Roll No. 425',textAlign: TextAlign.center,),

),

Container(

color:Colors.lightGreenAccent,

width:200,

height:200,

child: Text('Devesh',textAlign: TextAlign.center,),

),

Container(

color:Colors.cyanAccent,

width:200,

height:300,

child:Text('Ghadigaonkar',textAlign: TextAlign.center,),

),

]

),

),

),

),

);

}

**Gridview :**

import 'package:flutter/material.dart';

void main() {

runApp(MaterialApp(

debugShowCheckedModeBanner: false,

home: Scaffold(

body: Center(

child: GridView(

gridDelegate: SliverGridDelegateWithFixedCrossAxisCount(crossAxisCount: 4 ),

children: [

Container(

color: Colors.amber,

width: 300,

height: 300,

child: Text('Roll No. 425'),

),

Container(

color: Color.fromARGB(255, 2, 222, 238),

width: 300,

height: 300,

child: Text('Devesh'),

),

Container(

color: Color.fromARGB(255, 239, 249, 44),

width: 300,

height: 300,

child: Text('Ghadigaonkar'),

),

Container(

color: Color.fromARGB(255, 41, 252, 4),

width: 300,

height: 300,

child: Text('hello'),

),

Container(

color: Color.fromARGB(255, 134, 78, 225),

width: 300,

height: 300,

child: Text('hello'),

),

],

),

))));

}

**Stack :**

import 'package:flutter/material.dart';

void main() {

runApp(

MaterialApp(

debugShowCheckedModeBanner: false,

home: Scaffold(

body:Center(

child: Stack(

alignment: Alignment.bottomCenter,

children:[

Container(

color:Colors.green,

width:300,

height:300,

child: Text('425',style: TextStyle(fontSize: 20),),

),

Container(

color:Colors.lightGreenAccent,

width:200,

height:200,

child: Text('Devesh',style: TextStyle(fontSize: 20)),

),

Container(

color:Colors.amber,

width:100,

height:150,

child:Text('Ghadigaonkar',style: TextStyle(fontSize: 20)),

),

]

),

),

),

),

);

}

**Practical 4**

**#main.dart**

**Implement gesturea pointer**

import 'package:flutter/material.dart';

import 'Practical 4.dart';

void main() {

runApp(

MaterialApp(

title: '425\_Devesh Ghadigaonkar',

home: GestureDemo(), //Calling your GestureDemo class

),

);

}

**#Practical 4.dart**

import 'dart:math';

import 'package:flutter/material.dart';

//Step 1

class GestureDemo extends StatefulWidget {

const GestureDemo({super.key});

@override

State<GestureDemo> createState() {

return \_GestureDemo();

}

}

//Step 2

class \_GestureDemo extends State<GestureDemo> {

var numtime = 0; // created variable for getting number of times tapped

Color changebgcolor = Colors.red; //created variable of datatype color

final randomizer = Random();

var generaterandom = 1;

//Created function for incrementing count of times container was clicked

void noofTimes() {

setState(() {

numtime += 1;

});

}

//Created function for changing color of heart icon

void changebg() {

setState(() {

if (changebgcolor == Colors.red) {

changebgcolor = const Color.fromARGB(255, 209, 115, 226);

} else {

changebgcolor = Colors.red;

}

});

}

//Created function for generating random no.

void randomNo(){

setState(() {

generaterandom= randomizer.nextInt(10)+1;

});

}

@override

Widget build(context) {

return Scaffold(

body: Center(

child: Column(

mainAxisAlignment: MainAxisAlignment.center,

children: [

//onTap Gesture example

Text(

'Tapped $numtime times',

style: TextStyle(fontSize: 25),

),

SizedBox(height: 15),

GestureDetector(

onTap: () {

noofTimes();

},

child: Container(

color: Colors.amber,

padding: const EdgeInsets.all(20),

child: const Text(

'Single Tap here',

style: TextStyle(fontSize: 20),

),

),

),

const SizedBox(

height: 40,

),

//onDoubleTap Gesture

Icon(Icons.favorite, size: 60, color: changebgcolor), // To Add an Icon

const SizedBox(height: 10),

GestureDetector(

onDoubleTap: () {

changebg();

},

child: Container(

color: Colors.black,

padding: EdgeInsets.all(20),

child: const Text(

'Double Tap here',

style: TextStyle(fontSize: 20, color: Colors.white),

),

),

),

const SizedBox(

height: 50,

),

//onLongTap Gesture

Text('Random no. generated between 1 to 10:\n $generaterandom', style: TextStyle(fontSize: 20, fontWeight: FontWeight.bold),),

const SizedBox(

height: 10,

),

GestureDetector(

onLongPress: () {

randomNo();

},

child: Container(

color: Colors.lime,

padding: EdgeInsets.all(20),

child: const Text(

'Long Press here',

style: TextStyle(fontSize: 20),

),

),

),

],

),

),

);

}

}

**Practical 5**

**Theming & styling**

import 'package:flutter/material.dart';

void main() {

runApp(

MaterialApp(

debugShowCheckedModeBanner: false,

title: "Practical 5",

theme: ThemeData(

primaryColor: Colors.deepPurple,

primarySwatch: Colors.purple,

fontFamily: 'Times New Roman',

textTheme: TextTheme(

titleLarge: TextStyle(

fontSize: 50,

fontWeight: FontWeight.bold,

color: Colors.cyan,

),

bodyMedium: TextStyle(

fontSize: 20,

fontFamily: 'Arial',

),

),

),

home: HomePage(),

),

);

}

class HomePage extends StatelessWidget {

@override

Widget build(BuildContext context) {

return Scaffold(

appBar: AppBar(

title: Text('Home Page'),

),

body: Center(

child: Column(

mainAxisSize: MainAxisSize.min,

children: [

Text('425\_Devesh'),

Text(

'HeadLine',

style: Theme.of(context).textTheme.titleLarge,

),

SizedBox(height: 20),

Text('SubTitle', style: Theme.of(context).textTheme.bodyLarge),

SizedBox(height: 20),

Container(

color: Theme.of(context).primaryColor,

height: 50,

width: 50,

),

SizedBox(height: 20),

ElevatedButton(

onPressed: () {

Navigator.push(

context,

MaterialPageRoute(

builder: (context) => SecondPage(),

),

);

},

child: Text('Next Page'),

),

],

),

),

);

}

}

class SecondPage extends StatelessWidget {

@override

Widget build(BuildContext context) {

return Scaffold(

appBar: AppBar(

title: Text('Second Page'),

),

body: Center(

child: ElevatedButton(

onPressed: () {

Navigator.pop(context);

},

child: Text('Home Page'),

),

),

);

}

}

**Practical 6**

**routing**

import 'package:flutter/material.dart';

void main() {

runApp(

MaterialApp(

initialRoute: '/',

routes: {

'/':(context) => FirstScreen(),

'/second':(context) => SecondScreen(),

},

),

);

}

class FirstScreen extends StatelessWidget {

@override

Widget build(context) {

return Scaffold(

appBar: AppBar(

title: Text('425\_FirstScreen'),

),

body: Center(

child: ElevatedButton(

onPressed: () {Navigator.pushNamed(

context, '/second',

);},

child: Text('Next Screen'),

),

),

);

}

}

class SecondScreen extends StatelessWidget {

@override

Widget build(context) {

return Scaffold(

appBar: AppBar(

title: Text('425\_Second Screen'),

),

body: Center(

child: ElevatedButton(

onPressed: () {

Navigator.pop(context);

},

child: Text('First Screen'),

),

),

);

}

}

**Practical 7**

**#Practical 7.dart**

**animation**

import 'package:flutter/material.dart';

import 'package:myapp/animedemo.dart';

void main()

{

runApp(

MaterialApp(

home: Animedemo(),

),

);

}

**#animedemo.dart**

**State management**

import 'package:flutter/material.dart';

class Animedemo extends StatefulWidget {

State<Animedemo> createState(){

return \_AnimedemoState();

}

}

class \_AnimedemoState extends State<Animedemo>{

double \_margin = 0;

double \_width = 200;

Color \_color = Colors.greenAccent;

@override

Widget build(context){

return Scaffold(

body: Center(

child: AnimatedContainer(

margin: EdgeInsets.all(\_margin),

duration: Duration(seconds: 1),

width: \_width,

color: \_color,

child: Column(

crossAxisAlignment: CrossAxisAlignment.center,

children: [

ElevatedButton(

onPressed: () {

setState(() {

\_margin = 50;

});

},

child: Text ('Animate margin'),

),

SizedBox(

height: 15,

),

ElevatedButton(

onPressed: (){

setState(

() {

\_color = Colors.yellowAccent;

},

);

}, child: Text('Animate Color'),

),

SizedBox(

height: 15,

),

ElevatedButton(

onPressed: (){

setState(

() {

\_width = 400;

},

);

}, child: Text('Animate Width'),

),

],

)

)

)

);

}

}

**Practical 8**

import 'package:flutter/material.dart';

void main() {

runApp(MyApp());

}

class MyApp extends StatefulWidget {

@override

//\_MyAppState createState() => \_MyAppState();

State<MyApp> createState(){

return \_MyAppState();

}

}

class \_MyAppState extends State<MyApp> {

//state of the widget

Color \_containerColor = Colors.yellow;

void changeColor() {

setState(() {

if (\_containerColor == Colors.yellow) {

\_containerColor = Colors.green;

return;

}

\_containerColor = Colors.yellow;

});

}

@override

Widget build(BuildContext context) {

return MaterialApp(

title: 'Hello World',

theme: ThemeData(primarySwatch: Colors.blue),

home: Scaffold(

appBar: AppBar(

title: Text('Hello'),

),

body: Container(color: \_containerColor),

// ),

floatingActionButton: FloatingActionButton(onPressed: changeColor, child: Icon(Icons.add),tooltip: 'Click me',),

),

);

}

}