**https://drive.google.com/drive/folders/126KBnYltR0E3u9wsTStgZLdfpNLWQqH1**

**Print hello world:**

//\*\*\*\*\*\*\*\*\*Print hello world and app bar \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*  
  
import 'package:flutter/material.dart';  
  
void main() {  
 runApp(  
 MyApp()); //it calls the constructor class and also we made object of my class.  
}  
  
class MyApp extends StatelessWidget {  
 //we made class and extends with stateless widget.  
  
 @override  
 Widget build(BuildContext context) {  
 //The build method is where we define the app's UI. It returns a Widget that will be displayed on the screen.  
  
 return MaterialApp(  
 //We use the MaterialApp widget to create a Material Design app. It provides the basic app structure and functionality.  
  
 debugShowCheckedModeBanner: false,  
 //by this keyword we remove demo tag on my app.  
  
 title: 'My App',  
 //it sets the title of my app.  
  
 home: Scaffold(  
 //We use the Scaffold widget to create a basic app layout. It provides a material design layout structure.  
  
 appBar: AppBar(  
 //We use the AppBar widget to create a top app bar. It provides a material design app bar with a title and actions.  
  
 title: Text(  
 'My App '), //it display title of my app in screen at upper boarder.  
 ),  
  
 body: Center(  
 //We use the Center widget to center the child widget horizontally and vertically.  
 //it is body of my app.  
 child: Text('Muhammad wasif'),  
 //We use the Text widget to display a simple text message.  
 ),  
 ),  
 );  
 }  
}

**Use of Container:**

//\*\*\*\*\*\*\*\*\*Print hello world and app bar \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*  
  
import 'package:flutter/material.dart';  
  
void main() {  
 runApp(  
 MyApp()); //it calls the constructor class and also we made object of my class.  
}  
  
class MyApp extends StatelessWidget {  
 //we made class and extends with stateless widget.  
  
 @override  
 Widget build(BuildContext context) {  
 //The build method is where we define the app's UI. It returns a Widget that will be displayed on the screen.  
  
 return MaterialApp(  
 //We use the MaterialApp widget to create a Material Design app. It provides the basic app structure and functionality.  
  
 debugShowCheckedModeBanner: false,  
 //by this keyword we remove demo tag on my app.  
  
 title: 'My App',  
 //it sets the title of my app.  
  
 home: Scaffold(  
 //We use the Scaffold widget to create a basic app layout. It provides a material design layout structure.  
  
 appBar: AppBar(  
 //We use the AppBar widget to create a top app bar. It provides a material design app bar with a title and actions.  
  
 title: Text(  
 'My App Bar'), //it display title of my app in screen at upper boarder.  
 ),  
//This line sets the body property of the Scaffold widget to a Container widget. The Container widget is a basic widget that can contain other widgets.  
 body: Center(  
 child: Container(  
 height: 100,//These lines set the height, width, and color of the Container widget.  
 width: 100,  
 color: Colors.pink,  
   
 child: Text('wasif shah'), //This line sets the child of the Container widget to a Text widget with the text "wasif shah".  
  
 ),  
 ),  
 ),  
 );  
 }  
}

**Use of Text widget:**

import 'package:flutter/material.dart';  
void main(){  
runApp(myapp());  
  
}  
  
class myapp extends StatelessWidget{  
  
 @override  
 Widget build(BuildContext context) {  
 return MaterialApp(  
 debugShowCheckedModeBanner:false ,  
 title: "myapp",  
 home: Scaffold( //This sets the home property of the MaterialApp to a Scaffold widget.  
 appBar: AppBar(  
 title: Text("Use of Text widget") ,  
 ),  
  
 body: Text("Muhammad Wasif Shah",style: TextStyle( //This sets the style of the Text widget using a TextStyle object.  
 fontSize: 30,  
 color: Colors.*yellow*,  
 fontWeight: FontWeight.*bold*,  
 backgroundColor: Colors.*pinkAccent* ),  
 ),  
 )  
 );  
 }  
}

**Use of Center widget:**

import 'package:flutter/material.dart';  
void main(){  
runApp(myapp());  
  
}  
  
class myapp extends StatelessWidget{  
  
 @override  
 Widget build(BuildContext context) {  
 return MaterialApp(  
 debugShowCheckedModeBanner:false ,  
 title: "myapp",  
 home: Scaffold( //This sets the home property of the MaterialApp to a Scaffold widget.  
 appBar: AppBar(  
 title: Text("Use of Text widget") ,  
 ),  
  
 /\*body: Center(  
 child: Text("Muhammad Wasif Shah",style: TextStyle( //This sets the style of the Text widget using a TextStyle object.  
 fontSize: 30,  
 color: Colors.yellow,  
 fontWeight: FontWeight.bold,  
 backgroundColor: Colors.pinkAccent  
 ),  
 ),  
 ),  
 \*/  
  
 body: Center(  
 child: Container(  
 width: 200,  
 height: 100,  
 color: Colors.*greenAccent*,  
 child: Center(  
 child: Text("Wasif shah",style: TextStyle(fontSize: 25,fontWeight:FontWeight.*w800* )  
 ),  
 ),  
  
 ),  
 ),  
  
 )  
 );  
 }  
}

**Use of Button widget:**

**There are three types of buttons:**

**1)text button**

import 'package:flutter/material.dart';  
void main(){  
runApp(myapp());  
  
}  
  
class myapp extends StatelessWidget{  
  
 @override  
 Widget build(BuildContext context) {  
 return MaterialApp(  
 debugShowCheckedModeBanner:false ,  
 title: "myapp",  
 home: Scaffold( //This sets the home property of the MaterialApp to a Scaffold widget.  
 appBar: AppBar(  
 title: Text("Use of Button widget") ,  
 ),  
  
  
 body: TextButton(  
 child: Text("Click here!!"),  
 onPressed: (){ //in onpressed function we display button action after triger.  
 print("I am wasif shah."); //it prints after one tap in button.  
  
 },  
 onLongPress: (){ //if we press button long then it displays.  
 print(" I am Game changer");  
 },  
  
 )  
  
 )  
 );  
 }  
}

**2)elevated button**

import 'package:flutter/material.dart';  
void main(){  
runApp(myapp());  
  
}  
  
class myapp extends StatelessWidget{  
  
 @override  
 Widget build(BuildContext context) {  
 return MaterialApp(  
 debugShowCheckedModeBanner:false ,  
 title: "myapp",  
 home: Scaffold( //This sets the home property of the MaterialApp to a Scaffold widget.  
 appBar: AppBar(  
 title: Text("Use of Button widget") ,  
 ),  
  
  
 body: ElevatedButton( //in elevated button it shows shadow on button.  
 child: Text("Click Now!"),  
  
 onPressed: (){  
 print("I am the Best Developer!");  
 },  
 onLongPress: (){  
 print("I am bad developer");  
 },  
  
 )  
  
 )  
 );  
 }  
}

**3)outlined button**

import 'package:flutter/material.dart';  
void main(){  
runApp(myapp());  
  
}  
  
class myapp extends StatelessWidget{  
  
 @override  
 Widget build(BuildContext context) {  
 return MaterialApp(  
 debugShowCheckedModeBanner:false ,  
 title: "myapp",  
 home: Scaffold( //This sets the home property of the MaterialApp to a Scaffold widget.  
 appBar: AppBar(  
 title: Text("Use of Button widget") ,  
 ),  
  
  
 body: OutlinedButton( //in elevated button it shows outline around button.  
 child: Text("Click Now!"),  
  
 onPressed: (){  
 print("I am the Best Developer!");  
 },  
 onLongPress: (){  
 print("I am bad developer");  
 },  
  
 )  
  
 )  
 );  
 }  
}

**How to Add image in APP:**

**Firstly, we need to made a folder asset in directory then also made inside folder other folder like for images.**

**Secondly, we need to give path and update pubspec.ytml file.**

import 'package:flutter/material.dart';  
void main(){  
runApp(myapp());  
  
}  
  
class myapp extends StatelessWidget{  
  
 @override  
 Widget build(BuildContext context) {  
 return MaterialApp(  
 debugShowCheckedModeBanner:false ,  
 title: "myapp",  
 home: Scaffold( //This sets the home property of the MaterialApp to a Scaffold widget.  
 appBar: AppBar(  
 title: Text("Use of Button widget") ,  
 ),  
  
  
 body: Center(  
 child: Container(child: Image.asset('assets/images/IMG\_4958.jpg'),  
 height: 300,  
 width: 200,  
 ),  
 ) //we use image widget .  
 )  
 );  
 }  
}

**Use of Rows:**

import 'package:flutter/material.dart';  
void main(){  
runApp(myapp());  
  
}  
  
class myapp extends StatelessWidget{  
  
 @override  
 Widget build(BuildContext context) {  
 return MaterialApp(  
 debugShowCheckedModeBanner:false ,  
 title: "myapp",  
 home: Scaffold( //This sets the home property of the MaterialApp to a Scaffold widget.  
 appBar: AppBar(  
 title: Text("Use of Rows and Columns") ,  
 ),  
  
  
 body: Container(  
 height: 300,  
 //width: 300,  
 child: Row (  
 // mainAxisAlignment:MainAxisAlignment.spaceEvenly ,//by this it occurs space b/w widgets equally.  
 // mainAxisAlignment: MainAxisAlignment.spaceAround, //it occurs half short b\w first and last widget.  
 // mainAxisAlignment: MainAxisAlignment.spaceBetween,//it erase all space b/w first and last widget.  
 // mainAxisAlignment: MainAxisAlignment.end,  
 //mainAxisAlignment: MainAxisAlignment.center,  
 mainAxisAlignment: MainAxisAlignment.start, //main axis alignment means in row its width(horizontally).  
  
 // crossAxisAlignment: CrossAxisAlignment.end, //cross axis alignment means in row its height(vertically).   
 //crossAxisAlignment: CrossAxisAlignment.center, //vertical changes in row if we dont give any height to container then height  
 //will be automatically set as a height of widget.  
 crossAxisAlignment: CrossAxisAlignment.start,  
 children:<Widget> [ //we also define type of widget in colunmn and rows after childern.  
 Text("A",style: TextStyle(fontSize: 30),), //we also add multiple widget in rows and column  
 Text("B",style: TextStyle(fontSize: 30),),//if we dont define any specific type of widget.  
 Text("C",style: TextStyle(fontSize: 30),),  
 Text("D",style: TextStyle(fontSize: 30),),  
 ElevatedButton(onPressed: (){  
  
 }, child: Text("Click Here!!")  
 )  
  
  
 ],  
  
 ),  
 )  
  
  
 )  
 );  
 }  
}

**Use of Columns:**

import 'package:flutter/material.dart';  
void main(){  
runApp(myapp());  
  
}  
  
class myapp extends StatelessWidget{  
  
 @override  
 Widget build(BuildContext context) {  
 return MaterialApp(  
 debugShowCheckedModeBanner:false ,  
 title: "myapp",  
 home: Scaffold( //This sets the home property of the MaterialApp to a Scaffold widget.  
 appBar: AppBar(  
 title: Text("Use of Rows and Columns") ,  
 ),  
  
  
 body: Container(  
 //in columns if we don't give any height to container/column then it takes full body space height automatically.  
 //in row if we don't give any width to container/column then it takes full body space width automatically .  
 //height: 300,  
 width: 300,  
 child: Column (  
 //All main axis alignment change occurs only up or down in cloumns:  
 // mainAxisAlignment:MainAxisAlignment.spaceEvenly ,//by this it occurs space b/w widgets equally.  
 // mainAxisAlignment: MainAxisAlignment.spaceAround, //it occurs half short b\w first and last widget.  
 // mainAxisAlignment: MainAxisAlignment.spaceBetween,//it erase all space b/w first and last widget.  
 // mainAxisAlignment: MainAxisAlignment.end,  
 //mainAxisAlignment: MainAxisAlignment.center,  
 mainAxisAlignment: MainAxisAlignment.start, //main axis alignment means in column its height(vertically).  
  
 //All cross axis alignment change occurs only left or right in cloumns:  
 // crossAxisAlignment: CrossAxisAlignment.end, //cross axis alignment means in column its width(horizontally).  
 // crossAxisAlignment: CrossAxisAlignment.center, //horizontal changes in row if we don't give any width to container then width  
 //will be automatically set in a width of widget .  
 crossAxisAlignment: CrossAxisAlignment.start,  
 //crossAxisAlignment: CrossAxisAlignment.stretch,//button is a strechable widget so it will be streched but dont stretch text.  
 children:<Widget> [ //we also define type of widget in column and rows after childern.  
 Text("A",style: TextStyle(fontSize: 30),), //we also add multiple widget in rows and column  
 Text("B",style: TextStyle(fontSize: 30),),//if we don't define any specific type of widget.  
 Text("C",style: TextStyle(fontSize: 30),),  
 Text("D",style: TextStyle(fontSize: 30),),  
 ElevatedButton(onPressed: (){  
  
 }, child: Text("Click Here!!")  
 )  
  
  
 ],  
  
 ),  
 )  
  
  
 )  
 );  
 }  
}

**use column into row then row into column:**

import 'package:flutter/material.dart';  
void main(){  
runApp(myapp());  
  
}  
  
class myapp extends StatelessWidget{  
  
 @override  
 Widget build(BuildContext context) {  
 return MaterialApp(  
 debugShowCheckedModeBanner:false ,  
 title: "myapp",  
 home: Scaffold( //This sets the home property of the MaterialApp to a Scaffold widget.  
 appBar: AppBar(  
 title: Text("Use of Rows and Columns") ,  
 ),  
  
  
 body: Container(  
 //in columns if we don't give any height to container/column then it takes full body space height automatically.  
 //in row if we don't give any width to container/column then it takes full body space width automatically .  
 //height: 300,  
 // width: 300,  
 child: Column (  
 //All main axis alignment change occurs only up or down in cloumns:  
 //mainAxisAlignment:MainAxisAlignment.spaceEvenly ,//by this it occurs space b/w widgets equally.  
 // mainAxisAlignment: MainAxisAlignment.spaceAround, //it occurs half short b\w first and last widget.  
 // mainAxisAlignment: MainAxisAlignment.spaceBetween,//it erase all space b/w first and last widget.  
 // mainAxisAlignment: MainAxisAlignment.end,  
 //mainAxisAlignment: MainAxisAlignment.center,  
 mainAxisAlignment: MainAxisAlignment.start, //main axis alignment means in column its height(vertically).  
  
 //All cross axis alignment change occurs only left or right in cloumns:  
 // crossAxisAlignment: CrossAxisAlignment.end, //cross axis alignment means in column its width(horizontally).  
 // crossAxisAlignment: CrossAxisAlignment.center, //horizontal changes in row if we don't give any width to container then width  
 //will be automatically set in a width of widget .  
 crossAxisAlignment: CrossAxisAlignment.start,  
 //crossAxisAlignment: CrossAxisAlignment.stretch,//button is a strechable widget so it will be streched but dont stretch text.  
 children:<Widget> [ //we also define type of widget in column and rows after childern.  
  
 Row(  
 mainAxisAlignment: MainAxisAlignment.spaceEvenly,  
 crossAxisAlignment: CrossAxisAlignment.start,  
 children: [  
 Text("R1",style: TextStyle(fontSize: 30),), //in column we use row so at column first place we add row  
 Text("R2",style: TextStyle(fontSize: 30),),//if we don't define any specific type of widget.  
 Column( //now i add row into column .  
 mainAxisAlignment: MainAxisAlignment.spaceEvenly,  
 //crossAxisAlignment: CrossAxisAlignment.start,  
 children: [  
 ElevatedButton(onPressed: (){  
  
 }, child: Text("Click Now!!")  
 ),  
  
 ElevatedButton(onPressed: (){  
  
 }, child: Text("Click shit!!")  
 ),  
  
 ElevatedButton(onPressed: (){  
  
 }, child: Text("Click shit!!")  
 )  
  
 ],  
 ),  
  
 Text("R3",style: TextStyle(fontSize: 30),),  
 Text("R4",style: TextStyle(fontSize: 30),),  
  
 ],  
 ),  
 Text("A",style: TextStyle(fontSize: 30),), //we also add multiple widget in rows and column  
 Text("B",style: TextStyle(fontSize: 30),),//if we don't define any specific type of widget.  
 Text("C",style: TextStyle(fontSize: 30),),  
 Text("D",style: TextStyle(fontSize: 30),),  
  
 ElevatedButton(onPressed: (){  
  
 }, child: Text("Click Here!!")  
 )  
  
  
 ],  
  
 ),  
 )  
  
  
 )  
 );  
 }  
}

**All About inkwell:**

**Inkwell widget is used for making image, pictures or text becomes clickable:**

import 'package:flutter/material.dart';  
  
void main() {  
 runApp(Myapp());  
}  
  
class Myapp extends StatelessWidget {  
 @override  
 Widget build(BuildContext context) {  
 return MaterialApp(  
 debugShowCheckedModeBanner: false,  
 title: "my application",  
 home: Scaffold(  
 appBar: AppBar(  
 title: Text("my application"),  
 ),  
 body: Center(  
 child: InkWell(  
 onTap: () {  
 print("on tap on container");  
 },  
 onLongPress: () {  
 print("on long press click on container");  
 },  
 onDoubleTap: () {  
 print("it double click on container");  
 },  
 child: Container(  
 width: 200,  
 height: 200,  
 color: Colors.*cyanAccent*,  
 child: TextButton(  
 child: Text("click Here!!"),  
 onPressed: () {  
 // print("clicked on button!!");  
 },  
 ),  
 ),  
 ),  
 )));  
 }  
}

**Scroll View and its Types:**

import 'package:flutter/material.dart';  
  
void main() {  
 runApp(myapp());  
}  
  
class myapp extends StatelessWidget {  
 @override  
 Widget build(BuildContext context) {  
 return MaterialApp(  
 title: "my application",  
 debugShowCheckedModeBanner: false,  
 home: Scaffold(  
 appBar: AppBar(  
 backgroundColor: Colors.*greenAccent*,  
 title: Text("My App"),  
 ),  
 body: Padding(  
 padding: const EdgeInsets.all(8.0),  
 //it use for create space b/w widgets and for settings.  
 child: SingleChildScrollView(  
 //it use for scroll content in app.  
 child: Column(  
 children: [  
 SingleChildScrollView(  
 scrollDirection: Axis.horizontal,  
 //it use for horizontal scrolls in row.  
 child: Padding(  
 padding: const EdgeInsets.all(8.0),  
 child: Row(  
 children: [  
 Container(  
 margin: EdgeInsets.only(right: 11),  
 //it creates space b/w containers.  
 height: 200,  
 width: 200,  
 color: Colors.*lightGreen*,  
 ),  
 Container(  
 margin: EdgeInsets.only(right: 11),  
 height: 200,  
 width: 200,  
 color: Colors.*lightGreenAccent*,  
 ),  
 Container(  
 margin: EdgeInsets.only(right: 11),  
 height: 200,  
 width: 200,  
 color: Colors.*blueGrey*,  
 ),  
 Container(  
 margin: EdgeInsets.only(right: 11),  
 height: 200,  
 width: 200,  
 color: Colors.*black12*,  
 ),  
 Container(  
 margin: EdgeInsets.only(right: 11),  
 height: 200,  
 width: 200,  
 color: Colors.*redAccent*,  
 ),  
 ],  
 ),  
 ),  
 ),  
 Container(  
 margin: EdgeInsets.only(bottom: 11),  
 height: 200,  
 //width: 200,  
 color: Colors.*pink*,  
 ),  
 Container(  
 margin: EdgeInsets.only(bottom: 11),  
 height: 200,  
 //width: 200,  
 color: Colors.*blue*,  
 ),  
 Container(  
 margin: EdgeInsets.only(bottom: 11),  
 height: 200,  
 //width: 200,  
 color: Colors.*amber*,  
 ),  
 Container(  
 margin: EdgeInsets.only(bottom: 11),  
 height: 200,  
 // width: 200,  
 color: Colors.*yellow*,  
 ),  
 Container(  
 margin: EdgeInsets.only(bottom: 11),  
 height: 200,  
 //width: 200,  
 color: Colors.*green*,  
 )  
 ],  
 ),  
 ),  
 ),  
 ),  
 );  
 }  
}

**Use of List view and its components:**

**List view is used in same design/template app but inside its content is different by using list view we don’t need to made widget one child scroll view It automatically enables scroll.**

**There are three parts of list view:**

1. **List view**
2. **List view. builder**
3. **List view. Separated**

**We also reverse our list by using reverse: true, function inside the list view.**

**For vertical:**

import 'package:flutter/material.dart';  
  
void main() {}  
  
class myapp extends StatelessWidget {  
 @override  
 Widget build(BuildContext context) {  
 return MaterialApp(  
 home: Scaffold(  
 appBar: AppBar(  
 title: Text("Use of List View"),  
 ),  
 backgroundColor: Colors.*yellowAccent*,  
 body: Padding(  
 padding: const EdgeInsets.all(8.0),  
 child: (ListView(  
 children: [  
 Padding(  
 padding: const EdgeInsets.all(8.0),  
 child: Text(  
 "One",  
 style: TextStyle(fontSize: 35, fontWeight: FontWeight.*w900*),  
 ),  
 ),  
 Padding(  
 padding: const EdgeInsets.all(8.0),  
 child: Text(  
 "Two",  
 style: TextStyle(fontSize: 35, fontWeight: FontWeight.*w900*),  
 ),  
 ),  
 Padding(  
 padding: const EdgeInsets.all(8.0),  
 child: Text(  
 "Three",  
 style: TextStyle(fontSize: 35, fontWeight: FontWeight.*w900*),  
 ),  
 ),  
 Padding(  
 padding: const EdgeInsets.all(8.0),  
 child: Text(  
 "Four",  
 style: TextStyle(fontSize: 35, fontWeight: FontWeight.*w900*),  
 ),  
 ),  
 Padding(  
 padding: const EdgeInsets.all(8.0),  
 child: Text(  
 "Five",  
 style: TextStyle(fontSize: 35, fontWeight: FontWeight.*w900*),  
 ),  
 ),  
 Padding(  
 padding: const EdgeInsets.all(8.0),  
 child: Text(  
 "Six",  
 style: TextStyle(fontSize: 35, fontWeight: FontWeight.*w900*),  
 ),  
 ),  
 Padding(  
 padding: const EdgeInsets.all(8.0),  
 child: Text(  
 "Seven",  
 style: TextStyle(fontSize: 35, fontWeight: FontWeight.*w900*),  
 ),  
 ),  
 Padding(  
 padding: const EdgeInsets.all(8.0),  
 child: Text(  
 "Eight",  
 style: TextStyle(fontSize: 35, fontWeight: FontWeight.*w900*),  
 ),  
 ),  
 Padding(  
 padding: const EdgeInsets.all(8.0),  
 child: Text(  
 "Nine",  
 style: TextStyle(fontSize: 35, fontWeight: FontWeight.*w900*),  
 ),  
 ),  
 Padding(  
 padding: const EdgeInsets.all(8.0),  
 child: Text(  
 "Ten",  
 style: TextStyle(fontSize: 35, fontWeight: FontWeight.*w900*),  
 ),  
 ),  
 Padding(  
 padding: const EdgeInsets.all(8.0),  
 child: Text(  
 "eleven",  
 style: TextStyle(fontSize: 35, fontWeight: FontWeight.*w900*),  
 ),  
 ),  
 Padding(  
 padding: const EdgeInsets.all(8.0),  
 child: Text(  
 "twelve",  
 style: TextStyle(fontSize: 35, fontWeight: FontWeight.*w900*),  
 ),  
 ),  
 Padding(  
 padding: const EdgeInsets.all(8.0),  
 child: Text(  
 "thirteen",  
 style: TextStyle(fontSize: 35, fontWeight: FontWeight.*w900*),  
 ),  
 ),  
 ],  
 )),  
 ),  
 )  
 );  
 }  
}

**for horizontal:**

import 'package:flutter/material.dart';  
  
void main() {}  
  
class myapp extends StatelessWidget {  
 @override  
 Widget build(BuildContext context) {  
 return MaterialApp(  
 home: Scaffold(  
 appBar: AppBar(  
 title: Text("Use of List View"),  
 ),  
 backgroundColor: Colors.*lightBlueAccent*,  
 body: Padding(  
 padding: const EdgeInsets.all(8.0),  
 child: (ListView(  
 scrollDirection: Axis.horizontal,  
 children: [  
 Padding(  
 padding: const EdgeInsets.all(8.0),  
 child: Text(  
 "One",  
 style: TextStyle(fontSize: 35, fontWeight: FontWeight.*w900*),  
 ),  
 ),  
 Padding(  
 padding: const EdgeInsets.all(8.0),  
 child: Text(  
 "Two",  
 style: TextStyle(fontSize: 35, fontWeight: FontWeight.*w900*),  
 ),  
 ),  
 Padding(  
 padding: const EdgeInsets.all(8.0),  
 child: Text(  
 "Three",  
 style: TextStyle(fontSize: 35, fontWeight: FontWeight.*w900*),  
 ),  
 ),  
 Padding(  
 padding: const EdgeInsets.all(8.0),  
 child: Text(  
 "Four",  
 style: TextStyle(fontSize: 35, fontWeight: FontWeight.*w900*),  
 ),  
 ),  
 Padding(  
 padding: const EdgeInsets.all(8.0),  
 child: Text(  
 "Five",  
 style: TextStyle(fontSize: 35, fontWeight: FontWeight.*w900*),  
 ),  
 ),  
 Padding(  
 padding: const EdgeInsets.all(8.0),  
 child: Text(  
 "Six",  
 style: TextStyle(fontSize: 35, fontWeight: FontWeight.*w900*),  
 ),  
 ),  
 Padding(  
 padding: const EdgeInsets.all(8.0),  
 child: Text(  
 "Seven",  
 style: TextStyle(fontSize: 35, fontWeight: FontWeight.*w900*),  
 ),  
 ),  
 Padding(  
 padding: const EdgeInsets.all(8.0),  
 child: Text(  
 "Eight",  
 style: TextStyle(fontSize: 35, fontWeight: FontWeight.*w900*),  
 ),  
 ),  
 Padding(  
 padding: const EdgeInsets.all(8.0),  
 child: Text(  
 "Nine",  
 style: TextStyle(fontSize: 35, fontWeight: FontWeight.*w900*),  
 ),  
 ),  
 Padding(  
 padding: const EdgeInsets.all(8.0),  
 child: Text(  
 "Ten",  
 style: TextStyle(fontSize: 35, fontWeight: FontWeight.*w900*),  
 ),  
 ),  
 Padding(  
 padding: const EdgeInsets.all(8.0),  
 child: Text(  
 "eleven",  
 style: TextStyle(fontSize: 35, fontWeight: FontWeight.*w900*),  
 ),  
 ),  
 Padding(  
 padding: const EdgeInsets.all(8.0),  
 child: Text(  
 "twelve",  
 style: TextStyle(fontSize: 35, fontWeight: FontWeight.*w900*),  
 ),  
 ),  
 Padding(  
 padding: const EdgeInsets.all(8.0),  
 child: Text(  
 "thirteen",  
 style: TextStyle(fontSize: 35, fontWeight: FontWeight.*w900*),  
 ),  
 ),  
 ],  
 )),  
 ),  
 )  
 );  
 }  
}

**list view. builder:**

import 'package:flutter/material.dart';  
void main(){  
runApp(myapp());  
  
}  
class myapp extends StatelessWidget{  
 @override  
 Widget build(BuildContext context){  
var arrnames =["ali","wasif","ahmad","rohit","john","hina"];  
 return MaterialApp(  
  
 title: "my app",  
 debugShowCheckedModeBanner: false,  
 home: Scaffold(  
  
 appBar: AppBar(  
  
 title: Text("my application"),  
 ),  
//by using listview .builder we display all list data without changing each data we use array and it works like for loop.  
 body: ListView.builder(itemBuilder: (context , index)  
 {  
  
 return Text(arrnames[index],style: TextStyle(fontSize: 30,fontWeight: FontWeight.w900),);  
//it returns text widget in which we display arrnames data one by one.  
 },  
 // scrollDirection: Axis.horizontal,  
 // reverse: true,  
 itemExtent: 100, //by using this we created space between each text.  
 itemCount: arrnames.length, //it display all data at last index of array.  
  
 ), //item builder  
  
 ) //Scaffold  
 ); //Material app  
 } //build  
  
} //class

**Listview.seperated:**

import 'package:flutter/material.dart';  
void main(){  
runApp(myapp());  
  
}  
class myapp extends StatelessWidget{  
 @override  
 Widget build(BuildContext context){  
var arrnames =["ali","wasif","ahmad","rohit","john","hina"];  
 return MaterialApp(  
  
 title: "my app",  
 debugShowCheckedModeBanner: false,  
 home: Scaffold(  
  
 appBar: AppBar(  
  
 title: Text("my application"),  
 ),  
//by using listview .builder we display all list data without changing each data we use array and it works like for loop.  
 body: ListView.separated(itemBuilder: (context , index)  
 {  
  
 return Text(arrnames[index],style: TextStyle(fontSize: 30,fontWeight: FontWeight.w900),);  
//it returns text widget in which we display arrnames data one by one.  
 },  
 //scrollDirection: Axis.horizontal,  
 // reverse: true,  
  
 itemCount: arrnames.length, //it display all data at last index of array.  
  
 separatorBuilder: (context , index){  
//in listview.seperated we dont use extent widget for seperation bcz we use this :  
 return Divider(height: 150,thickness: 4); //we use seperatedbuilder for  
 //made seperation between widgets so we use divider for seperation we also  
 //another widget.  
 },  
 ), //item seperated  
  
 ) //Scaffold  
 ); //Material app  
 } //build  
  
} //class

**also use row and column:**

import 'package:flutter/material.dart';  
void main(){  
 runApp(myapp());  
  
}  
class myapp extends StatelessWidget{  
 @override  
 Widget build(BuildContext context){  
 var arrnames =["ali","wasif","ahmad","rohit","john","hina"];  
 return MaterialApp(  
  
 title: "my app",  
 debugShowCheckedModeBanner: false,  
 home: Scaffold(  
  
 appBar: AppBar(  
  
 title: Text("my application"),  
 ),  
//by using listview .builder we display all list data without changing each data we use array and it works like for loop.  
 body: ListView.separated(itemBuilder: (context , index)  
 {  
  
 return Row( //we also return row and display same data in horizontally  
  
 children: [  
 Padding(  
 padding: const EdgeInsets.all(8.0),  
 child: Column(  
 children: [  
 Text(arrnames[index],style: TextStyle(fontSize: 30,fontWeight: FontWeight.w900),),  
 Text(arrnames[index],style: TextStyle(fontSize: 30,fontWeight: FontWeight.w900),),  
 Text(arrnames[index],style: TextStyle(fontSize: 30,fontWeight: FontWeight.w900),),  
 ],  
 ),  
 ),  
 Padding(  
 padding: const EdgeInsets.all(8.0),  
 child: Text(arrnames[index],style: TextStyle(fontSize: 30,fontWeight: FontWeight.w900),),  
 ),  
 Padding(  
 padding: const EdgeInsets.all(8.0),  
 child: Text(arrnames[index],style: TextStyle(fontSize: 30,fontWeight: FontWeight.w900),),  
 )  
  
 ],  
 );  
//it returns text widget in which we display arrnames data one by one.  
 },  
 //scrollDirection: Axis.horizontal,  
 // reverse: true,  
  
 itemCount: arrnames.length, //it display all data at last index of array.  
  
 separatorBuilder: (context , index){  
  
//in listview.seperated we dont use extent widget for seperation bcz we use this :  
 return Divider(height: 150,thickness: 4); //we use seperatedbuilder for  
 //made seperation between widgets so we use divider for seperation we also  
 //another widget.  
 },  
 ), //item seperated  
  
 ) //Scaffold  
 ); //Material app  
 } //build  
  
} //class

**Sample main. Dart code:**

**There are two types of class:**

**State less widgets is use for not changes in during run time.**

**State Full widgets is use for changes in app during run time.**

**For example: pressing button etc.**

import 'package:flutter/material.dart';  
void main(){  
  
runApp( myApp());  
  
}  
  
class myApp extends StatelessWidget{  
 @override  
 Widget build(BuildContext context) {  
 return MaterialApp(  
 title: "my application",  
 debugShowCheckedModeBanner: false,  
 theme: ThemeData(  
 primarySwatch: Colors.*orange*,  
 ),  
 home: DashboardScreen(),  
  
  
 );  
}  
  
}  
  
class DashboardScreen extends StatelessWidget{  
  
 @override  
 Widget build(BuildContext context){  
  
 return Scaffold(  
 appBar: AppBar(  
 title: Text("DashBoard"),  
 backgroundColor: Colors.*blue*,  
 ),  
  
body:  
 (  
 Container(  
 height: 200,  
 width: 200,  
 color: Colors.*deepPurple*,  
 )  
  
  
),  
  
 );  
  
  
 }  
  
  
}

**Decoration of Container:**

import 'package:flutter/material.dart';  
void main(){  
  
runApp( myApp());  
  
}  
  
class myApp extends StatelessWidget{  
 @override  
 Widget build(BuildContext context) {  
 return MaterialApp(  
 title: "my application",  
 debugShowCheckedModeBanner: false,  
 theme: ThemeData(  
 primarySwatch: Colors.*orange*,  
 ),  
 home: DashboardScreen(),  
  
  
 );  
}  
  
}  
  
class DashboardScreen extends StatelessWidget{  
  
 @override  
 Widget build(BuildContext context){  
  
 return Scaffold(  
 appBar: AppBar(  
 title: Text("DashBoard",style: TextStyle(fontSize: 25,fontWeight: FontWeight.*bold*),),  
 backgroundColor: Colors.*amberAccent*,  
 ),  
  
body: Container(  
 height: double.*infinity*, //by this we made full screeen container.  
 width: double.*infinity*,  
color: Colors.*black87*, //and color it whole screen.  
  
 child: Center(  
 child: Container( //we made child container inside an other container.  
 height: 200,  
 width: 200,  
 // color: Colors.yellow, //if we use decoration class in container then don't need to define color  
 //outside the container we define into decoration class.  
 decoration: BoxDecoration(  
  
 //by using BorderRadius class we set radius of our container:  
 //if u use shape class then don't use border radius.  
  
 //borderRadius: BorderRadius.circular(33), //it rounds edges of our container.  
 // borderRadius: BorderRadius.only(topLeft: Radius.circular(20),bottomRight: Radius.circular(20)),  
 //by BorderRadius.only we round specific egdes.  
 // borderRadius: BorderRadius.all(Radius.elliptical(20, 45)), //in ellipse we set x and y value.  
 //borderRadius: BorderRadius.all(Radius.circular(100)),//if we gave circular radious half of the width of the container  
 //then it becomes circle.  
  
  
 //by using border class we set border of our container:  
 border: Border.all(  
 width: 7,  
 color: Colors.*white70*,  
  
 ),  
  
  
 //by using boxShadow class we set blurness or seperation of radious of our container:  
 boxShadow: [  
 BoxShadow(  
 blurRadius: 40,  
 spreadRadius: 40,  
 color: Colors.*white*,  
  
 )  
 ],  
  
 //by using shape class we set radius of our container.  
  
 shape: BoxShape.circle,  
  
  
 color: Colors.*orange*,  
  
 ),  
  
  
  
  
 ),  
 )  
  
  
 ),  
 );  
  
 }  
  
  
}

**Use of Expanded widget:**

import 'package:flutter/cupertino.dart';  
import 'package:flutter/material.dart';  
  
void main() {  
runApp(Flutterapp());  
}  
  
class Flutterapp extends StatelessWidget{  
 @override  
 Widget build(BuildContext context){  
  
 return MaterialApp(  
 title: "my app",  
 debugShowCheckedModeBanner: false,  
 home: Scaffold(  
 appBar: AppBar(  
 title: Text("Dashboard"),  
 backgroundColor: Colors.*blue*,  
 ),  
  
 // In this code, I've wrapped the Column with a  
 // Container and provided a bounded height using MediaQuery.of(context).size.height - 100.  
 // This will give the Column a height that is equal to the screen height  
 // minus the height of the AppBar  
 body:  
  
 Column(  
 //Expanded widget is use for occupy or gave specific space occupied to any widget.  
 //by expanded widget we fill unnecessary space by expanding the widget.  
 //we also expand widget in ratios by using flex widget.  
 children: [  
  
 Expanded(  
 child: Container(  
 // width: 50,  
 height: 100,  
 color: Colors.*orange*,  
  
 ),  
 ),  
 Expanded(  
 flex: 2, //by using flex we fill space in ratios.  
 child: Container(  
 // width: 50,  
 height: 100,  
 color: Colors.*yellow*,  
 ),  
 ),  
 Expanded(  
 flex: 3,  
 child: Container(  
 // width: 50,  
 height: 100,  
 color: Colors.*pink*,  
 ),  
 ),  
  
 Expanded(  
 child: Container(  
 //width: 50,  
 height: 100,  
 color: Colors.*black54*,  
 ),  
 ),  
 Expanded(  
  
 child: Container(  
 //width: 50,  
 height: 100,  
 color: Colors.*green*,  
 ),  
 ),  
 ],  
 )  
  
 ),  
  
 );  
  
 }  
  
  
}

**Diff b/w Padding and Margin:**

**Padding is use for create space between widgets and by use of padding we create space in container.**

**Or**

**Margin is used for creating space outside the container or widget it means in padding we set space inside the widget and in margin we set space outside the widget.**

import 'package:flutter/material.dart';  
  
void main(){  
  
 runApp(flutterapp());  
}  
class flutterapp extends StatelessWidget{  
 @override  
 Widget build(BuildContext context) {  
 return MaterialApp(  
 title: "my app",  
 debugShowCheckedModeBanner: false,  
 home: Scaffold(  
 appBar: AppBar(  
 title: Text("My Application",style: TextStyle(fontSize: 35,fontWeight: FontWeight.*w900*),),  
 backgroundColor: Colors.*deepPurple*,  
 ),  
 body: (  
 Container(  
 // margin: EdgeInsets.all(23), //for create spacing outside the container.  
 margin: EdgeInsets.only(left: (33),top: (24)), //we gave specific space at any edge by using only.  
 color: Colors.*indigoAccent*,  
 child: Padding(  
 // padding: const EdgeInsets.all(12), //for create spacing inside the container.  
  
 padding: const EdgeInsets.only(top: 44,bottom: 44,left: 33,right: 33), //for create spacing inside the container.  
   
 child: Text("Muhammad Wasif",style: TextStyle(fontSize: 25,fontWeight: FontWeight.*w700*),),  
 ),  
  
 )  
  
 ),  
  
 ),  
  
 );  
 }  
  
}

**Use of List tile in List View:**

**Todo list App:**

**By using list view. Builder:**

import 'package:flutter/cupertino.dart';  
import 'package:flutter/material.dart';  
import 'package:flutter/rendering.dart';  
  
void main(){  
 runApp(flutterapp());  
}  
  
class flutterapp extends StatelessWidget{  
 @override  
 Widget build(BuildContext context){  
  
 var arrname=["Wasif","Ali","Ahmad","Saad","Misbah","Haris","Zubair","Saqib"];  
  
 return MaterialApp(  
  
 title: "my app ",  
 debugShowCheckedModeBanner: false,  
  
 home: Scaffold(  
  
 appBar: AppBar(  
  
 title: Text("Todo List"),  
 backgroundColor: Colors.*green*,  
 ),  
  
 body: (  
 ListView.builder(  
 itemCount: arrname.length,  
 itemBuilder: (context,index) {  
 //use of List Tile:  
 return ListTile(  
 leading: Text('${index + 1}',style: TextStyle(fontSize: 20,fontWeight: FontWeight.*w900*),), //leading is use for numbering and pics etc  
 title: Text("${arrname[index]}",style: TextStyle(fontSize: 26,fontWeight: FontWeight.*w600*),),  
 subtitle: Text("Number",style: TextStyle(fontSize: 18,fontWeight: FontWeight.*w500* ),),  
 trailing: Icon(Icons.*add* ,size: 40,), //by using icons class we set icon in app.   
 );  
  
   
 }  
 )  
 ),  
  
 ),  
 );  
 }  
}

**Todo list app by using**

**List view. Separated:**

import 'package:flutter/cupertino.dart';  
import 'package:flutter/material.dart';  
import 'package:flutter/rendering.dart';  
  
void main(){  
 runApp(flutterapp());  
}  
  
class flutterapp extends StatelessWidget{  
 @override  
 Widget build(BuildContext context){  
  
 var arrname=["Wasif","Ali","Ahmad","Saad","Misbah","Haris","Zubair","Saqib"];  
  
 return MaterialApp(  
  
 title: "my app ",  
 debugShowCheckedModeBanner: false,  
  
 home: Scaffold(  
  
 appBar: AppBar(  
  
 title: Text("Todo List"),  
 backgroundColor: Colors.*green*,  
 ),  
  
 body: (  
 ListView.separated(  
 itemCount: arrname.length,  
 separatorBuilder:(context,index){  
 return Divider(  
 height: 50,  
 thickness: 7,  
 );  
  
 },  
  
 itemBuilder: (context,index) {  
 //use of List Tile:  
 return ListTile(  
 leading: Text('${index + 1}',style: TextStyle(fontSize: 20,fontWeight: FontWeight.*w900*),), //leading is use for numbering and pics etc  
 title: Text("${arrname[index]}",style: TextStyle(fontSize: 26,fontWeight: FontWeight.*w600*),),  
 subtitle: Text("Number",style: TextStyle(fontSize: 18,fontWeight: FontWeight.*w500* ),),  
 trailing: Icon(Icons.*add* ,size: 40,), //by using icons class we set icon in app.  
 );  
  
  
 }  
  
 )  
 ),  
  
 ),  
 );  
 }  
}

**Use of Circle Avatar:**

**By using this widget, we can round images in specific space or also we add text in photo by using child in circle avatar.**

import 'package:flutter/cupertino.dart';  
import 'package:flutter/material.dart';  
  
void main(){  
  
 runApp(flutterapp());  
  
}  
class flutterapp extends StatelessWidget{  
 @override  
 Widget build(BuildContext context) {  
 return MaterialApp(  
 title: "my app",  
 debugShowCheckedModeBanner: false,  
  
 home: Scaffold(  
 appBar: AppBar(  
 title: Text("My App"),  
 backgroundColor: Colors.*indigo*,  
  
 ),  
  
 body:Center(  
 child: (  
  
 Container(  
 height: 300,  
 width: 300, //we also set size of circle by using container.  
  
 child: CircleAvatar(  
  
 // backgroundImage: AssetImage("assets/images/IMG\_20230106\_102737\_960.jpg"),  
 //radius: 100, //by radius we set radius of circle.  
 // minRadius: 50, //by this we set minimum radius of circle.  
 //backgroundColor: Colors.black54,  
  
 // maxRadius: 100, //by this we set max radius of circle.  
  
 child: Column(  
 children: [  
 Container(  
 height : 200, //it sets the size of image.  
 width: 200,  
  
 child: Image.asset("assets/images/IMG\_20230106\_102737\_960.jpg")  
  
 ),  
  
 Text("Name",style: TextStyle(fontSize: 30,fontWeight: FontWeight.*w500*),),  
  
 ],  
 ),  
  
  
  
 )  
  
  
  
  
 )  
  
 ),  
 ),  
  
  
  
  
  
  
 )  
 );  
 }  
  
  
  
}

**second same code:**

import 'package:flutter/cupertino.dart';  
import 'package:flutter/material.dart';  
  
void main(){  
 runApp(FlutterApp());  
}  
  
class FlutterApp extends StatelessWidget{  
 @override  
 Widget build(BuildContext context) {  
 return MaterialApp(  
 title: "my app",  
 debugShowCheckedModeBanner: false,  
  
 home: Scaffold(  
 appBar: AppBar(  
 title: Text("My App"),  
 backgroundColor: Colors.*indigo*,  
 ),  
  
 body: Center(  
 child: Column(  
 children: [  
 Container(  
 height: 60,  
 width: 60,  
  
 child: ClipRRect(  
 borderRadius: BorderRadius.circular(30), // Make the image circular  
 child: Image.asset("assets/images/IMG\_20230106\_102737\_960.jpg", fit: BoxFit.cover), // Resize the image to fit the Container  
 ),  
 ),  
  
 Text("Name", style: TextStyle(fontSize: 30, fontWeight: FontWeight.*w500*),),  
 ],  
 ),  
 ),  
 ),  
 );  
 }  
}

**My Todo List App With circle avatar (text):**

import 'package:flutter/cupertino.dart';  
import 'package:flutter/material.dart';  
  
void main(){  
  
 runApp(flutterapp());  
}  
  
class flutterapp extends StatelessWidget{  
 @override  
 Widget build(BuildContext context){  
 var arrname=["Wasif","Ali","Haris","Khizer","Asjid","Misbah","Faizan","Ahmad","Zain"];  
 return MaterialApp(  
 title: "My Todo List",  
 debugShowCheckedModeBanner: false,  
  
 home: Scaffold(  
 appBar: AppBar(  
 title: Text("My Todo List"),  
 backgroundColor: Colors.*blue*,  
 ),  
  
 body: (  
  
 ListView.separated(itemBuilder: (context,index){  
  
 return ListTile(  
 leading: CircleAvatar(  
 child: Text("${index+1}",style: TextStyle(fontSize: 18,fontWeight: FontWeight.*w600*),),  
 radius: 20,  
 backgroundColor: Colors.*green*,  
  
 ),  
 title: Text(arrname[index],style: TextStyle(fontSize: 27,fontWeight: FontWeight.*w600*),),  
 subtitle: Text("Number",style: TextStyle(fontSize: 18,fontWeight: FontWeight.*w400*),),  
 trailing: Icon(Icons.*add*),  
  
  
 );  
  
  
 },  
  
  
 separatorBuilder: (context,index) {  
  
 return Divider(thickness: 3,height: 10,);  
  
 },  
  
 itemCount: arrname.length,  
 )  
  
  
  
 ),  
  
 ),  
  
 );  
  
 }  
  
  
  
  
}

**My Todo List App With circle avatar (using pictures):**

import 'package:flutter/cupertino.dart';  
import 'package:flutter/material.dart';  
  
void main(){  
  
 runApp(flutterapp());  
}  
  
class flutterapp extends StatelessWidget{  
 @override  
 Widget build(BuildContext context){  
 var arrname=["Wasif","Ali","Haris","Khizer","Asjid","Misbah","Faizan","Ahmad","Zain"];  
 return MaterialApp(  
 title: "My Todo List",  
 debugShowCheckedModeBanner: false,  
  
 home: Scaffold(  
 appBar: AppBar(  
 title: Text("My Todo List"),  
 backgroundColor: Colors.*blue*,  
 ),  
  
 body: (  
  
 ListView.separated(itemBuilder: (context,index){  
  
 return ListTile(  
 leading: CircleAvatar(  
 radius: 25,  
 backgroundColor: Colors.*green*,  
 child: ClipOval(  
 child: Image(  
 image: AssetImage("assets/images/IMG\_20230106\_102737\_960.jpg"),  
 fit: BoxFit.cover,  
 ),  
 ),  
 ),  
 title: Text(arrname[index],style: TextStyle(fontSize: 27,fontWeight: FontWeight.*w600*),),  
 subtitle: Text("Number",style: TextStyle(fontSize: 18,fontWeight: FontWeight.*w400*),),  
 trailing: Icon(Icons.*add*),  
  
  
 );  
  
  
 },  
  
  
 separatorBuilder: (context,index) {  
  
 return Divider(thickness: 3,height: 40,);  
  
 },  
  
 itemCount: arrname.length,  
 )  
  
  
  
 ),  
  
 ),  
  
 );  
  
 }  
  
  
  
  
}

**Use of Custom Font:**

**First we create folder fonts in assets folder then we add font file path into that we download from google then we set path in pubspec ytml file then we use family font ….**

import 'package:flutter/cupertino.dart';  
import 'package:flutter/material.dart';  
  
void main(){  
runApp(flutterapp());  
  
}  
class flutterapp extends StatelessWidget{  
 @override  
 Widget build(BuildContext context){  
  
 return MaterialApp(  
 title: "my app",  
 debugShowCheckedModeBanner: false,  
  
 home: Scaffold(  
 appBar: AppBar(  
 title: Text("My App"),  
 backgroundColor: Colors.*deepOrange*,  
  
 ),  
  
 body: Center(  
 child: Container(  
 height: 120,  
 width: 230,  
 color: Colors.*yellowAccent*,  
 child: (  
  
 Text("Muhammad Wasif",style: TextStyle(fontFamily: "Mycustomfont",fontSize: 45,fontWeight: FontWeight.*w600*),)  
 //by fontfamily keyword then we add name of our font that we set in pubspec.ytml file.  
  
  
 ),  
 ),  
 ),  
  
  
  
  
  
 ),  
  
  
  
  
  
  
  
  
  
 );  
  
 }  
  
  
  
  
}

**Use of style and Theme:**

import 'package:flutter/cupertino.dart';  
import 'package:flutter/material.dart';  
void main(){  
runApp(flutterapp());  
  
}  
class flutterapp extends StatelessWidget{  
 @override  
 Widget build(BuildContext context){  
  
 return MaterialApp(  
 title: "my app",  
 debugShowCheckedModeBanner: false,  
 //by using theme we reduce redunctant code and where we dont apply any  
 //font size etc we use themeData like:  
 //Text("Text 1",style: Theme.of(context).textTheme.headlineLarge),  
  
 theme: ThemeData(  
 primaryColor: Colors.*blue*,  
 appBarTheme: AppBarTheme(color: Colors.*green*), // Apply the theme to the AppBar  
 // if i dont give any color in app bar  
 //then this default color automatically set in every screen.  
  
 textTheme: TextTheme(  
 headlineLarge: TextStyle(fontSize: 40,fontWeight: FontWeight.*w700*),  
 headlineSmall: TextStyle(fontSize: 20,fontWeight: FontWeight.*w900*),  
 headlineMedium: TextStyle(fontSize: 30,fontWeight: FontWeight.*w700*,fontStyle: FontStyle.italic),  
 titleLarge: TextStyle(fontSize: 50,fontWeight: FontWeight.*w900*,fontStyle: FontStyle.italic),  
 titleMedium: TextStyle(fontSize: 40,fontWeight: FontWeight.*w700*),  
  
 )  
  
  
 ),  
  
 home: Scaffold(  
 appBar: AppBar(  
 title: Text("My App"),  
 // backgroundColor: Colors.deepOrange, //if dont give any color then it use  
 //appbar theme color.  
  
 ),  
  
 body:  
 Column(  
 children: [  
  
 Text("Text 1",style: Theme.*of*(context).textTheme.headlineLarge!.copyWith(fontFamily: "Mycustomfont")),  
 Text("Text 2",style: Theme.*of*(context).textTheme.headlineMedium!.copyWith(color: Colors.*red*)),  
 //by using copyWith we add more style into theme.  
 Text("Text 3",style: Theme.*of*(context).textTheme.headlineSmall),  
 Text("Text 4",style: Theme.*of*(context).textTheme.titleMedium,)  
  
 ],  
 ),  
 ),  
  
  
  
  
  
  
  
  
  
 );  
  
 }  
  
  
  
  
}

**we also made separate dart file in lib folder in which we made many**

**Text style widget for using like this:**

**Util .dart file:**

// lib/util/util.dart  
import 'package:flutter/material.dart';  
  
  
//if we dont give any value in parameters than return default code run otherwise  
//in parameters code run.  
  
//Color is data type as use and textColor is use as variable and its is value  
// Colors.deepPurpleAccent. it works like a function parameters.  
TextStyle Textstyle50({ Color textColor=Colors.*black*}) {  
 return TextStyle(  
 fontSize: 50,  
 fontWeight: FontWeight.*w800*,  
 fontFamily: 'Mycustomfont',  
 color: textColor,  
 //color: Colors.pink// Replace with your actual custom font  
 );  
}TextStyle Textstyle70( {Color textColor=Colors.*black*}) {  
 return TextStyle(  
 fontSize: 70,  
 fontWeight: FontWeight.*w700*,  
 fontFamily: 'Mycustomfont', // Replace with your actual custom font  
 color: textColor,  
  
 );  
}TextStyle Textstyle90({Color textColor = Colors.*black* }) {  
 return TextStyle(  
 fontSize: 90,  
 fontWeight: FontWeight.*bold*,  
 fontFamily: 'Mycustomfont',  
 color: textColor,  
  
 // Replace with your actual custom font  
 // Replace with your actual custom font  
 );  
}

**It is main .dart file:**

import 'dart:ui';  
  
import 'package:flutter/cupertino.dart';  
import 'package:flutter/material.dart';  
import 'package:app/ui\_helper//util.dart';  
import 'package:flutter/painting.dart';  
import 'package:flutter/services.dart'; // Make sure the path is correct  
  
void main() {  
 runApp(flutterapp());  
}  
  
class flutterapp extends StatelessWidget {  
 @override  
 Widget build(BuildContext context) {  
 return MaterialApp(  
 title: "my app",  
 debugShowCheckedModeBanner: false,  
 theme: ThemeData(  
 primaryColor: Colors.*blue*,  
 appBarTheme: AppBarTheme(color: Colors.*green*),  
 textTheme: TextTheme(  
 headlineLarge: TextStyle(  
 fontSize: 40, fontWeight: FontWeight.*w700*),  
 headlineSmall: TextStyle(  
 fontSize: 20, fontWeight: FontWeight.*w900*),  
 headlineMedium: TextStyle(  
 fontSize: 30,  
 fontWeight: FontWeight.*w700*,  
 fontStyle: FontStyle.italic),  
 titleLarge: TextStyle(  
 fontSize: 50,  
 fontWeight: FontWeight.*w900*,  
 fontStyle: FontStyle.italic),  
 titleMedium: TextStyle(  
 fontSize: 40, fontWeight: FontWeight.*w700*),  
 ),  
 ),  
 home: Scaffold(  
 appBar: AppBar(  
 title: Text("My App"),  
 ),  
 body: Center(  
 child: Column(  
 children: [  
 Text("Text 1",  
 style: Theme.*of*(context)  
 .textTheme  
 .headlineLarge!  
 .copyWith(fontFamily: "Mycustomfont")),  
 Text("Text 2",  
 style: Theme.*of*(context)  
 .textTheme  
 .headlineMedium!  
 .copyWith(color: Colors.*red*)),  
 Text("Text 3",  
 style: Theme.*of*(context).textTheme.headlineSmall),  
 Text("Text 4",  
 style: Theme.*of*(context).textTheme.titleMedium),  
 Text("Text 5", style: Textstyle50(),),  
 Text("Text 6", style: Textstyle70(),), // Use the Textstyle50 from util.dart  
 Text("Text 7", style: Textstyle90(),),  
 //if we dont give any value in parameters than default code run in other  
 // parameter otherwise in parameters code run.  
 // so in upper three text 5,6,7 we dont gave any value in parameters in  
 //barackets so in util.dart file the default code run that we  
 // already gave value in parameters.  
  
 //and below text 8,9,10 that run parameter code run.  
 Text("Text 8", style: Textstyle50(textColor: Colors.*blue* ),),  
 Text("Text 9", style: Textstyle70(textColor: Colors.*red*),),  
 Text("Text 10", style: Textstyle90(textColor: Colors.*green*),),  
  
 ],  
 ),  
 ),  
 ),  
 );  
 }  
}

**Use of Card Widget:**

**By this widget we gave any widget 3d effect like there shadow showing and in three axis. Like elevated button:**

import 'package:flutter/material.dart';  
void main(){  
runApp(myapp());  
  
}  
  
class myapp extends StatelessWidget{  
  
 @override  
 Widget build(BuildContext context) {  
 return MaterialApp(  
 debugShowCheckedModeBanner:false ,  
 title: "myapp",  
 home: Scaffold( //This sets the home property of the MaterialApp to a Scaffold widget.  
 appBar: AppBar(  
 title: Text("Use of Text widget") ,  
  
 ),  
  
 body: Center(child: Card(  
 elevation: 25,  
 shadowColor: Colors.*deepPurple*,  
 shape: RoundedRectangleBorder( //by this we round edges of rectangle.  
 borderRadius: BorderRadius.circular(20)  
 ),  
  
 //shape: CircleBorder(), //it for circular border.  
  
 child: Padding(  
 padding: const EdgeInsets.all(16.0),  
 child: Text("Muhammad Wasif Shah", style: TextStyle(fontSize: 30,color: Colors.*blue*,  
 fontWeight: FontWeight.*bold*,),),  
 ),  
 )  
 ),  
 ),  
 );  
 }  
}

**Use of Text Field:**

**Text field is use for getting input from user for example simple login page in which we enter email and password. So in this lecture we learn only how we fetch our values through user. We don’t stored fetching values in database or in by API.**

**In text field we can use many further widgets for improve Ui Like**

**Decoration and its object is Input decoration,**

**suffix text is use as hint to tell user what write in this box and suffix text is applied on right side,**

**same as prefix text but it is written on start of box it mean left**

**side,**

**Hint is same as use prefix and suffix but when user click on box for writing data so hint will be hide but suffix and prefix not hide,**

**icon button , simple icon, elevated button**

**Keyboard type: Text input type we can change keyboard ,**

**focused border it means where user cursor blinks is called focused border,**

**enabled border all border be enabled at start up,**

**disabled border it means user can click many time in it but he did not write anything in it until it enabled,**

**For fetching values we use Controller widget and first we need to globally made variable that is equal to Text editing controller ,**

**Prefix icon, suffix icon ,**

**border and its object is Out line input border, border radius ,border side, elevated button in which we made login button when user press we get values ,Obscure text or obscure character we made our password hidden, Column and Container widgets is all widgets we use now:**

import 'package:flutter/cupertino.dart';  
import 'package:flutter/material.dart';  
import 'package:flutter/widgets.dart';  
  
void main() {  
 runApp(MyApp());  
}  
  
class MyApp extends StatelessWidget {  
 // Default constructor  
 MyApp({Key? key}) : super(key: key);  
  
 @override  
 Widget build(BuildContext context) {  
 return MaterialApp(  
 title: "My app",  
 debugShowCheckedModeBanner: false,  
 theme: ThemeData(  
 appBarTheme: AppBarTheme(  
 color: Colors.*blue*,  
 foregroundColor: Colors.*black87*,  
 ),  
 ),  
 home: LoginPage(),  
 );  
 }  
}  
  
class LoginPage extends StatelessWidget {  
 // Default constructor  
 LoginPage({Key? key}) : super(key: key);  
  
 @override  
 Widget build(BuildContext context) {  
 var EmailText=TextEditingController(); //is used for fetching user value.  
 var PassText=TextEditingController();  
  
 return Scaffold(  
 appBar: AppBar(  
 title: Text(  
 "Login Page",  
 style: TextStyle(  
 fontFamily: "myCustomfont",  
 fontSize: 40,  
 fontWeight: FontWeight.*w700*,  
 ),  
 ),  
 ),  
 body: Center(  
 child: Container(  
 width: 300,  
 child: Column(  
 mainAxisAlignment: MainAxisAlignment.center,  
 children: [  
  
  
 TextField(  
 enabled: true, // if it is false then disabled border is on.  
 controller: EmailText, //it fetch user value.  
  
 decoration: InputDecoration(  
  
 hintText: "Enter Username here....",  
 hintStyle: TextStyle(fontStyle: FontStyle.italic),  
  
 border: OutlineInputBorder(  
 borderRadius: BorderRadius.circular(13),  
 borderSide: BorderSide(color: Colors.*yellow*),  
 ),  
 focusedBorder: OutlineInputBorder(  
 borderRadius: BorderRadius.circular(13),  
 borderSide: BorderSide(color: Colors.*pink*, width: 3,),  
  
 ),  
 enabledBorder: OutlineInputBorder(  
 borderRadius: BorderRadius.circular(13),  
 borderSide: BorderSide(color: Colors.*blue*,width: 3,),  
  
 ),  
 disabledBorder: OutlineInputBorder(  
 borderRadius: BorderRadius.circular(13),  
 borderSide: BorderSide(color: Colors.*black45*,width: 3,),  
  
 ),  
  
 // suffixText: "Username exist..." // we also use hint instead suffix text.  
  
 suffixIcon: Icon(Icons.*remove\_red\_eye*,color: Colors.*red*,),  
  
 prefixIcon: Icon(Icons.*email*,color: Colors.*red*,) //it is simple icon .  
  
  
  
 )  
  
  
  
  
 ),  
  
 SizedBox( // we also use SizedBox that does the same work as Container.  
 height: 26,  
 ),  
  
 TextField(  
  
 keyboardType: TextInputType.*number*, //in this way we can change our keyboard.  
 obscureText: true, //in this way we hide our password in dot.  
 obscuringCharacter: "\*", //we also gave ourself character for hiding password.  
 enabled: true,  
  
 controller: PassText, //it fetch user value.  
  
 decoration: InputDecoration(  
 hintText: "Enter Password here....",  
 hintStyle: TextStyle(fontStyle: FontStyle.italic),  
  
 focusedBorder: OutlineInputBorder(  
 borderRadius: BorderRadius.circular(13),  
 borderSide: BorderSide(color: Colors.*pink*,width: 3),  
  
 ),  
 enabledBorder: OutlineInputBorder(  
 borderRadius: BorderRadius.circular(13),  
 borderSide: BorderSide(color: Colors.*blue*,width: 3)  
  
  
 ),  
 disabledBorder: OutlineInputBorder(  
 borderRadius: BorderRadius.circular(13),  
 borderSide: BorderSide(color: Colors.*black45*,width: 3,),  
  
 ),  
  
 suffixIcon: IconButton( //it is icon+button.  
 onPressed: () {  
 print("Icon button pressed!");  
 },  
 icon: Icon(Icons.*remove\_red\_eye*,color: Colors.*redAccent*,),  
 ),  
  
  
 ),  
  
  
 ),  
  
 SizedBox(height: 15,),  
  
 ElevatedButton(onPressed: (){  
  
 String myemail=EmailText.text.toString(); //we made variable and store in it and fetch value.  
 String mypass=PassText.text;  
  
 print("Email: $myemail , Password: $mypass"); //in this way we can print our values.  
  
 },  
 style: ElevatedButton.*styleFrom*(  
 backgroundColor: Colors.*blue*, //the color of button .  
 foregroundColor: Colors.*black87*, //the color of text in button and icon.  
 ),  
  
 child:Text("Login",style: TextStyle(fontSize: 25,color:Colors.*black87*,fontWeight: FontWeight.*w500*),) )  
  
  
  
  
 ],  
 ),  
 ),  
 ),  
 );  
 }  
}

**Simple State full widget code:**

import 'package:flutter/material.dart'; // Importing the Flutter Material package.  
  
void main() {  
 runApp(FlutterApp()); // The main function is the entry point of the application. It calls runApp to start the app with FlutterApp as the root widget.  
}  
  
class FlutterApp extends StatefulWidget { // Defining a StatefulWidget named FlutterApp.  
 @override  
 \_FlutterAppState createState() => \_FlutterAppState(); // This method creates an instance of the state class \_FlutterAppState.  
}  
  
class \_FlutterAppState extends State<FlutterApp> { // The state class for the FlutterApp widget.  
 @override  
 Widget build(BuildContext context) { // The build method is called whenever the state changes and returns the widget tree.  
 return MaterialApp( // MaterialApp is a convenience widget that wraps a number of widgets that are commonly required for Material Design applications.  
 home: Scaffold( // Scaffold implements the basic visual layout structure of the Material Design app.  
 appBar: AppBar( // AppBar is a Material Design app bar that can hold a title and other widgets.  
 title: Text('My Flutter App'), // The title of the app bar.  
 ),  
 body: Center( // Center is a widget that centers its child within itself.  
 child: Text('Hello, Flutter!'), // The text displayed in the center of the screen.  
 ),  
 ),  
 );  
 }  
}

**How to apply current date and time :**

**In this way we can apply current date and time: but it is not specified type**

import 'package:flutter/material.dart';  
  
void main() {  
 runApp(MyApp());  
}  
  
// MyApp is a StatefulWidget because we need to update the time  
class MyApp extends StatefulWidget {  
 @override  
 \_MyAppState createState() => \_MyAppState();  
}  
  
// The state class for MyApp  
class \_MyAppState extends State<MyApp> {  
 // Variable to store the current time  
 DateTime \_currentTime = DateTime.now();  
  
 // Method to update the current time  
 void \_updateTime() {  
 setState(() {  
 \_currentTime = DateTime.now(); // Update the time  
 });  
 }  
  
 @override  
 Widget build(BuildContext context) {  
 return MaterialApp(  
 debugShowCheckedModeBanner: false, // Hide the debug banner  
 home: Scaffold(  
 appBar: AppBar(  
 title: Text("My App"), // AppBar title  
 backgroundColor: Colors.*indigo*, // AppBar background color  
 ),  
 body: Center(  
 child: Column(  
 mainAxisAlignment: MainAxisAlignment.center, // Center the content  
 children: [  
 // Display the current time  
 Text(  
 "Time: ${\_currentTime}",style: TextStyle(fontSize: 30, fontWeight: FontWeight.*bold*),),  
 SizedBox(height: 20), // Add spacing between text and button  
 // Button to update the time  
 ElevatedButton(  
 style: ElevatedButton.*styleFrom*(  
 backgroundColor: Colors.*blue*,  
 foregroundColor: Colors.*black87* ),  
 onPressed: \_updateTime, // Call \_updateTime when pressed  
 child: Text("Update Time",style: TextStyle(fontSize: 20),),  
 ),  
 ],  
 ),  
 ),  
 ),  
 );  
 }  
}

**If we want to gave date format and time format apni marze se then we use Dateformat() by importing the intl package.**

import 'package:flutter/material.dart';  
import 'package:intl/intl.dart';  
  
void main() {  
 runApp(MyApp());  
}  
  
// MyApp is a StatefulWidget because we need to update the time  
class MyApp extends StatefulWidget {  
 @override  
 \_MyAppState createState() => \_MyAppState();  
}  
  
// The state class for MyApp  
class \_MyAppState extends State<MyApp> {  
 // Variable to store the current time  
 DateTime \_currentTime = DateTime.now();  
  
 // Method to update the current time  
 void \_updateTime() {  
 setState(() {  
 \_currentTime = DateTime.now(); // Update the time  
 });  
 }  
  
 @override  
 Widget build(BuildContext context) {  
 return MaterialApp(  
 debugShowCheckedModeBanner: false, // Hide the debug banner  
 home: Scaffold(  
 appBar: AppBar(  
 title: Text("My App"), // AppBar title  
 backgroundColor: Colors.*indigo*, // AppBar background color  
 ),  
 body: Center(  
 child: Column(  
 mainAxisAlignment: MainAxisAlignment.center, // Center the content  
 children: [  
 // Display the current time  
 Text("Current Time: ${DateFormat('MMMMEEEEd').format(\_currentTime)}",style: TextStyle(fontSize: 25),),  
 //we using Dateformat by importing the intl package and set in pubsepec.yaml file. and format  
 //(\_currentTime) is fetching the current time by Datetime.now().  
 //we also choose any format by click in datformat.  
 SizedBox(height: 20), // Add spacing between text and button  
 // Button to update the time  
 ElevatedButton(  
 style: ElevatedButton.*styleFrom*(  
 backgroundColor: Colors.*blue*,  
 foregroundColor: Colors.*black87* ),  
 onPressed: \_updateTime, // Call \_updateTime when pressed  
 child: Text("Update Time",style: TextStyle(fontSize: 20),),  
 ),  
 ],  
 ),  
 ),  
 ),  
 );  
 }  
}

**Displaying Calendar in app and how to select date:**

import 'package:flutter/cupertino.dart';  
import 'package:flutter/material.dart';  
import 'package:intl/intl.dart';  
void main(){  
 runApp(myapp());  
  
}  
  
class myapp extends StatelessWidget{  
  
 @override  
 Widget build(BuildContext context) {  
  
 return MaterialApp(  
 title: "my app",  
 debugShowCheckedModeBanner: false,  
  
  
 home: flutterapp(),  
  
  
 );  
 }  
}  
  
class flutterapp extends StatefulWidget{  
  
 flutterappState createState()=> flutterappState();  
  
}  
  
class flutterappState extends State<flutterapp> {  
 @override  
 Widget build(BuildContext context) {  
 return Scaffold(  
  
 appBar: AppBar(  
 title: Text("My app"),  
 backgroundColor: Colors.*red*,  
  
 ),  
  
 body: Center(  
 child: (  
 Column(  
 mainAxisAlignment: MainAxisAlignment.center,  
 children: [  
  
 Text("Select Date: ",  
 style: TextStyle(fontSize: 30, fontWeight: FontWeight.*w700*),),  
  
 ElevatedButton(onPressed: () async {  
 DateTime ? Datepicked = await showDatePicker( //for showing calendar for set date we use  
 //show date picker.//we replace var with Date Time. //after replacing it  
 //shows error so we use await and async .//at last place ? for not null value.  
 context: context,  
 initialDate: DateTime.now(),  
 firstDate: DateTime(2020),  
 lastDate: DateTime(2026));  
  
 if (Datepicked !=  
 null) { //if it is not zero then it print date in terminal.  
 // print("Date Selected: ${Datepicked.day}-${Datepicked.month}-${Datepicked.year}");  
 print("Date Selected${DateFormat('yMMMMd').format(  
 Datepicked)}"); //we also use Dateformat.  
  
 }  
 },  
  
 child: Text("Show", style: TextStyle(fontSize: 25,  
 fontWeight: FontWeight.*w700*,  
 color: Colors.*cyan*),)  
 )  
  
  
 ],  
 )  
  
  
 ),  
 ),  
  
  
 );  
 }  
}

**We also display Time or set by user in app:**

import 'package:flutter/cupertino.dart';  
import 'package:flutter/material.dart';  
import 'package:intl/intl.dart';  
void main(){  
 runApp(myapp());  
  
}  
  
class myapp extends StatelessWidget{  
  
 @override  
 Widget build(BuildContext context) {  
  
 return MaterialApp(  
 title: "my app",  
 debugShowCheckedModeBanner: false,  
  
  
 home: flutterapp(),  
  
  
 );  
 }  
}  
  
class flutterapp extends StatefulWidget{  
  
 flutterappState createState()=> flutterappState();  
  
}  
  
class flutterappState extends State<flutterapp>{  
 @override  
 Widget build(BuildContext context) {  
  
  
 return Scaffold(  
  
 appBar: AppBar(  
 title: Text("My app"),  
 backgroundColor: Colors.*red*,  
  
 ),  
  
 body: Center(  
 child: (  
 Column(  
 mainAxisAlignment: MainAxisAlignment.center,  
 children: [  
  
 Text("Select Date: ",style: TextStyle(fontSize: 30,fontWeight: FontWeight.*w700*),),  
  
 ElevatedButton(onPressed: () async {  
  
 DateTime ? Datepicked=await showDatePicker( //for showing calendar for set date we use  
 //show date picker.//we replace var with Date Time. //after replacing it  
 //shows error so we use await and async .//at last place ? for not null value.  
 context: context,  
 initialDate: DateTime.now(),  
 firstDate: DateTime(2020),  
 lastDate: DateTime(2026));  
  
 if(Datepicked!=null){ //if it is not zero then it print date in terminal.  
  
 // print("Date Selected: ${Datepicked.day}-${Datepicked.month}-${Datepicked.year}");  
  
 print("Date Selected${DateFormat('yMMMMd').format(Datepicked)}"); //we also use Dateformat.  
 }  
  
 },  
  
 child: Text("Show Date",style: TextStyle(fontSize: 25,fontWeight: FontWeight.*w700*,color: Colors.*cyan*),)  
  
 ),  
  
 ElevatedButton(onPressed: () async {  
 TimeOfDay ? timepicker=await showTimePicker(  
 context: context,  
 initialTime:TimeOfDay.now(),  
 initialEntryMode: TimePickerEntryMode.input,  
  
  
  
 );  
 if(TimeOfDay!=null){ //if it is not zero then it print date in terminal.  
  
  
  
  
 if (timepicker != null) {  
 // String formattedTime = timepicker.format(context);  
 // print("Time Selected: $formattedTime");  
  
 print("Time Selected: ${timepicker.hour}:${timepicker.minute}}");  
  
 }  
 }  
  
  
  
 },  
  
 child: Text("Show Time",style: TextStyle(fontSize: 30,fontWeight: FontWeight.*w700*,color: Colors.*orange*)),  
  
 )  
  
  
  
  
  
 ],  
 )  
  
  
 ),  
 ),  
  
  
  
  
  
 );  
  
  
 }  
  
}

**Use of Grid View.count:**

import 'package:flutter/material.dart';  
  
void main(){  
  
 runApp(myapp());  
  
}  
class myapp extends StatelessWidget{  
 @override  
 Widget build(BuildContext context) {  
  
 return MaterialApp(  
 debugShowCheckedModeBanner: false,  
  
  
 home: flutterapp(),  
 );  
 }  
}  
  
class flutterapp extends StatefulWidget{  
  
 flutterappState createState()=> flutterappState();  
  
  
}  
  
class flutterappState extends State<flutterapp>{  
 @override  
 Widget build(BuildContext context) {  
  
 var arrcolor=[Colors.*orange*,  
 Colors.*black87*,  
 Colors.*red*,  
 Colors.*blue*,  
 Colors.*pink*,  
 Colors.*tealAccent*,  
 Colors.*yellow*,  
 ];  
  
 return Scaffold(  
  
 appBar: AppBar(  
 title: Text("My App"),  
 backgroundColor: Colors.*brown*,  
  
 ),  
  
 body: (  
 //by using grid view we create box with specific space and divide in row and column.  
 //we also made boxes with container or other.  
 GridView.count(  
 //we also bound all Grid view in container.  
 //we also made more than one Grid view by using column.  
  
 crossAxisCount:5, //how much count i gave there then  
 //they made grid in ui at fixed size in any width it always remain  
 //same in vertical and horizontal position.  
 //if i gave five count then it means it 5 cloumn will be made with fixed  
 //size that dont be change in horizontal axis.  
  
 mainAxisSpacing: 11, //it space apply on column main axis.  
 crossAxisSpacing: 11, //it space apply on column cross axis.  
 //we also gave spaces by using padding.  
  
 children: [  
  
 Container(color: arrcolor[0],),  
 Container(color: arrcolor[1],),  
 Container(color: arrcolor[2],),  
 Container(color: arrcolor[3],),  
 Container(color: arrcolor[4],),  
 Container(color: arrcolor[5],),  
 Container(color: arrcolor[6],),  
  
 //in this way we made our ui same but inside the content of  
 //ui is different.  
  
  
  
  
 ],  
  
 )  
   
  
 ),  
  
 );  
  
 }  
  
}

**Use of Grid View.extent:**

import 'package:flutter/material.dart';  
  
void main(){  
  
 runApp(myapp());  
  
}  
class myapp extends StatelessWidget{  
 @override  
 Widget build(BuildContext context) {  
  
 return MaterialApp(  
 debugShowCheckedModeBanner: false,  
  
  
 home: flutterapp(),  
 );  
 }  
}  
  
class flutterapp extends StatefulWidget{  
  
 flutterappState createState()=> flutterappState();  
  
  
}  
  
class flutterappState extends State<flutterapp>{  
 @override  
 Widget build(BuildContext context) {  
  
 var arrcolor=[Colors.*orange*,  
 Colors.*black87*,  
 Colors.*red*,  
 Colors.*blue*,  
 Colors.*pink*,  
 Colors.*tealAccent*,  
 Colors.*yellow*,  
 ];  
  
 return Scaffold(  
  
 appBar: AppBar(  
 title: Text("My App"),  
 backgroundColor: Colors.*brown*,  
  
 ),  
  
 body: (  
  
 GridView.extent(  
 maxCrossAxisExtent: 100, //in extent we gave  
 //with to boxes then in horizontal axis it will be divide  
 //total width of the device.  
 //unlike in count there boxes in column will be same in both axis  
 //but in extent we divide boxes with to total with of the device then that   
 //that count we find :  
 //then we dispaly boxes according to given with .  
  
 crossAxisSpacing: 11,  
 mainAxisSpacing: 11,  
  
 children: [  
  
 Container(color: arrcolor[0],),  
 Container(color: arrcolor[1],),  
 Container(color: arrcolor[2],),  
 Container(color: arrcolor[3],),  
 Container(color: arrcolor[4],),  
 Container(color: arrcolor[5],),  
 Container(color: arrcolor[6],),  
  
  
 ],  
  
  
 )  
  
  
  
 ),  
  
 );  
  
 }  
  
  
}

**Use of Grid View.builder:**

import 'package:flutter/material.dart';  
  
void main(){  
  
 runApp(myapp());  
  
}  
class myapp extends StatelessWidget{  
 @override  
 Widget build(BuildContext context) {  
  
 return MaterialApp(  
 debugShowCheckedModeBanner: false,  
  
  
 home: flutterapp(),  
 );  
 }  
}  
  
class flutterapp extends StatefulWidget{  
  
 flutterappState createState()=> flutterappState();  
  
  
}  
  
class flutterappState extends State<flutterapp>{  
 @override  
 Widget build(BuildContext context) {  
  
 var arrcolor=[Colors.*orange*,  
 Colors.*black87*,  
 Colors.*red*,  
 Colors.*blue*,  
 Colors.*pink*,  
 Colors.*tealAccent*,  
 Colors.*yellow*,  
 ];  
  
 return Scaffold(  
  
 appBar: AppBar(  
 title: Text("My App"),  
 backgroundColor: Colors.*brown*,  
  
 ),  
  
 body: (  
//By using Gridview.builder we display all gridview with out repeat code it works  
 //as a listview.builder.  
 GridView.builder( itemBuilder: (context, index) {  
 return Container(color:arrcolor[index]);  
  
 },  
 itemCount: arrcolor.length,gridDelegate: SliverGridDelegateWithMaxCrossAxisExtent(  
 //we can fix grid size count or ectent. by using SliverGridDelegateWithMaxCrossAxisExtent or count.  
 maxCrossAxisExtent: 250, //we fix the size for box 200width but it will  
 //but in horizontal it width increses of device then in one row many box will  
 //be dispaly but in count fixed cloumn or rows in both direction.  
 crossAxisSpacing:11,  
 mainAxisSpacing: 11,  
  
  
 ),)  
  
  
 )  
  
  
 );  
 }  
}

**Use of Passing Call Back Function around:**

**By the use of call back function we can control flow of data between classes and from function to other function through arguments.**

**For example : there we made elevated button in on pressed function we call outside the widget :**

import 'package:flutter/material.dart';  
  
void main(){  
  
 runApp(myapp());  
}  
  
class myapp extends StatelessWidget{  
 @override  
 Widget build(BuildContext context) {  
  
 return MaterialApp(  
  
 home: flutterapp(),  
 );  
  
 }  
  
}  
  
class flutterapp extends StatefulWidget{  
  
 flutterappState createState()=> flutterappState();  
  
}  
  
class flutterappState extends State<flutterapp>{  
  
 @override  
 Widget build(BuildContext context) {  
  
 //we made call back function  
 void callback(){  
  
 print("It clicked");  
  
 }  
  
 return MaterialApp(  
  
 debugShowCheckedModeBanner: false,  
  
 home: Scaffold(  
  
 appBar: AppBar(  
 title: Text("My App"),  
 backgroundColor: Colors.*tealAccent*,  
 ),  
  
 body: Center(  
 child: (  
 ElevatedButton(  
  
 /\* onPressed: (){  
  
 print("Clicked!!");  
 }, \*/  
  
  
 onPressed: callback, //in this way we call calback function from any place.  
  
  
 child: Text("click me!",style: TextStyle(fontSize: 30,fontWeight: FontWeight.*w700*),)  
  
  
 )  
  
  
 ),  
 ),  
  
  
  
  
 ),  
  
 );  
 }  
  
}

**Use of Custom widget/splitting our app into widgets:**

**We split our app in different widgets then we made an class in which I identified the name of widget and store all widget data in single widget then we call them in any place of code. it reduce reductants code and made our UI clean etc.**

import 'package:flutter/material.dart';  
  
void main(){  
  
 runApp(myapp());  
}  
  
class myapp extends StatelessWidget{  
 @override  
 Widget build(BuildContext context) {  
  
 return MaterialApp(  
  
 home: flutterapp(),  
 );  
  
 }  
  
}  
  
class flutterapp extends StatefulWidget{  
  
 flutterappState createState()=> flutterappState();  
  
}  
  
class flutterappState extends State<flutterapp>{  
  
 @override  
 Widget build(BuildContext context) {  
  
  
 return MaterialApp(  
  
 debugShowCheckedModeBanner: false,  
 title: "My app",  
 home: Scaffold(  
  
 appBar: AppBar(  
 title: Text("My App",style: TextStyle(fontSize: 25,fontWeight: FontWeight.*w700*),),  
 backgroundColor: Colors.*tealAccent*,  
 ),  
  
 body:(  
 Column(  
  
 children: [  
 //we call all our widgets that we made custom widget in this way we dont  
 //need to repeat our code it increase readability.  
 cabitems(),  
 Contact(),  
 SubCabitems(),  
 BottomMenu(),  
  
 ],  
  
 )  
  
 ),  
  
 ),  
  
 );  
  
 }  
}  
  
  
//in this way we split our app in custom widget if we need this widget  
//call them simply: like above:  
  
class cabitems extends StatelessWidget{  
 @override  
 Widget build(BuildContext context) {  
  
 return Container(  
 height: 160,  
 color: Colors.*orange*,  
 child: ListView.builder(  
 itemCount: 10,  
 scrollDirection: Axis.horizontal,  
  
 itemBuilder: (context,index){  
  
 return Padding(  
 padding: const EdgeInsets.all(8.0),  
 child: SizedBox(  
 width: 150,  
 child: Padding(  
 padding: const EdgeInsets.all(8.0),  
 child: CircleAvatar(  
 backgroundColor: Colors.*blue*,  
 radius: 8,  
 ),  
 ),  
 ),  
 );  
  
 }  
  
 ),  
  
 );  
  
 }  
  
}  
  
class Contact extends StatelessWidget{  
  
 @override  
 Widget build(BuildContext context) {  
  
 return Expanded(flex:6,  
 child: Container(  
 color: Colors.*green*,  
  
 child: Padding(  
 padding: const EdgeInsets.all(8.0),  
 child: ListView.builder(  
 itemCount: 4,  
 scrollDirection: Axis.vertical,  
  
 itemBuilder: (context,index){  
 return ListTile(  
 leading: CircleAvatar(  
 child: Image.asset("assets/images/IMG\_20230106\_102737\_960.jpg"),  
 ),  
 title: Text("Name",style: TextStyle(fontSize: 27,fontWeight: FontWeight.*w700*),),  
 subtitle: Text("Phone.",style: TextStyle(fontSize: 20,fontWeight: FontWeight.*w600*),),  
 trailing: Icon(Icons.*delete\_rounded*),  
  
 );  
  
 }  
  
 ),  
 ),  
  
 )  
 );  
  
 }  
  
}  
  
class SubCabitems extends StatelessWidget{  
 @override  
 Widget build(BuildContext context) {  
  
 return Expanded(flex:3,  
 child: Container(  
 color: Colors.*indigo*,  
  
 child: ListView.builder(  
 itemCount: 10,  
 scrollDirection: Axis.horizontal,  
  
 itemBuilder: (context,index){  
  
 return Padding(  
 padding: const EdgeInsets.all(8.0),  
 child: Container(  
 width: 190,  
  
 decoration: BoxDecoration(  
 borderRadius: BorderRadius.circular(15),  
 border: Border.all(),  
 color: Colors.*black87*,  
  
 ),  
 ),  
 );  
  
 }  
 ),  
  
 )  
 );  
  
  
 }  
  
}  
  
class BottomMenu extends StatelessWidget{  
 @override  
 Widget build(BuildContext context) {  
  
 return Expanded( flex:2,  
 child: Container(  
 color: Colors.*yellowAccent*,  
  
 child: ListView.builder(  
 itemCount: 10,  
 scrollDirection: Axis.horizontal,  
  
 itemBuilder: (context,index){  
  
 return Padding(  
 padding: const EdgeInsets.all(8.0),  
 child: Container(  
 width: 200,  
  
 decoration: BoxDecoration(  
 borderRadius: BorderRadius.circular(11),  
 border:Border.all(),  
 // boxShadow: BoxShadow.lerpList(1, b, t)  
 color: Colors.*purpleAccent* ),  
  
  
 ),  
 );  
  
  
 }),  
 )  
 );  
  
 }  
  
}

**Creating a new Custom widget:**

**We created a custom widget of elevated button then we need to made an separate dart file in lib folder in which we made all custom widget we if we want to made other custom widget then we made another new folder that represents only specific custom widget.**

**By making custom widget we don’t need to write complete code while developing an app we just call this custom widget and we also make changes in this custom widget by using attributes:**

**Dart file:**

**Rounded\_btn.dart:**

//Here we made our Custom widget:  
//it is dartfile :  
  
import 'package:flutter/cupertino.dart';  
import 'package:flutter/material.dart';  
  
class RoundedBtn extends StatelessWidget {  
  
 //here we all made our fuctions that perform in elevated button:  
 final String btnName;  
 final Icon? icon; //question mark shows ye null b hosakta h.  
 final Color? bgcolor;  
 final TextStyle? textStyle ;  
 final VoidCallback? callback;  
  
//here we made contructor using Alt+insert:  
 RoundedBtn({required this.btnName, //required means it must be write.  
 this.icon,  
 this.bgcolor=Colors.*purple*, //here we set default color of button.  
 this.textStyle,  
 this.callback  
 }  
 );  
  
 @override  
 Widget build(BuildContext context) {  
  
 return ElevatedButton(onPressed: (){  
 callback!(); //here we call callback function bcz all data execute that print  
 //after the button pressed.  
 },  
  
 //here we use conditional programmig:  
 //if we want icon in button then print Row widget:  
 child: icon!=null ?Row(  
 children: [  
  
 icon!, //here we use exclamation mark bcz icon never be null.  
 SizedBox(width: 8),  
 Text(btnName,style: textStyle,)  
  
 ],  
  
 )  
 : Text(btnName,style: textStyle,), //if we dont want icon then print this Text.  
  
 style: ElevatedButton.*styleFrom*(  
 shadowColor: bgcolor,  
 backgroundColor: bgcolor,  
 shape: RoundedRectangleBorder(  
 borderRadius: BorderRadius.only(bottomRight: Radius.circular(15),topLeft: Radius.circular(15))  
 )  
  
 ),  
  
 );  
  
 }  
  
}

**Main.dart :**

import 'package:app/Rounded\_btn.dart';  
import 'package:app/ui\_helper/util.dart';  
import 'package:flutter/cupertino.dart';  
import 'package:flutter/material.dart';  
import 'package:flutter/widgets.dart';  
  
void main(){  
  
 runApp(myapp());  
}  
  
class myapp extends StatelessWidget{  
 @override  
 Widget build(BuildContext context) {  
  
 return MaterialApp(  
  
  
 home: flutterapp(),  
  
 );  
 }  
  
}  
  
class flutterapp extends StatefulWidget{  
  
 flutterappState createState()=> flutterappState();  
  
}  
  
class flutterappState extends State<flutterapp>{  
 @override  
 Widget build(BuildContext context) {  
  
 return MaterialApp(  
  
 title: "My app",  
  
 debugShowCheckedModeBanner: false,  
  
  
 home: Scaffold(  
  
 appBar: AppBar(  
 title: Text("My APP"),  
 backgroundColor: Colors.*indigo*,  
 ),  
  
 body: Center(  
 child: Column(  
 mainAxisAlignment: MainAxisAlignment.center,  
 children: [  
 //in this way we can access our custom widget and also made changes in it.  
  
 Container(  
 width: 130,  
 child: (  
  
 RoundedBtn(btnName:"Play",bgcolor:Colors.*pink*,icon: Icon(Icons.*play\_arrow*,),  
 callback:(){  
 print("Game Start!!"); //here we call callback function bcz all print data execute that print  
 //after button pressed.  
 },  
 textStyle:Textstyle17(),  
  
 )  
  
 ),  
 ),  
  
 SizedBox(height: 10,),  
  
 Container(  
 width: 130,  
 child: (  
  
 RoundedBtn(btnName:"Start",icon: Icon(Icons.*play\_arrow*,),  
 callback:(){  
 print("starting!!"); //here we call callback function bcz all print data execute that print  
 //after button pressed.  
 },  
 textStyle:Textstyle17(),  
  
 )  
  
 ),  
 ),  
  
 SizedBox(height: 10,),  
  
 Container(  
 width: 130,  
 child: (  
  
 //without icon:  
 RoundedBtn(btnName:"Press",bgcolor: Colors.*deepOrangeAccent*, //color set default .  
 callback:(){  
 print("Pressing!!"); //here we call callback function bcz all print data execute that print  
 //after button pressed.  
 },  
 textStyle:Textstyle17(),  
  
 )  
  
  
  
  
  
 ),  
 ),  
 ],  
 ),  
 ),  
  
 ),  
  
 );  
 }  
  
  
}

**Use of Stack Widget:**

**Stack widget is used for overlapping an an any widget into other widget. for example : if we want to write an text in image then we use stack widget for overlapping .**

import 'package:flutter/cupertino.dart';  
import 'package:flutter/material.dart';  
  
void main(){  
  
 runApp(myapp());  
}  
  
class myapp extends StatelessWidget{  
 @override  
 Widget build(BuildContext context) {  
  
 return MaterialApp(  
  
 home: App(),  
  
  
 );  
 }  
  
}  
  
class App extends StatefulWidget{  
  
 AppState createState()=> AppState();  
}  
  
  
class AppState extends State<App>{  
 @override  
 Widget build(BuildContext context) {  
  
 return MaterialApp(  
 debugShowCheckedModeBanner: false,  
 home: Scaffold(  
  
 appBar: AppBar(  
 title: Text("My App"),  
 backgroundColor: Colors.*blue*,  
 ),  
  
  
 body: Container(  
 height: 280, //in this we can overlay our widget.  
 width: 280,  
  
 child: Stack(  
  
 children: [  
 //the first widget will be placed at last and last one at first.  
 Container(  
 width: 200, //if we don't gave any width or height then we also gave through  
 //positioned widget.  
 height: 200,  
 color: Colors.*pink*,  
 ),  
  
 Positioned(  
 right: 21,  
 bottom: 21,  
 child: Container(  
 width: 160,  
 height: 160,  
 color: Colors.*deepOrangeAccent*,  
 ),  
 ),  
  
 Positioned(  
 // left: 21,  
 // right: 21,  
 // top: 21,  
 bottom: 2,  
 child: Container(  
 width: 80,  
 height: 100,  
 color: Colors.*purpleAccent*,  
 ),  
 )  
  
  
  
 ],  
  
  
 ),  
 ),  
  
  
 ),  
  
 );  
  
 }  
  
  
  
  
  
  
}

**Use of Wrap widget:**

**By using wrap widget we saw our data in one frame without using single child scroll view or etc.**

**Wrap widget is used where no need of scrolling**

**It folds our data and provide us in next line.**

**It works like row and column and its children:**

**It also works like extent it means if the width of device increase then we rotate our mobile but it will not at fixed size it means it distribute**

**All widgets according to space.**

import 'package:flutter/cupertino.dart';  
import 'package:flutter/material.dart';  
  
void main(){  
runApp(myapp());  
  
}  
  
class myapp extends StatelessWidget{  
 @override  
 Widget build(BuildContext context) {  
  
 return MaterialApp(  
  
 home: flutterapp(),  
 );  
 }  
  
}  
class flutterapp extends StatefulWidget{  
  
 flutterappState createState()=> flutterappState();  
  
}  
  
class flutterappState extends State<flutterapp>{  
  
 @override  
 Widget build(BuildContext context) {  
  
 return MaterialApp(  
  
 debugShowCheckedModeBanner: false,  
  
 home: Scaffold(  
  
 appBar: AppBar(  
 title: Text("My app"),  
 backgroundColor:Colors.*cyanAccent* ,  
 ),  
  
  
 body: Container(  
 width: double.*infinity*,  
 child: Wrap(  
 direction: Axis.horizontal,  
 spacing: 11, //horizontal spacing  
 runSpacing: 5, //vertical spacing.  
 // alignment: WrapAlignment.center,  
 // alignment: WrapAlignment.spaceEvenly,  
 // alignment: WrapAlignment.spaceAround,  
 // alignment: WrapAlignment.spaceBetween,  
 alignment: WrapAlignment.end,  
 children: [  
  
 Container(  
 width: 100,  
 height: 100,  
 color: Colors.*deepOrange*,  
 ),  
 Container(  
 width: 100,  
 height: 100,  
 color: Colors.*purpleAccent*,  
 ),  
 Container(  
 width: 100,  
 height: 100,  
 color: Colors.*blue* ), Container(  
 width: 100,  
 height: 100,  
 color: Colors.*teal*,  
 ), Container(  
 width: 100,  
 height: 100,  
 color: Colors.*black87*,  
 ), Container(  
 width: 100,  
 height: 100,  
 color: Colors.*yellow*,  
 ), Container(  
 width: 100,  
 height: 100,  
 color: Colors.*lightGreen*,  
 ), Container(  
 width: 100,  
 height: 100,  
 color: Colors.*black*,  
 ), Container(  
 width: 100,  
 height: 100,  
 color: Colors.*pinkAccent*,  
 ), Container(  
 width: 100,  
 height: 100,  
 color: Colors.*purpleAccent*,  
 ), Container(  
 width: 100,  
 height: 100,  
 color: Colors.*black12*,  
 ),  
  
  
  
  
  
 ],  
 ),  
 ),  
 )  
  
  
 );  
  
  
 }  
  
  
  
}

**Use of Sized Box:**

**Simple Size box using for giving height and width to Elevated button. Size box is same as container but it is use for only spacing.**

import 'package:flutter/cupertino.dart';  
import 'package:flutter/material.dart';  
  
void main(){  
runApp(myapp());  
  
}  
  
class myapp extends StatelessWidget{  
 @override  
 Widget build(BuildContext context) {  
  
 return MaterialApp(  
  
 home: flutterapp(),  
 );  
 }  
  
}  
class flutterapp extends StatefulWidget{  
  
 flutterappState createState()=> flutterappState();  
  
}  
  
class flutterappState extends State<flutterapp>{  
  
 @override  
 Widget build(BuildContext context) {  
  
 return MaterialApp(  
  
 debugShowCheckedModeBanner: false,  
  
 home: Scaffold(  
  
 appBar: AppBar(  
 title: Text("My app"),  
 backgroundColor:Colors.*cyanAccent* ,  
 ),  
  
  
 body: Center(  
 child: SizedBox(  
 width: 100,  
 height: 150,  
 child: ElevatedButton(onPressed: (){}, child: Text("Click",style: TextStyle(color: Colors.*black*,fontSize: 20),),  
 style: ElevatedButton.*styleFrom*(  
 backgroundColor: Colors.*purpleAccent*,  
 shadowColor: Colors.*deepOrange* ),  
 ),  
  
 ),  
 )  
  
  
  
  
  
  
 ),  
 );  
  
  
  
  
  
  
 }  
  
  
  
}

**Size box.expand :**

**It use for taking max height and width of apperant.**

**It takes max height and width and also we don’t need to gave height and width by using Sizebox .expand:**

**If u still want gave height and width then we use Constrained box and its object Box constrained:**

import 'package:flutter/cupertino.dart';  
import 'package:flutter/material.dart';  
  
void main(){  
runApp(myapp());  
  
}  
  
class myapp extends StatelessWidget{  
 @override  
 Widget build(BuildContext context) {  
  
 return MaterialApp(  
  
 home: flutterapp(),  
 );  
 }  
  
}  
class flutterapp extends StatefulWidget{  
  
 flutterappState createState()=> flutterappState();  
  
}  
  
class flutterappState extends State<flutterapp>{  
  
 @override  
 Widget build(BuildContext context) {  
  
 return MaterialApp(  
  
 debugShowCheckedModeBanner: false,  
  
 home: Scaffold(  
  
 appBar: AppBar(  
 title: Text("My app"),  
 backgroundColor:Colors.*cyanAccent* ,  
 ),  
  
  
 body: Center(  
 child: ConstrainedBox(constraints: BoxConstraints(  
 maxWidth: 250,  
 maxHeight: 300,//while using expand it access max width or height.  
 minWidth: 200,//while using shrink it access min width or height.  
 minHeight: 290,  
 ),  
 child: SizedBox.expand(  
 child: ElevatedButton(onPressed: (){}, child: Text("Click",style: TextStyle(color: Colors.*black*,fontSize: 20),),  
 style: ElevatedButton.*styleFrom*(  
 backgroundColor: Colors.*purpleAccent*,  
 shadowColor: Colors.*deepOrange* ),  
 ),  
  
 ),  
  
  
  
  
  
  
 ),  
 ),  
 ),  
 );  
  
  
  
  
  
  
 }  
  
  
  
}

**Size.box.shrink:**

**If we don’t use constrained box then it take apperent height and width.**

import 'package:flutter/cupertino.dart';  
import 'package:flutter/material.dart';  
  
void main(){  
runApp(myapp());  
  
}  
  
class myapp extends StatelessWidget{  
 @override  
 Widget build(BuildContext context) {  
  
 return MaterialApp(  
  
 home: flutterapp(),  
 );  
 }  
  
}  
class flutterapp extends StatefulWidget{  
  
 flutterappState createState()=> flutterappState();  
  
}  
  
class flutterappState extends State<flutterapp>{  
  
 @override  
 Widget build(BuildContext context) {  
  
 return MaterialApp(  
  
 debugShowCheckedModeBanner: false,  
  
 home: Scaffold(  
  
 appBar: AppBar(  
 title: Text("My app"),  
 backgroundColor:Colors.*cyanAccent* ,  
 ),  
  
  
 body: Center(  
 child: ConstrainedBox(constraints: BoxConstraints(  
 maxWidth: 250,  
 maxHeight: 300,//while using expand it access max width or height.  
 minWidth: 100,//while using shrink it access min width or height.  
 minHeight: 190,  
 ),  
 child: SizedBox.shrink(  
 child: ElevatedButton(onPressed: (){}, child: Text("Click",style: TextStyle(color: Colors.*black*,fontSize: 20),),  
 style: ElevatedButton.*styleFrom*(  
 backgroundColor: Colors.*purpleAccent*,  
 shadowColor: Colors.*deepOrange* ),  
 ),  
  
 ),  
  
  
  
  
  
  
 ),  
 ),  
 ),  
 );  
  
  
  
  
  
  
 }  
  
  
  
}

**Sizebox.square:**

import 'package:flutter/cupertino.dart';  
import 'package:flutter/material.dart';  
  
void main(){  
runApp(myapp());  
  
}  
  
class myapp extends StatelessWidget{  
 @override  
 Widget build(BuildContext context) {  
  
 return MaterialApp(  
  
 home: flutterapp(),  
 );  
 }  
  
}  
class flutterapp extends StatefulWidget{  
  
 flutterappState createState()=> flutterappState();  
  
}  
  
class flutterappState extends State<flutterapp>{  
  
 @override  
 Widget build(BuildContext context) {  
  
 return MaterialApp(  
  
 debugShowCheckedModeBanner: false,  
  
 home: Scaffold(  
  
 appBar: AppBar(  
 title: Text("My app"),  
 backgroundColor:Colors.*cyanAccent* ,  
 ),  
  
  
 body: Center(  
 child: Wrap(  
 children: [  
 SizedBox.square(  
 dimension: 100,  
 child: ElevatedButton(onPressed: (){}, child: Text("Click",style: TextStyle(color: Colors.*black*,fontSize: 20),),  
 style: ElevatedButton.*styleFrom*(  
 backgroundColor: Colors.*purpleAccent*,  
 shadowColor: Colors.*deepOrange*,  
 shape: RoundedRectangleBorder(  
 borderRadius: BorderRadius.*zero* )  
 ),  
 ),  
 ),  
  
 SizedBox(width: 20,),  
  
 SizedBox.square(  
 dimension: 100,  
 child: ElevatedButton(onPressed: (){}, child: Text("Click",style: TextStyle(color: Colors.*black*,fontSize: 20),),  
 style: ElevatedButton.*styleFrom*(  
 backgroundColor: Colors.*purpleAccent*,  
 shadowColor: Colors.*deepOrange*,  
 shape: RoundedRectangleBorder(  
 borderRadius: BorderRadius.*zero* )  
 ),  
 ),  
 ),  
  
 SizedBox(width: 20,),  
  
 SizedBox.square(  
 dimension: 100,  
 child: ElevatedButton(onPressed: (){}, child: Text("Click",style: TextStyle(color: Colors.*black*,fontSize: 20),),  
 style: ElevatedButton.*styleFrom*(  
 backgroundColor: Colors.*purpleAccent*,  
 shadowColor: Colors.*deepOrange*,  
 shape: RoundedRectangleBorder(  
 borderRadius: BorderRadius.*zero* )  
 ),  
 ),  
 ),  
  
  
  
  
  
  
 ]  
 ),  
 ),  
 ),  
 );  
  
  
  
  
  
  
 }  
  
  
  
}

**Use of Rich Text :**

**Text span is used when we need to print text in one row but with multiple fonts.**

**By using Rich Text we can print our text in row wise easily by making text object and write Textspan inside of rich text then we use children to print multile text span in one text span .**

import 'package:flutter/cupertino.dart';  
import 'package:flutter/material.dart';  
import 'ui\_helper/util.dart'; // Update the import path  
  
  
void main(){  
  
 runApp(myapp());  
  
}  
  
class myapp extends StatelessWidget{  
 @override  
 Widget build(BuildContext context) {  
  
 return MaterialApp(  
  
 home: flutterapp(),  
 );  
 }  
  
}  
  
class flutterapp extends StatefulWidget{  
  
 flutterappState createState()=> flutterappState();  
}  
  
class flutterappState extends State<flutterapp>{  
 @override  
 Widget build(BuildContext context) {  
  
 return MaterialApp(  
 debugShowCheckedModeBanner: false,  
  
 home: Scaffold(  
  
 appBar: AppBar(  
 title: Text("My app",style: TextStyle(fontFamily: "Mycustomfont",fontSize: 35),),  
 backgroundColor: Colors.*deepOrange*,  
 ),  
  
 body: Center(  
 child: RichText(  
 //here we made custom style: if we dont give any style then it run:  
 text: TextSpan(  
 style: TextStyle(fontSize: 17,fontWeight:FontWeight.*bold*,color: Colors.*black54*),//default style.  
  
 children: [  
 TextSpan(  
 text: "Hello" //here it run defaut style.  
 ),  
 TextSpan(  
 text: " World! ",style: TextStyle(fontSize: 28,fontWeight: FontWeight.*bold*,color: Colors.*purple*)  
 ),  
 TextSpan(  
 text: "Welcome To " //here it run defaut style.  
 ),  
 TextSpan(  
 text: "Flutter",style: Textstyle50(),  
 ),  
  
 ]  
  
 ),  
  
 ),  
 ),  
  
 ),  
  
 );  
 }  
  
}

**Use of Icons and how to access flutter\_awesome\_font it means more icons that flutter not provide as default so we need to add dependencies of this and import into main.dart file.In this way we can access more icons by using FaIcon class .**

import 'package:flutter/cupertino.dart';  
import 'package:flutter/material.dart';  
import 'ui\_helper/util.dart'; // Update the import path  
import 'package:font\_awesome\_flutter/font\_awesome\_flutter.dart';  
  
  
void main(){  
  
 runApp(myapp());  
  
}  
  
class myapp extends StatelessWidget{  
 @override  
 Widget build(BuildContext context) {  
  
 return MaterialApp(  
  
 home: flutterapp(),  
 );  
 }  
  
}  
  
class flutterapp extends StatefulWidget{  
  
 flutterappState createState()=> flutterappState();  
}  
  
class flutterappState extends State<flutterapp>{  
 @override  
 Widget build(BuildContext context) {  
  
 return MaterialApp(  
 debugShowCheckedModeBanner: false,  
  
 home: Scaffold(  
  
 appBar: AppBar(  
 title: Text("My app",style: TextStyle(fontFamily: "Mycustomfont",fontSize: 35),),  
 backgroundColor: Colors.*deepOrange*,  
 ),  
  
 body: Center(  
 child: Row(  
 mainAxisAlignment: MainAxisAlignment.center,  
 children: [  
  
 Icon(Icons.*accessibility\_new*,size: 100,color: Colors.*pink*,),  
  
 SizedBox(width: 20,),  
  
   
 FaIcon(FontAwesomeIcons.*dragon*,size: 50,color: Colors.*cyan*,)  
 //Faicon only be access when font\_awsome\_flutter be import like:  
 // import 'package:font\_awesome\_flutter/font\_awesome\_flutter.dart';  
   
 ],  
 ),  
 )  
  
 ),  
  
 );  
 }  
  
}

**Use of Positioned Widget:**

**By using positioned widget we can move our any widget inside stack or throught the ui.**

import 'package:flutter/cupertino.dart';  
import 'package:flutter/material.dart';  
import 'ui\_helper/util.dart'; // Update the import path  
import 'package:font\_awesome\_flutter/font\_awesome\_flutter.dart';  
  
  
void main(){  
  
 runApp(myapp());  
  
}  
  
class myapp extends StatelessWidget{  
 @override  
 Widget build(BuildContext context) {  
  
 return MaterialApp(  
  
 home: flutterapp(),  
 );  
 }  
  
}  
  
class flutterapp extends StatefulWidget{  
  
 flutterappState createState()=> flutterappState();  
}  
  
class flutterappState extends State<flutterapp>{  
 @override  
 Widget build(BuildContext context) {  
  
 return MaterialApp(  
 debugShowCheckedModeBanner: false,  
  
 home: Scaffold(  
  
 appBar: AppBar(  
 title: Text("My app",style: TextStyle(fontFamily: "Mycustomfont",fontSize: 35),),  
 backgroundColor: Colors.*deepOrange*,  
 ),  
  
 body: Container(  
 //height: double.infinity,  
 //width: double.infinity,  
 width: 400,  
 height: 400,  
 color: Colors.*blueGrey*,  
  
 child: Stack(  
 children: [  
  
 Positioned( //by using positioned widget we can move our any widget inside stack  
 //or throught the ui.  
 // top: 12,  
 // right: 12,  
 left: 10,  
 bottom: 9,  
 child: Container(  
 width: 160,  
 height: 160,  
 color: Colors.*white*,  
 ),  
 )  
  
  
 ],  
 ),  
  
  
  
  
  
  
 )  
  
 )  
 );  
 }  
  
}

**Making Counter app By using Statefullwidget:**

import 'package:flutter/material.dart';  
  
void main() {  
 runApp(myapp());  
}  
  
class myapp extends StatelessWidget {  
 @override  
 Widget build(BuildContext context) {  
 return MaterialApp(  
 home: flutterapp(),  
 );  
 }  
}  
  
class flutterapp extends StatefulWidget {  
 flutterappState createState() {  
 return flutterappState();  
 }  
}  
  
class flutterappState extends State<flutterapp> {  
 var count = 0;  
  
 void decrement() {  
 setState(() {  
 count--;  
 print(count);  
 });  
 }  
  
 @override  
 Widget build(BuildContext context) {  
 return MaterialApp(  
 debugShowCheckedModeBanner: false,  
 home: Scaffold(  
 appBar: AppBar(  
 title: Text(  
 "My App",  
 style: TextStyle(fontSize: 30, fontWeight: FontWeight.*bold*),  
 ),  
 backgroundColor: Colors.*blue*,  
 ),  
 body: Center(  
 child: Column(  
 mainAxisAlignment: MainAxisAlignment.center,  
 children: [  
 Text(  
 "Counter: $count ",  
 style: TextStyle(  
 fontSize: 28,  
 fontWeight: FontWeight.*w600*,  
 color: Colors.*indigo*),  
 ),  
 ElevatedButton(  
 onPressed: () {  
 setState(() {  
 count = count + 1;  
 print(count);  
 });  
 },  
 child: Text(  
 "Increment counter",  
 style: TextStyle(  
 color: Colors.*black54*,  
 fontSize: 30,  
 fontWeight: FontWeight.*bold*),  
 ),  
 style: ElevatedButton.*styleFrom*(  
 backgroundColor: Colors.*blue*, shadowColor: Colors.*blueGrey*),  
 ),  
 ElevatedButton(  
 onPressed: decrement, //here we call our function.  
  
 child: Text(  
 "decrement counter",  
 style: TextStyle(  
 color: Colors.*black54*,  
 fontSize: 30,  
 fontWeight: FontWeight.*bold*),  
 ),  
 style: ElevatedButton.*styleFrom*(  
 backgroundColor: Colors.*red*, shadowColor: Colors.*blueGrey*),  
 ),  
 ],  
 ),  
 ),  
 ),  
 );  
 }  
}

**Making Simple Calculator APP:**

import 'package:flutter/cupertino.dart';  
import 'package:flutter/material.dart';  
import 'ui\_helper/util.dart';  
  
void main(){  
  
 runApp(myapp());  
}  
  
class myapp extends StatelessWidget{  
 @override  
 Widget build(BuildContext context) {  
  
 return MaterialApp(  
 debugShowCheckedModeBanner: false,  
 home:flutter() ,  
 );  
 }  
  
}  
  
class flutter extends StatefulWidget{  
  
 flutterState createState()=> flutterState();  
}  
  
class flutterState extends State<flutter>{  
  
 TextEditingController no1Controller=TextEditingController(); //here we declare our controller by using Textediting Controler.  
 TextEditingController no2Controller=TextEditingController();  
 var result =" ";  
  
 void product(){  
  
 var no1=int.*parse*(no1Controller.text.toString());  
 var no2=int.*parse*(no2Controller.text.toString());  
 var product=no1\*no2;  
 result="The product of $no1 and $no2 is $product";  
 setState(() {});  
  
 } void division(){  
  
 var no1=int.*parse*(no1Controller.text.toString());  
 var no2=int.*parse*(no2Controller.text.toString());  
 var division=no1/no2;  
 result="The division of $no1 and $no2 is ${division.toStringAsFixed(3)}";//by using toStringAsFixed we fix number lenght after dot.  
 setState(() {});  
  
 }  
 @override  
 Widget build(BuildContext context) {  
  
 return MaterialApp(  
  
 debugShowCheckedModeBanner: false,  
 title: "My Calculator",  
  
 home: Scaffold(  
  
 appBar: AppBar(  
 title: Text("Simple CalCulator",style: Textstyle30(),),  
 backgroundColor: Colors.*orange*,  
 ),  
  
 body: Container(  
 color: Colors.*deepOrange*.shade100,  
  
 child: Padding(  
 padding: const EdgeInsets.all(25),  
 child: Column(  
 mainAxisAlignment: MainAxisAlignment.center,  
 children: [  
  
 TextField(  
 cursorColor: Colors.*deepOrange*,  
 controller: no1Controller, //it is use for getting data to Textfield.  
 keyboardType: TextInputType.*number*,  
 decoration: InputDecoration(  
 enabledBorder: OutlineInputBorder(  
 borderRadius: BorderRadius.circular(12),  
 borderSide: BorderSide(color: Colors.*deepOrange*),  
   
 )  
   
 ),  
 ),  
   
 SizedBox(height: 20,),  
  
 TextField(  
 cursorColor: Colors.*deepOrange*,  
 controller: no2Controller,  
 keyboardType: TextInputType.*number*,  
 decoration: InputDecoration(  
 enabledBorder: OutlineInputBorder(  
 borderRadius: BorderRadius.circular(12),  
 borderSide: BorderSide(color: Colors.*deepOrange*)  
 )  
 ),  
  
  
 ),  
  
 SizedBox(height: 20,),  
  
 Padding(  
 padding: const EdgeInsets.all(10),  
 child: Row(  
 mainAxisAlignment: MainAxisAlignment.spaceBetween,  
 children: [  
 ElevatedButton(onPressed: (){  
 var no1=int.*parse*(no1Controller.text.toString()); //in this way we convert our given data string to integer.  
 var no2=int.*parse*(no2Controller.text.toString());  
 var sum=no1+no2;  
 result="The Sum of $no1 and $no2 is $sum";  
 setState(() {});  
  
 },  
 child: Text("Add",style: TextStyle(fontWeight: FontWeight.*w500*,fontSize: 20,color: Colors.*black*),),  
 style: ElevatedButton.*styleFrom*(backgroundColor: Colors.*blue*.shade400,),  
 ),  
  
  
 ElevatedButton(onPressed: (){  
 var no1=int.*parse*(no1Controller.text.toString());  
 var no2=int.*parse*(no2Controller.text.toString());  
 var diff=no1-no2;  
 result="The Diff of $no1 and $no2 is $diff";  
 setState(() {});  
  
 },  
 child: Text("Sub",style: TextStyle(fontWeight: FontWeight.*w500*,fontSize: 20,color: Colors.*black*),),  
 style: ElevatedButton.*styleFrom*(backgroundColor: Colors.*red*.shade400,),  
 ),  
  
  
  
 ElevatedButton(onPressed: product, //here we call function.  
 child: Text("Multi",style: TextStyle(fontWeight: FontWeight.*w500*,fontSize: 20,color: Colors.*black*),),  
 style: ElevatedButton.*styleFrom*(backgroundColor: Colors.*amber*.shade400,),  
 ),  
  
  
  
 ElevatedButton(onPressed: division,//here we call function.  
 child: Text("Div",style: TextStyle(fontWeight: FontWeight.*w500*,fontSize: 20,color: Colors.*black*),),  
 style: ElevatedButton.*styleFrom*(backgroundColor: Colors.*lightGreen*.shade700,),  
 ),  
  
 ],  
 ),  
 ),  
 Text(result,style: TextStyle(fontSize: 30,fontWeight: FontWeight.*bold*,color: Colors.*grey*.shade700),)  
  
  
 ],  
 ),  
 ),  
  
  
  
  
 ),  
  
 ),  
  
  
  
 );  
 }  
  
  
  
}

**Same calculator app made by chat GPT with some changes it use card widget to show result and also all logic placed in single function and used in it switch.**

import 'package:flutter/cupertino.dart';  
import 'package:flutter/material.dart';  
import 'ui\_helper/util.dart';  
  
void main() {  
 runApp(MyApp());  
}  
  
class MyApp extends StatelessWidget {  
 @override  
 Widget build(BuildContext context) {  
 return MaterialApp(  
 debugShowCheckedModeBanner: false,  
 theme: ThemeData(  
 primarySwatch: Colors.*orange*,  
 visualDensity: VisualDensity.*adaptivePlatformDensity*,  
 ),  
 home: Calculator(),  
 );  
 }  
}  
  
class Calculator extends StatefulWidget {  
 @override  
 \_CalculatorState createState() => \_CalculatorState();  
}  
  
class \_CalculatorState extends State<Calculator> {  
 TextEditingController no1Controller = TextEditingController();  
 TextEditingController no2Controller = TextEditingController();  
 String result = " ";  
  
 void calculateResult(String operation) {  
 var no1 = int.*parse*(no1Controller.text.toString());  
 var no2 = int.*parse*(no2Controller.text.toString());  
 switch (operation) {  
 case "Add":  
 result = "The sum of $no1 and $no2 is ${no1 + no2}";  
 break;  
 case "Sub":  
 result = "The difference of $no1 and $no2 is ${no1 - no2}";  
 break;  
 case "Multi":  
 result = "The product of $no1 and $no2 is ${no1 \* no2}";  
 break;  
 case "Div":  
 result = "The division of $no1 and $no2 is ${(no1 / no2).toStringAsFixed(3)}";  
 break;  
 }  
 setState(() {});  
 }  
  
 @override  
 Widget build(BuildContext context) {  
 return Scaffold(  
 appBar: AppBar(  
 title: Text(  
 "Simple Calculator",  
 style: Textstyle30(),  
 ),  
 backgroundColor: Colors.*orange*,  
 ),  
 body: Container(  
 color: Colors.*deepOrange*.shade100,  
 padding: const EdgeInsets.all(25),  
 child: Column(  
 mainAxisAlignment: MainAxisAlignment.center,  
 children: [  
 TextField(  
 cursorColor: Colors.*deepOrange*,  
 controller: no1Controller,  
 keyboardType: TextInputType.*number*,  
 decoration: InputDecoration(  
 labelText: "Enter first number",  
 enabledBorder: OutlineInputBorder(  
 borderRadius: BorderRadius.circular(12),  
 borderSide: BorderSide(color: Colors.*deepOrange*),  
 ),  
 focusedBorder: OutlineInputBorder(  
 borderRadius: BorderRadius.circular(12),  
 borderSide: BorderSide(color: Colors.*orange*, width: 2.0),  
 ),  
 ),  
 ),  
 SizedBox(height: 20),  
 TextField(  
 cursorColor: Colors.*deepOrange*,  
 controller: no2Controller,  
 keyboardType: TextInputType.*number*,  
 decoration: InputDecoration(  
 labelText: "Enter second number",  
 enabledBorder: OutlineInputBorder(  
 borderRadius: BorderRadius.circular(12),  
 borderSide: BorderSide(color: Colors.*deepOrange*),  
 ),  
 focusedBorder: OutlineInputBorder(  
 borderRadius: BorderRadius.circular(12),  
 borderSide: BorderSide(color: Colors.*orange*, width: 2.0),  
 ),  
 ),  
 ),  
 SizedBox(height: 20),  
 Padding(  
 padding: const EdgeInsets.all(10),  
 child: Row(  
 mainAxisAlignment: MainAxisAlignment.spaceBetween,  
 children: [  
 ElevatedButton(  
 onPressed: () => calculateResult("Add"),  
 child: Text(  
 "Add",  
 style: TextStyle(  
 fontWeight: FontWeight.*w500*,  
 fontSize: 20,  
 color: Colors.*black*,  
 ),  
 ),  
 style: ElevatedButton.*styleFrom*(  
 backgroundColor: Colors.*blue*.shade400,  
 ),  
 ),  
 ElevatedButton(  
 onPressed: () => calculateResult("Sub"),  
 child: Text(  
 "Sub",  
 style: TextStyle(  
 fontWeight: FontWeight.*w500*,  
 fontSize: 20,  
 color: Colors.*black*,  
 ),  
 ),  
 style: ElevatedButton.*styleFrom*(  
 backgroundColor: Colors.*red*.shade400,  
 ),  
 ),  
 ElevatedButton(  
 onPressed: () => calculateResult("Multi"),  
 child: Text(  
 "Multi",  
 style: TextStyle(  
 fontWeight: FontWeight.*w500*,  
 fontSize: 20,  
 color: Colors.*black*,  
 ),  
 ),  
 style: ElevatedButton.*styleFrom*(  
 backgroundColor: Colors.*amber*.shade400,  
 ),  
 ),  
 ElevatedButton(  
 onPressed: () => calculateResult("Div"),  
 child: Text(  
 "Div",  
 style: TextStyle(  
 fontWeight: FontWeight.*w500*,  
 fontSize: 20,  
 color: Colors.*black*,  
 ),  
 ),  
 style: ElevatedButton.*styleFrom*(  
 backgroundColor: Colors.*lightGreen*.shade700,  
 ),  
 ),  
 ],  
 ),  
 ),  
 SizedBox(height: 20),  
 Card(  
 elevation: 10,  
 shadowColor: Colors.*deepOrange*,  
 color: Colors.*orange*.shade300,  
 margin: EdgeInsets.all(10),  
 child: Padding(  
 padding: const EdgeInsets.all(15),  
 child: Text(  
 result,  
 style: TextStyle(  
 fontSize: 25,  
 fontWeight: FontWeight.*bold*,  
 color: Colors.*grey*.shade700,  
 ),  
 ),  
 ),  
 ),  
 ],  
 ),  
 ),  
 );  
 }  
}

**and also same one more:**

import 'package:flutter/cupertino.dart';  
import 'package:flutter/material.dart';  
  
void main() {  
 runApp(MyApp());  
}  
  
class MyApp extends StatelessWidget {  
 @override  
 Widget build(BuildContext context) {  
 return MaterialApp(  
 debugShowCheckedModeBanner: false,  
 theme: ThemeData(  
 primarySwatch: Colors.*orange*,  
 visualDensity: VisualDensity.*adaptivePlatformDensity*, //Use VisualDensity.adaptivePlatformDensity when you want your app to automatically adapt its visual density based on the platform it is running on, ensuring a consistent and native look across different devices. This is especially useful in Flutter apps, which are designed to run on multiple platforms.  
 ),  
 home: Calculator(),  
 );  
 }  
}  
  
class Calculator extends StatefulWidget {  
 @override  
 \_CalculatorState createState() => \_CalculatorState();  
}  
  
class \_CalculatorState extends State<Calculator> {  
 TextEditingController displayController = TextEditingController();  
 String displayValue = '';  
 double firstNumber = 0;  
 double secondNumber = 0;  
 String operation = '';  
 String result = '';  
  
 void buttonPressed(String buttonText) {  
 setState(() {  
 if (buttonText == 'C') {  
 displayValue = '';  
 firstNumber = 0;  
 secondNumber = 0;  
 operation = '';  
 result = '';  
 } else if (buttonText == '+' ||  
 buttonText == '-' ||  
 buttonText == '\*' ||  
 buttonText == '/') {  
 firstNumber = double.*parse*(displayValue);  
 operation = buttonText;  
 displayValue = '';  
 } else if (buttonText == '=') {  
 secondNumber = double.*parse*(displayValue);  
  
 switch (operation) {  
 case '+':  
 result = (firstNumber + secondNumber).toString();  
 break;  
 case '-':  
 result = (firstNumber - secondNumber).toString();  
 break;  
 case '\*':  
 result = (firstNumber \* secondNumber).toString();  
 break;  
 case '/':  
 result = (firstNumber / secondNumber).toString();  
 break;  
 }  
  
 displayValue = result;  
 operation = '';  
 } else {  
 displayValue += buttonText;  
 }  
  
 displayController.text = displayValue;  
 });  
 }  
  
 Widget buildButton(String buttonText, Color color) {  
 return Expanded(  
 child: Padding(  
 padding: const EdgeInsets.all(8.0),  
 child: ElevatedButton(  
 onPressed: () => buttonPressed(buttonText),  
 style: ElevatedButton.*styleFrom*(  
 padding: EdgeInsets.all(20.0),  
 backgroundColor: color,  
 ),  
 child: Text(  
 buttonText,  
 style: TextStyle(  
 fontSize: 24.0,  
 fontWeight: FontWeight.*bold*,  
 color: Colors.*white*,  
 ),  
 ),  
 ),  
 ),  
 );  
 }  
  
 @override  
 Widget build(BuildContext context) {  
 return Scaffold(  
 appBar: AppBar(  
 title: Text("Calculator"),  
 ),  
 body: Column(  
 children: <Widget>[  
 Expanded(  
 child: Container(  
 padding: EdgeInsets.all(16.0),  
 alignment: Alignment.*centerRight*,  
 child: TextField(  
 controller: displayController,  
 style: TextStyle(  
 fontSize: 48.0,  
 fontWeight: FontWeight.*bold*,  
 ),  
 decoration: InputDecoration(  
 border: OutlineInputBorder(),  
 contentPadding: EdgeInsets.all(16.0),  
 ),  
 textAlign: TextAlign.right,  
 readOnly: true,  
 ),  
 ),  
 ),  
 Column(  
 children: [  
 Row(  
 children: <Widget>[  
 buildButton('7', Colors.*blueAccent*),  
 buildButton('8', Colors.*blueAccent*),  
 buildButton('9', Colors.*blueAccent*),  
 buildButton('/', Colors.*orange*),  
 ],  
 ),  
 Row(  
 children: <Widget>[  
 buildButton('4', Colors.*blueAccent*),  
 buildButton('5', Colors.*blueAccent*),  
 buildButton('6', Colors.*blueAccent*),  
 buildButton('\*', Colors.*orange*),  
 ],  
 ),  
 Row(  
 children: <Widget>[  
 buildButton('1', Colors.*blueAccent*),  
 buildButton('2', Colors.*blueAccent*),  
 buildButton('3', Colors.*blueAccent*),  
 buildButton('-', Colors.*orange*),  
 ],  
 ),  
 Row(  
 children: <Widget>[  
 buildButton('0', Colors.*blueAccent*),  
 buildButton('.', Colors.*blueAccent*),  
 buildButton('C', Colors.*red*),  
 buildButton('+', Colors.*orange*),  
 ],  
 ),  
 Row(  
 children: <Widget>[  
 buildButton('=', Colors.*green*),  
 ],  
 ),  
 ],  
 ),  
 ],  
 ),  
 );  
 }  
}

**Use of map function in List:**

**By using map fuction we display all data with same pattern but with different content.**

import 'package:flutter/cupertino.dart';  
import 'package:flutter/material.dart';  
  
void main() {  
 runApp(myapp());  
}  
  
class myapp extends StatelessWidget {  
 @override  
 Widget build(BuildContext context) {  
 return MaterialApp(  
 home: Flutter(),  
 );  
 }  
}  
  
class Flutter extends StatefulWidget {  
 FlutterState createState() => FlutterState();  
}  
  
class FlutterState extends State<Flutter> {  
 var arrData = [  
 "Ali",  
 "Khizer",  
 "Zohaib",  
 "Wasif",  
 "Sonia",  
 "Ayesha",  
 "Asjid",  
 "Faizan",  
 "Misbah",  
 "Ans",  
 "Haris"  
 ];  
  
 @override  
 Widget build(BuildContext context) {  
 return MaterialApp(  
 title: "My App",  
 debugShowCheckedModeBanner: false,  
 home: Scaffold(  
 appBar: AppBar(  
 title: Text("My App"),  
 backgroundColor: Colors.*deepOrange*,  
 ),  
 body: ListView(  
 children: arrData.map((value) {  
 return Container(  
 padding: EdgeInsets.all(16.0), // Added padding  
 margin: EdgeInsets.symmetric(vertical: 4.0), // Added margin for spacing between rows  
 decoration: BoxDecoration(  
 color: Colors.*lightBlueAccent*, // Added background color for visibility  
 borderRadius: BorderRadius.circular(8.0), // Rounded corners  
 ),  
 child: Center(  
 child: Text(  
 value,  
 style: TextStyle(  
 fontSize: 18.0, // Increased font size  
 color: Colors.*white*, // Text color  
 ),  
 ),  
 ),  
 );  
 }).toList(),  
 ),  
 ),  
 );  
 }  
}

**same but we use in map and key data in arrdata array and display data using map:**

import 'package:flutter/material.dart';  
  
void main() {  
 runApp(MyApp());  
}  
  
class MyApp extends StatelessWidget {  
 @override  
 Widget build(BuildContext context) {  
 return MaterialApp(  
 home: Flutter(),  
 debugShowCheckedModeBanner: false,  
 );  
 }  
}  
  
class Flutter extends StatefulWidget {  
 FlutterState createState() => FlutterState();  
}  
  
class FlutterState extends State<Flutter> {  
 var arrData = [  
 {"name": "wasif", "mobno": "9264675748", "unread": "2h"},  
 {"name": "wasif", "mobno": "9264675748", "unread": "2h"},  
 {"name": "wasif", "mobno": "9264675748", "unread": "2h"},  
 {"name": "wasif", "mobno": "9264675748", "unread": "2h"},  
 {"name": "wasif", "mobno": "9264675748", "unread": "2h"},  
 {"name": "wasif", "mobno": "9264675748", "unread": "2h"},  
 {"name": "wasif", "mobno": "9264675748", "unread": "2h"},  
 {"name": "wasif", "mobno": "9264675748", "unread": "2h"},  
 {"name": "wasif", "mobno": "9264675748", "unread": "2h"}  
 ];  
  
 @override  
 Widget build(BuildContext context) {  
 return Scaffold(  
 appBar: AppBar(  
 title: Text("My App"),  
 backgroundColor: Colors.*deepOrange*,  
 ),  
 body: ListView(  
 children: arrData.map((value) {  
 return ListTile(  
 leading: Icon(Icons.*account\_circle*,size: 40,color: Colors.*green*,),  
 title: Text(value["name"]!),  
 subtitle: Text(value["mobno"]!),  
 trailing: CircleAvatar(  
 radius: 20,  
 backgroundColor: Colors.*orange*,  
 child: Text(value["unread"]!)),  
 );  
 }).toList(),  
 ),  
 );  
 }  
}

**Use of Constraint Box:**

**By using Constraint Box we control max and min height or width of any widget.**

import 'package:flutter/material.dart';  
  
void main(){  
  
 runApp(Myapp());  
  
}  
class Myapp extends StatelessWidget{  
 @override  
 Widget build(BuildContext context) {  
  
 return MaterialApp(  
  
 home: Flutterapp(),  
  
  
 );  
 }  
}  
  
  
class Flutterapp extends StatefulWidget{  
  
 FlutterappState createState()=> FlutterappState();  
  
}  
  
class FlutterappState extends State<Flutterapp>{  
@override  
 Widget build(BuildContext context) {  
 return MaterialApp(  
 debugShowCheckedModeBanner: false,  
 home: Scaffold(  
 appBar: AppBar(  
 title: Text("BMI CALCULATOR",style: TextStyle(fontSize: 15,fontWeight: FontWeight.*w600*,),),  
 backgroundColor: Colors.*indigo*,  
 ),  
  
 body: Center(  
 child: ConstrainedBox(constraints:BoxConstraints(  
 maxHeight: 300,  
 maxWidth: 300,  
 minHeight: 100,  
 minWidth: 200,  
 ),  
 /\* child: Text("Hello WasifHello WasifHello WasifHello WasifHello WasifHello "  
 "WasifHelloWasifHelloWasifHelloWasifHelloWasifHello WasifHello "  
 "WasifHello WasifHello WasifHello Wasif",  
 style: TextStyle(  
 fontSize: 21,  
 overflow: TextOverflow.fade  
 ), \*/  
  
 child: ElevatedButton(onPressed: (){},  
 child: Text("Click!!",style: TextStyle(fontSize: 20,fontWeight: FontWeight.*bold*),),  
 style: ElevatedButton.*styleFrom*(backgroundColor: Colors.*green*.shade300),  
  
 ),  
  
  
 ),  
 ),  
   
 ),  
  
 );  
 }  
  
  
}

**Make a BMI app:**

import 'package:flutter/cupertino.dart';  
import 'package:flutter/material.dart';  
  
void main() {  
 runApp(Myapp());  
}  
  
class Myapp extends StatelessWidget {  
 @override  
 Widget build(BuildContext context) {  
 return MaterialApp(  
 debugShowCheckedModeBanner: false,  
 title: "BMI",  
 home: BMI(),  
 );  
 }  
}  
  
class BMI extends StatefulWidget {  
 BMIState createState() => BMIState();  
}  
  
class BMIState extends State<BMI> {  
 var wtcontroller = TextEditingController();  
 var ftcontroller = TextEditingController();  
 var incontroller = TextEditingController();  
 var result = "";  
 var bgcolor = Colors.*indigo*.shade200; //?? Colors.indigo.shade200;  
 // var bgcolor;  
 @override  
 Widget build(BuildContext context) {  
 return Scaffold(  
 // title: "BMI",  
 // debugShowCheckedModeBanner: false,  
  
 // home: Scaffold(  
 appBar: AppBar(  
 title: Text(  
 "BMI APP",  
 style: TextStyle(fontWeight: FontWeight.*w700*, fontSize: 30),  
 ),  
 backgroundColor: Colors.*indigo*.shade500,  
 ),  
  
 body: Container(  
 color: bgcolor,  
 child: Center(  
 child: Container(  
 width: 300,  
 child: Center(  
 child: Column(  
 mainAxisAlignment: MainAxisAlignment.center,  
 children: [  
 Text(  
 "BMI",  
 style: TextStyle(  
 fontSize: 40,  
 fontWeight: FontWeight.*w700*,  
 color: Colors.*indigo*.shade700),  
 ),  
 SizedBox(  
 height: 25,  
 ),  
 TextField(  
 controller: wtcontroller,  
 decoration: InputDecoration(  
 label: Text(  
 "Enter Your Weight(in kgs)",  
 style: TextStyle(  
 fontSize: 17, fontWeight: FontWeight.*w700*),  
 ),  
 prefixIcon: Icon(Icons.*line\_weight*),  
 prefixIconColor: Colors.*indigo*.shade600),  
 keyboardType: TextInputType.*number*,  
 ),  
 SizedBox(  
 height: 14,  
 ),  
 TextField(  
 controller: ftcontroller,  
 decoration: InputDecoration(  
 label: Text(  
 "Enter Your Height(in feet)",  
 style: TextStyle(  
 fontSize: 17, fontWeight: FontWeight.*w700*),  
 ),  
 prefixIcon: Icon(Icons.*height\_outlined*),  
 prefixIconColor: Colors.*indigo*.shade600),  
 keyboardType: TextInputType.*number*,  
 ),  
 SizedBox(  
 height: 14,  
 ),  
 TextField(  
 controller: incontroller,  
 decoration: InputDecoration(  
 label: Text(  
 "Enter Your height(in Inch)",  
 style: TextStyle(  
 fontSize: 17, fontWeight: FontWeight.*w700*),  
 ),  
 prefixIcon: Icon(Icons.*height\_rounded*),  
 prefixIconColor: Colors.*indigo*.shade600,  
 ),  
 keyboardType: TextInputType.*number*,  
 ),  
 SizedBox(  
 height: 20,  
 ),  
 ElevatedButton(  
 onPressed: () {  
 var wt = wtcontroller.text.toString();  
 var ft = ftcontroller.text.toString();  
 var inch = incontroller.text.toString();  
  
 if (wt != "" && ft != "" && inch != "") {  
 var iwt = int.*parse*(wt);  
 var ift = int.*parse*(ft);  
 var Iinch = int.*parse*(inch);  
  
 var tinch = (ift \* 12) + Iinch;  
 var tCM = tinch \* 2.54;  
 var tM = tCM / 100;  
 var Bmi = iwt / (tM \* tM);  
  
 var msg = "";  
  
 if (Bmi > 25) {  
 msg = "You're Overweight";  
 bgcolor = Colors.*orangeAccent*.shade200 ??  
 Colors.*orangeAccent*.shade200;  
 } else if (Bmi < 18) {  
 msg = "You're underweight";  
 bgcolor =  
 Colors.*red*.shade200 ?? Colors.*red*.shade200;  
 } else {  
 msg = "You're Healthy";  
 bgcolor =  
 Colors.*green*.shade200 ?? Colors.*green*.shade200;  
 }  
  
 setState(() {  
 result =  
 "$msg \n Your BMI is : ${Bmi.toStringAsFixed(3)}";  
 });  
 } else {  
 setState(() {  
 result = "PLease fill all the required blanks!!";  
 bgcolor=Colors.*indigo*.shade200;  
 });  
 }  
 },  
 child: Text("Calculate",  
 style: TextStyle(  
 fontSize: 20,  
 fontWeight: FontWeight.*bold*,  
 color: Colors.*indigo*.shade800)),  
 style: ElevatedButton.*styleFrom*(  
 backgroundColor: Colors.*indigo*.shade300,  
 shadowColor: Colors.*indigo*,  
 // shape: LinearBorder.start(),  
 ),  
 ),  
 SizedBox(  
 height: 14,  
 ),  
 Text(  
 result,  
 style: TextStyle(  
 fontSize: 17,  
 fontWeight: FontWeight.*w800*,  
 color: Colors.*black*),  
 ),  
 ]),  
 ),  
 ),  
 ),  
 ),  
  
 // ),  
 );  
 }  
}

**Updated BMI:**

import 'dart:ui';  
  
import 'package:flutter/cupertino.dart';  
import 'package:flutter/material.dart';  
import 'package:font\_awesome\_flutter/font\_awesome\_flutter.dart';  
  
void main() {  
 runApp(MyApp());  
}  
  
class MyApp extends StatelessWidget {  
 @override  
 Widget build(BuildContext context) {  
 return MaterialApp(  
 title: "BMI APP",  
 debugShowCheckedModeBanner: false,  
 home: BmiApp(),  
 );  
 }  
}  
  
class BmiApp extends StatefulWidget {  
 BmiAppState createState() => BmiAppState();  
}  
  
class BmiAppState extends State<BmiApp> {  
 var wtcontroller = TextEditingController();  
 var ftcontroller = TextEditingController();  
 var incontroller = TextEditingController();  
 var result = " ";  
 Color bgcolor = Colors.*indigo*;  
  
 @override  
 Widget build(BuildContext context) {  
 return MaterialApp(  
 title: "BMI",  
 debugShowCheckedModeBanner: false,  
 home: Scaffold(  
 appBar: AppBar(  
 title: Text(  
 "BMI Calculator",  
 style: TextStyle(  
 fontSize: 35, fontWeight: FontWeight.*w600*, color: Colors.*white*),  
 ),  
 backgroundColor: Colors.*indigo*,  
 ),  
 backgroundColor: Colors.*indigo*.shade100,  
 body: Center(  
 child: Container(  
 width: 300,  
 child: Column(  
 mainAxisAlignment: MainAxisAlignment.center,  
 children: [  
 Text("BODY MASS INDEX",  
 style: TextStyle(  
 fontSize: 35,  
 fontWeight: FontWeight.*bold*,  
 fontStyle: FontStyle.italic,color: Colors.*black*)),  
 SizedBox(  
 height: 14,  
 ),  
 TextField(  
 keyboardType: TextInputType.*number*,  
 controller: wtcontroller,  
 // cursorWidth: 12,  
 cursorColor: Colors.*indigo*,  
 // cursorHeight: 12,  
  
 decoration: InputDecoration(  
 border: OutlineInputBorder(  
 borderSide: BorderSide(color: Colors.*indigo*),  
 borderRadius: BorderRadius.circular(12),  
 ),  
 focusedBorder: OutlineInputBorder(  
 borderRadius: BorderRadius.circular(12),  
 borderSide: BorderSide(color: Colors.*indigoAccent*)),  
 labelText: "Enter your Weight (in kgs)",  
 prefixIcon: FaIcon(  
 Icons.*line\_weight\_outlined*,  
 size: 45,  
 ),  
 prefixIconColor: bgcolor),  
 ),  
 SizedBox(  
 height: 14,  
 ),  
 TextField(  
 keyboardType: TextInputType.*number*,  
 controller: ftcontroller,  
 // cursorWidth: 12,  
 cursorColor: Colors.*indigo*,  
 // cursorHeight: 12,  
  
 decoration: InputDecoration(  
 border: OutlineInputBorder(  
 borderSide: BorderSide(color: Colors.*indigo*),  
 borderRadius: BorderRadius.circular(12),  
 ),  
 focusedBorder: OutlineInputBorder(  
 borderRadius: BorderRadius.circular(12),  
 borderSide: BorderSide(color: Colors.*indigoAccent*)),  
 labelText: "Enter your Height (in feet)",  
 prefixIcon: FaIcon(  
 Icons.*height*,  
 size: 45,  
 ),  
 prefixIconColor: bgcolor),  
 ),  
 SizedBox(  
 height: 14,  
 ),  
 TextField(  
 keyboardType: TextInputType.*number*,  
 controller: incontroller,  
 // cursorWidth: 12,  
 cursorColor: Colors.*indigo*,  
 // cursorHeight: 12,  
  
 decoration: InputDecoration(  
 border: OutlineInputBorder(  
 borderSide: BorderSide(color: Colors.*indigo*),  
 borderRadius: BorderRadius.circular(12),  
 ),  
 focusedBorder: OutlineInputBorder(  
 borderRadius: BorderRadius.circular(12),  
 borderSide: BorderSide(color: Colors.*indigoAccent*)),  
 labelText: "Enter your Height (in inch)",  
 prefixIcon: FaIcon(Icons.*height*, size: 45),  
 prefixIconColor: bgcolor),  
 ),  
 SizedBox(  
 height: 14,  
 ),  
 ElevatedButton(  
 onPressed: () {  
 var wt = wtcontroller.text.toString();  
 var ft = ftcontroller.text.toString();  
 var inch = incontroller.text.toString();  
 var msg = " ";  
 var Bmi;  
  
 try {  
 if (wt != "" && ft != "" && inch != "") {  
 var Iwt = int.*parse*(wt);  
 var Ift = int.*parse*(ft);  
 var Iin = int.*parse*(inch);  
  
 var Total\_Iinch = (Ift \* 12) + Iin;  
 var Total\_cm = Total\_Iinch \* 2.54;  
 var TM = Total\_cm / 100;  
 Bmi = Iwt / (TM \* TM);  
 if (Bmi < 18) {  
 msg = "You're underweight!!";  
 bgcolor = Colors.*orangeAccent*;  
 } else if (Bmi >= 18 && Bmi <= 25) {  
 msg = "You're Healthy!!";  
 bgcolor = Colors.*green*;  
 } else if (Bmi > 25) {  
 msg = "You're overweight!!";  
 bgcolor = Colors.*red*;  
 }  
 }  
 } catch (e) {  
 setState(() {  
 result = "PLease fill all the required blanks!!";  
 bgcolor = Colors.*indigo*;  
 });  
 }  
 setState(() {  
 result =  
 "$msg \n Your BMI is : ${Bmi.toStringAsFixed(3)}";  
 });  
 },  
 child: Text(  
 "Calculate",  
 style: TextStyle(  
 fontSize: 25,  
 fontWeight: FontWeight.*w700*,  
 color: Colors.*white*),  
 ),  
 style: ElevatedButton.*styleFrom*(  
 backgroundColor: bgcolor,  
 shape: RoundedRectangleBorder(  
 borderRadius: BorderRadius.only(  
 topLeft: Radius.circular(12),  
 bottomRight: Radius.circular(12)),  
 )),  
 ),  
 SizedBox(  
 height: 14,  
 ),  
 Card(  
 color: Colors.*indigo*.shade100,  
 elevation: 5,  
 child: Padding(  
 padding: EdgeInsets.all(8.0),  
 child: Text(  
 result,  
 style: TextStyle(  
 fontSize: 17,  
 fontWeight: FontWeight.*w800*,  
 color: Colors.*black*,  
 ),  
 ),  
 ),  
 ),  
 ],  
 ),  
 ),  
 ),  
 ),  
 );  
 }  
}

**Move pages from one screen to other by using Navigator.push or pop inside we used MaterialPageRoute .**

**First Dart file: Intropage.dart**

import 'package:flutter/material.dart';  
import 'main.dart';  
class Intropage extends StatelessWidget {  
 @override  
 Widget build(BuildContext context) {  
 return Scaffold(  
 backgroundColor: Colors.*green*.shade100,  
 body: Center(  
 child: Column(  
 mainAxisAlignment: MainAxisAlignment.center,  
 children: [  
 Text(  
 "WELCOME INTRO PAGE!!",  
 style: TextStyle(  
 fontWeight: FontWeight.*bold*,  
 fontSize: 35,  
 fontStyle: FontStyle.italic,  
 ),  
 textAlign: TextAlign.center,  
 ),  
 SizedBox(height: 20), // Add s  
 // pacing between text and button  
 ElevatedButton(  
 onPressed: () {  
 Navigator.*push*(  
 context,  
 //MaterialPageRoute(builder: (context) => MainPage()),  
 MaterialPageRoute(builder: (context) => Flutter()),  
 );  
 },  
 child: Text(  
 "Next Page",  
 style: TextStyle(  
 fontWeight: FontWeight.*bold*,  
 fontSize: 20,  
 fontStyle: FontStyle.italic,  
 ),  
 ),  
 ),  
  
 SizedBox(height: 20), // Add spacing between text and button  
  
 ],  
 ),  
 ),  
 );  
 }  
}  
  
class MainPage extends StatefulWidget {  
 @override  
 MainPageState createState() => MainPageState();  
}  
  
class MainPageState extends State<MainPage> {  
 @override  
 Widget build(BuildContext context) {  
 return Scaffold(  
 appBar: AppBar(  
 title: Text(  
 "Change PAGES!!",  
 style: TextStyle(  
 fontWeight: FontWeight.*bold*,  
 fontSize: 25,  
 fontStyle: FontStyle.italic,  
 ),  
 ),  
 ),  
 backgroundColor: Colors.*yellow*.shade100,  
 body: Center(  
 child: Text(  
 "Main PAGE!!",  
 style: TextStyle(  
 fontWeight: FontWeight.*bold*,  
 fontSize: 35,  
 fontStyle: FontStyle.italic,  
 ),  
 textAlign: TextAlign.center,  
 ),  
 ),  
 );  
 }  
}

**Main.dart file:**

import 'package:flutter/material.dart';  
import 'intropage.dart'; // Import the Intropage file  
  
void main() {  
 runApp(MyApp());  
}  
  
class MyApp extends StatelessWidget {  
 @override  
 Widget build(BuildContext context) {  
 return MaterialApp(  
 title: "My App",  
 debugShowCheckedModeBanner: false,  
 home: Intropage(), // Set Intropage as the home screen  
 );  
 }  
}class Flutter extends StatelessWidget {  
 @override  
 Widget build(BuildContext context) {  
 return Scaffold(  
 backgroundColor: Colors.*greenAccent*,  
 body: Center(  
 child: Column(  
 mainAxisAlignment: MainAxisAlignment.center,  
 children: [  
 Text(  
 "MAIN PAGEsss!!",  
 style: TextStyle(  
 fontWeight: FontWeight.*bold*,  
 fontSize: 35,  
 fontStyle: FontStyle.italic,  
 ),),  
  
 SizedBox(height: 20,),  
  
 ElevatedButton(  
 onPressed: () {  
 Navigator.*pop*(  
 context,  
 MaterialPageRoute(builder: (context) => Intropage()),  
 );  
 },  
 child: Text(  
 "Back Page",  
 style: TextStyle(  
 fontWeight: FontWeight.*bold*,  
 fontSize: 20,  
 fontStyle: FontStyle.italic,  
 ),  
 ),  
 ),  
  
 ],  
 ),  
 ),  
 // Set Intropage as the home screen  
 );  
 }  
}

**Splash Screen: when we open app 2 seconds app logo screen:**

**SplashScreen.dart**

import 'dart:async';  
  
import 'package:flutter/cupertino.dart';  
import 'package:flutter/material.dart';  
import 'intropage.dart'; // Import the Intropage file  
  
class SplashScreen extends StatefulWidget {  
 SplashScreenState createState() => SplashScreenState();  
}  
  
class SplashScreenState extends State<SplashScreen> {  
 @override  
 void initState() {  
 //by using this function we control duration of splash screen also we perform call back function after duration.  
 super.initState();  
  
 Timer(Duration(seconds: 3), () {  
 //We used timer class inside the initState function.  
 Navigator.*pushReplacement*(  
 //by using replacepush we replace intropage screen with splash screen in stack.  
 context,  
 MaterialPageRoute(builder: (context) => Intropage()));  
 });  
 }  
  
 @override  
 Widget build(BuildContext context) {  
 return MaterialApp(  
 home: Scaffold(  
 backgroundColor: Colors.*greenAccent*,  
 body: Center(  
 child: Container(  
 child: Text(  
 "Classico",  
 style: TextStyle(  
 fontStyle: FontStyle.italic,  
 fontSize: 35,  
 fontWeight: FontWeight.*w900*),  
 ))),  
 ),  
 );  
 }  
}

**Sending Data from one screen to other using Constructor and passing value in it class constructor through Navigation inside button:**

**Main.dart:**

import 'package:flutter/material.dart';  
import 'intropage.dart'; // Import the Intropage file  
import 'Splash\_Screen.dart'; // Import the splashscreen file  
  
void main() {  
 runApp(MyApp());  
}  
  
class MyApp extends StatelessWidget {  
 @override  
 Widget build(BuildContext context) {  
 return MaterialApp(  
 title: "My App",  
 debugShowCheckedModeBanner: false,  
 home: SplashScreen(), // Set Intropage as the home screen  
 );  
 }  
}class Flutter extends StatelessWidget {  
 @override  
 Widget build(BuildContext context) {  
 return Scaffold(  
 backgroundColor: Colors.*greenAccent*,  
 body: Center(  
 child: Column(  
 mainAxisAlignment: MainAxisAlignment.center,  
 children: [  
 Text(  
 "MAIN PAGEsss!!",  
 style: TextStyle(  
 fontWeight: FontWeight.*bold*,  
 fontSize: 35,  
 fontStyle: FontStyle.italic,  
 ),),  
  
 SizedBox(height: 20,),  
  
 ElevatedButton(  
 onPressed: () {  
 Navigator.*pop*(  
 context,  
 MaterialPageRoute(builder: (context) => Intropage()),  
 );  
 },  
 child: Text(  
 "Back Page",  
 style: TextStyle(  
 fontWeight: FontWeight.*bold*,  
 fontSize: 20,  
 fontStyle: FontStyle.italic,  
 ),  
 ),  
 ),  
  
 ],  
 ),  
 ),  
 // Set Intropage as the home screen  
 );  
 }  
}

**Splash Screen.dart:**

import 'dart:async';  
  
import 'package:flutter/cupertino.dart';  
import 'package:flutter/material.dart';  
import 'intropage.dart'; // Import the Intropage file  
  
class SplashScreen extends StatefulWidget {  
 SplashScreenState createState() => SplashScreenState();  
}  
  
class SplashScreenState extends State<SplashScreen> {  
 @override  
 void initState() {  
 //by using this function we control duration of splash screen also we perform call back function after duration.  
 super.initState();  
  
 Timer(Duration(seconds: 3), () {  
 //We used timer class inside the initState function.  
 Navigator.*pushReplacement*(  
 //by using replacepush we replace intropage screen with splash screen in stack.  
 context,  
 MaterialPageRoute(builder: (context) => Intropage()));  
 });  
 }  
  
 @override  
 Widget build(BuildContext context) {  
 return MaterialApp(  
 home: Scaffold(  
 backgroundColor: Colors.*greenAccent*,  
 body: Center(  
 child: Container(  
 child: Text(  
 "Classico",  
 style: TextStyle(  
 fontStyle: FontStyle.italic,  
 fontSize: 35,  
 fontWeight: FontWeight.*w900*),  
 ))),  
 ),  
 );  
 }  
}

**Intropage.dart:**

import 'package:flutter/material.dart';  
import 'main.dart';  
  
class Intropage extends StatelessWidget {  
 var dataController = TextEditingController();  
  
 @override  
 Widget build(BuildContext context) {  
 return Scaffold(  
 backgroundColor: Colors.*green*.shade100,  
 body: Center(  
 child: Column(  
 mainAxisAlignment: MainAxisAlignment.center,  
 children: [  
 Text(  
 "WELCOME INTRO PAGE!!",  
 style: TextStyle(  
 fontWeight: FontWeight.*bold*,  
 fontSize: 35,  
 fontStyle: FontStyle.italic,  
 ),  
 textAlign: TextAlign.center,  
 ),  
  
 SizedBox(height: 20), // Add s  
 // pacing between text and button  
 ElevatedButton(  
 onPressed: () {  
 Navigator.*push*(  
 context,  
 MaterialPageRoute(  
 builder: (context) =>  
 MainPage(dataController.text.toString())),  
 // MaterialPageRoute(builder: (context) => Flutter()),  
 );  
 },  
 child: Text(  
 "Next Page",  
 style: TextStyle(  
 fontWeight: FontWeight.*bold*,  
 fontSize: 20,  
 fontStyle: FontStyle.italic,  
 ),  
 ),  
 ),  
  
 SizedBox(height: 10),  
  
 Container(  
 width: 300,  
 child: TextField(  
 controller: dataController,  
 decoration: InputDecoration(  
 focusedBorder: OutlineInputBorder(  
 borderRadius: BorderRadius.circular(12),  
 borderSide: BorderSide(color: Colors.*blue*))),  
 ),  
 ) // Add spacing between text and button  
 ],  
 ),  
 ),  
 );  
 }  
}  
  
class MainPage extends StatelessWidget {  
 var namefromhome;  
 MainPage(this.namefromhome);  
 @override  
 Widget build(BuildContext context) {  
 return Scaffold(  
 appBar: AppBar(  
 title: Text(  
 "Change PAGES!!",  
 style: TextStyle(  
 fontWeight: FontWeight.*bold*,  
 fontSize: 25,  
 fontStyle: FontStyle.italic,  
 ),  
 ),  
 ),  
 backgroundColor: Colors.*yellow*.shade100,  
 body: Center(  
 child: Column(  
 mainAxisAlignment: MainAxisAlignment.center,  
 children: [  
 Text(  
 "Main PAGE!!",  
 style: TextStyle(  
 fontWeight: FontWeight.*bold*,  
 fontSize: 35,  
 fontStyle: FontStyle.italic,  
 ),  
 textAlign: TextAlign.center,  
 ),  
 SizedBox(  
 height: 12,  
 ),  
 Text(  
 "Welcome $namefromhome",  
 style: TextStyle(  
 fontWeight: FontWeight.*bold*,  
 fontSize: 35,  
 fontStyle: FontStyle.italic,  
 ),  
 textAlign: TextAlign.center,  
 ),  
 ],  
 ),  
 ),  
 );  
 }  
}

**By using Range Slider we set values in specific range by slide bar :**

import 'package:flutter/material.dart';  
  
void main() {  
 runApp(Flutter());  
}  
  
class Flutter extends StatefulWidget {  
 FlutterState createState() => FlutterState();  
}  
  
class FlutterState extends State<Flutter> {  
 RangeValues values = RangeValues(0, 10);  
  
 @override  
 Widget build(BuildContext context) {  
 RangeLabels labels = RangeLabels(values.start.toString(), values.end.toString());  
 return MaterialApp(  
 title: "My App",  
 debugShowCheckedModeBanner: false,  
 home: Scaffold(  
 appBar: AppBar(  
 title: Text("Range Slider"),  
 ),  
 backgroundColor: Colors.*blue*.shade100,  
 body: Column(  
 mainAxisAlignment: MainAxisAlignment.center,  
 children: [  
 RangeSlider(  
 values: values,  
 labels: labels,  
 divisions: 10,  
 min: 0,  
 max: 10,  
 activeColor: Colors.*green*,  
 inactiveColor: Colors.*green*.shade100,  
  
 onChanged: (newValues) {  
 values = newValues;  
 setState(() {}); //it is use for update values in run time.  
 print("Values: ${newValues.start}" "${newValues.end}");  
 })  
 ],  
 ),  
 ), // Set Intropage as the home screen  
 );  
 }  
}

**Linear Gradient:**

body: Center(  
 child: Container(  
 width: double.*infinity*,  
 decoration: BoxDecoration(  
 gradient: LinearGradient(  
 colors:[Colors.*blue*,Colors.*indigo*,Colors.*deepPurpleAccent*],  
 //stops: [1,0],  
 begin: Alignment.*bottomCenter*,//custom values : FractionalOffset(1.0,0.0 ),  
 end: FractionalOffset(0.1, 1.0),  
  
 )  
   
  
 ),

**Radial Gradient**

body: Center(  
 child: Container(  
 width: double.*infinity*,  
 decoration: BoxDecoration(  
 gradient: RadialGradient(  
 colors:[Color(0xff30cfd0),Color(0xff330867)],  
 //stops: [0,2],  
 center: Alignment.*bottomLeft*,  
  
  
 )  
  
  
 ),

**Sweep Gradient:**

body: Center(  
 child: Container(  
 width: double.*infinity*,  
 decoration: BoxDecoration(  
 gradient: SweepGradient(  
 colors:[Color(0xff30cfd0),Color(0xff330867)],  
 //stops: [0,2],  
 center: Alignment.*bottomLeft*,  
 startAngle: 0.0,  
 endAngle: 3.14, //180 degrees in radian   
  
 )  
  
  
 ),

**ClipRrect widget we simply crop our images or container by radius adjustment:**

ClipRRect(  
borderRadius: BorderRadius.circular(20.0), // Rounded corners  
child: Container(  
width: 200,  
height: 200,  
color: Colors.blue,  
child: Center(  
child: Text(  
'Clipped with Rounded Corners',  
style: TextStyle(color: Colors.white),  
),  
),  
),  
)

**FOO ANIMATIONS:**

**Animated Container**

import 'package:flutter/material.dart';  
  
void main() {  
 runApp(MyApp());  
}  
  
class MyApp extends StatefulWidget {  
 MyAppState createState() => MyAppState();  
}  
  
class MyAppState extends State<MyApp> {  
 var \_width = 200.0;  
 var \_height = 100.0;  
 bool flag = true;  
 Decoration decor = BoxDecoration(  
 borderRadius: BorderRadius.circular(20), color: Colors.*deepPurpleAccent*);  
  
 @override  
 Widget build(BuildContext context) {  
 return MaterialApp(  
 title: "My App",  
 debugShowCheckedModeBanner: false,  
 home: Scaffold(  
 appBar: AppBar(  
 title: Text(  
 "Animation App",  
 style: TextStyle(fontSize: 35, fontWeight: FontWeight.*bold*),  
 ),  
 ),  
 body: Center(  
 child: Column(  
 mainAxisAlignment: MainAxisAlignment.center,  
 children: [  
 AnimatedContainer(  
 duration: Duration(seconds: 2),  
 width: \_width,  
 height: \_height,  
 decoration: decor,  
 curve: Curves.*fastOutSlowIn*,  
 ),  
 SizedBox(  
 height: 12,  
 ),  
 ElevatedButton(  
 onPressed: () {  
 if (flag) {  
 \_width = 80.0;  
 \_height = 200.0;  
 decor = BoxDecoration(  
 borderRadius: BorderRadius.circular(20),  
 color: Colors.*deepPurpleAccent*);  
 flag = false;  
 } else {  
 \_width = 200.0;  
 \_height = 100.0;  
 decor = BoxDecoration(  
 borderRadius: BorderRadius.circular(2),  
 color: Colors.*green*);  
 flag = true;  
 }  
  
 setState(() {});  
 },  
 child: Text(  
 "Animation",  
 style: TextStyle(fontSize: 35, fontWeight: FontWeight.*bold*),  
 ),  
 ),  
 ],  
 ),  
 ),  
 ),  
 );  
 }  
}

**Animated Opacity:**

import 'package:flutter/material.dart';  
  
void main() {  
 runApp(MyApp());  
}  
  
class MyApp extends StatefulWidget {  
 MyAppState createState() => MyAppState();  
}  
  
class MyAppState extends State<MyApp> {  
 var \_width = 200.0;  
 var \_height = 100.0;  
 var \_myopacity;  
 bool flag = true;  
 bool opacity=true;  
 Decoration decor = BoxDecoration(  
 borderRadius: BorderRadius.circular(20), color: Colors.*deepPurpleAccent*);  
  
 @override  
 Widget build(BuildContext context) {  
 return MaterialApp(  
 title: "My App",  
 debugShowCheckedModeBanner: false,  
 home: Scaffold(  
 appBar: AppBar(  
 title: Text(  
 "Animation App",  
 style: TextStyle(fontSize: 35, fontWeight: FontWeight.*bold*),  
 ),  
 ),  
 body: Center(  
 child: Column(  
 mainAxisAlignment: MainAxisAlignment.center,  
 children: [  
 AnimatedContainer(  
 duration: Duration(seconds: 2),  
 width: \_width,  
 height: \_height,  
 decoration: decor,  
 curve: Curves.*fastOutSlowIn*,  
 ),  
 SizedBox(  
 height: 12,  
 ),  
 ElevatedButton(  
 onPressed: () {  
 if (flag) {  
 \_width = 80.0;  
 \_height = 200.0;  
 decor = BoxDecoration(  
 borderRadius: BorderRadius.circular(20),  
 color: Colors.*deepPurpleAccent*);  
 flag = false;  
 } else {  
 \_width = 200.0;  
 \_height = 100.0;  
 decor = BoxDecoration(  
 borderRadius: BorderRadius.circular(2),  
 color: Colors.*green*);  
 flag = true;  
 }  
  
 setState(() {});  
 },  
 child: Text(  
 "Animation",  
 style: TextStyle(fontSize: 35, fontWeight: FontWeight.*bold*),  
 ),  
 ),  
 SizedBox(  
 height: 9,  
 ),  
 AnimatedOpacity(opacity: \_myopacity, duration: Duration(seconds: 2),curve: Curves.*easeInBack*,  
 child: Container(  
 color: Colors.*yellow*,  
 width: 200,  
 height: 100,  
 ),  
  
 ),  
 SizedBox(  
 height: 9,  
 ),  
  
 ElevatedButton(  
 onPressed: () {  
 if (opacity) {  
 \_myopacity=1.0;  
 opacity = false;  
 } else {  
 \_myopacity=0.0;  
 opacity = true;  
 }  
  
 setState(() {});  
 },  
 child: Text(  
 "Close",  
 style: TextStyle(fontSize: 35, fontWeight: FontWeight.*bold*),  
 ),  
 ),  
  
 ],  
 ),  
 ),  
 ),  
 );  
 }  
}

**Animated Cross Fade:**

import 'dart:async';  
  
import 'package:flutter/material.dart';  
  
void main() {  
 runApp(MyApp());  
}  
  
class MyApp extends StatefulWidget {  
 MyAppState createState() => MyAppState();  
}  
  
class MyAppState extends State<MyApp> {  
 bool crossfade = true;  
 @override  
 /\* void initState() {  
 super.initState();  
 Timer(Duration(seconds: 4), () {  
 isVisible();  
 });  
 }\*/  
  
 void isVisible() {  
 setState(() {  
 if(crossfade) {  
 crossfade = false;  
 }  
 else{  
 crossfade=true;  
 }  
 }  
 );  
 }  
  
 @override  
 Widget build(BuildContext context) {  
 return MaterialApp(  
 title: "My App",  
 debugShowCheckedModeBanner: false,  
 home: Scaffold(  
 appBar: AppBar(  
 title: Text(  
 "Animation App",  
 style: TextStyle(fontSize: 35, fontWeight: FontWeight.*bold*),  
 ),  
 ),  
 body: Center(  
 child: Column(  
 mainAxisAlignment: MainAxisAlignment.center,  
 children: [  
 AnimatedCrossFade(  
  
 firstChild: Container(  
 width: 200,  
 height: 200,  
 color: Colors.*orangeAccent*.shade200,  
 ),  
 secondChild:  
 Image.asset("assets/images/IMG\_20230106\_102737\_960.jpg",width: 100,height: 100,fit: BoxFit.cover,),  
 crossFadeState: crossfade  
 ? CrossFadeState.showFirst: CrossFadeState.showSecond,  
 duration: Duration(seconds: 3),  
 firstCurve: Curves.*fastOutSlowIn*,  
 secondCurve: Curves.*bounceIn*,  
 sizeCurve: Curves.*fastOutSlowIn*,  
  
  
  
 ),  
 SizedBox(height: 10,),  
 ElevatedButton(onPressed: (){  
  
 isVisible();  
  
  
 }, child: Text("Click"))  
 ],  
 ),  
 ),  
 ),  
 );  
 }  
}

**Hero Animation**

**Main.dart**

import 'package:flutter/material.dart';  
import 'DetailPage.dart';  
  
void main() {  
 runApp(MyApp());  
}  
  
class MyApp extends StatefulWidget {  
 @override  
 MyAppState createState() => MyAppState();  
}  
  
class MyAppState extends State<MyApp> {  
 @override  
 Widget build(BuildContext context) {  
 return MaterialApp(  
 title: "My App",  
 debugShowCheckedModeBanner: false,  
 home: Homepage(),  
 );  
 }  
}  
  
class Homepage extends StatelessWidget {  
 @override  
 Widget build(BuildContext context) {  
 return Scaffold(  
 appBar: AppBar(  
 title: Text(  
 "Animation App",  
 style: TextStyle(fontSize: 35, fontWeight: FontWeight.*bold*),  
 ),  
 ),  
 body: Center(  
 child: Column(  
 mainAxisAlignment: MainAxisAlignment.center,  
 children: [  
 InkWell(  
 onTap: () {  
 Navigator.*push*(  
 context,  
 MaterialPageRoute(  
 builder: (context) => DetailPage(),  
 ),  
 );  
 },  
 child: Hero(  
 tag: "Background",  
 child: Image.asset(  
 "assets/images/IMG\_20230106\_102737\_960.jpg",  
 width: 100,  
 height: 100,  
   
 ),  
 ),  
 ),  
 ],  
 ),  
 ),  
 );  
 }  
}

**Detailpage.dart**

import 'package:flutter/cupertino.dart';  
import 'package:flutter/material.dart';  
  
class DetailPage extends StatefulWidget {  
 @override  
 DetailPageState createState() => DetailPageState();  
}  
  
class DetailPageState extends State<DetailPage> {  
 @override  
 Widget build(BuildContext context) {  
 return Scaffold(  
 appBar: AppBar(  
 title: Text("Detail Page"),  
 ),  
 body: Hero(  
 tag: "Background",  
 child: Image.asset(  
 "assets/images/IMG\_20230106\_102737\_960.jpg",  
 fit: BoxFit.contain,  
 ),  
 ),  
  
 );  
 }  
}

**ListWheelScrollView**

**Main.dart**

import 'package:flutter/material.dart';  
import 'DetailPage.dart';  
  
void main() {  
 runApp(MyApp());  
}  
  
class MyApp extends StatefulWidget {  
 @override  
 MyAppState createState() => MyAppState();  
}  
  
class MyAppState extends State<MyApp> {  
 @override  
 Widget build(BuildContext context) {  
 return MaterialApp(  
 title: "My App",  
 debugShowCheckedModeBanner: false,  
 home: Homepage(),  
 );  
 }  
}  
  
class Homepage extends StatelessWidget {  
 final List<int> arrvalue = [1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13];  
  
 @override  
 Widget build(BuildContext context) {  
 return Scaffold(  
 appBar: AppBar(  
 title: Text(  
 "3D List App",  
 style: TextStyle(fontSize: 35, fontWeight: FontWeight.*bold*),  
 ),  
 ),  
 body: Center(  
 child: ListWheelScrollView(  
 itemExtent: 100,  
 diameterRatio: 2.0,  
 physics: FixedExtentScrollPhysics(),  
 children: arrvalue.map((value) {  
 return InkWell(  
 onTap: () {  
 // Navigate to DetailPage when an item is tapped  
 Navigator.*push*(  
 context,  
 MaterialPageRoute(  
 builder: (context) => DetailPage(value: value),  
 ),  
 );  
 },  
 child: Container(  
 alignment: Alignment.*center*,  
 margin: EdgeInsets.symmetric(horizontal: 20),  
 decoration: BoxDecoration(  
 color: Colors.*blueAccent*,  
 borderRadius: BorderRadius.circular(15),  
 ),  
 child: Text(  
 "Item $value",  
 style: TextStyle(  
 fontSize: 24,  
 fontWeight: FontWeight.*bold*,  
 color: Colors.*white*,  
 ),  
 ),  
 ),  
 );  
 }).toList(),  
 ),  
 ),  
 );  
 }  
}

**Detailpage.dart**

import 'package:flutter/material.dart';  
  
class DetailPage extends StatelessWidget {  
 final int value;  
  
 // Constructor to accept the value parameter  
 DetailPage({required this.value});  
  
 @override  
 Widget build(BuildContext context) {  
 return Scaffold(  
 appBar: AppBar(  
 title: Text("Detail Page"),  
 ),  
 body: Center(  
 child: Text(  
 "Selected Item: $value", // Display the selected item's value  
 style: TextStyle(fontSize: 30, fontWeight: FontWeight.*bold*),  
 ),  
 ),  
 );  
 }  
}

**Tween Animation usage :**

**By late keyword it means we later intialize this variable.**

**By with keyword we add class with inherit class.**

import 'package:flutter/material.dart';  
  
void main() {  
 runApp(MyApp());  
}  
  
class MyApp extends StatefulWidget {  
 @override  
 MyAppState createState() => MyAppState();  
}  
  
class MyAppState extends State<MyApp> with SingleTickerProviderStateMixin {  
 late Animation<double> animation;  
 late Animation<Color?> colorAnimation;  
 late AnimationController animationController;  
  
 @override  
 void initState() {  
 super.initState();  
  
 // Initialize the AnimationController  
 animationController = AnimationController(  
 vsync: this,  
 duration: const Duration(seconds: 4),  
 );  
  
 // Define the animations  
 animation = Tween<double>(begin: 0, end: 200).animate(animationController);  
 colorAnimation = ColorTween(  
 begin: Colors.*orangeAccent*,  
 end: Colors.*deepPurple*,  
 ).animate(animationController);  
  
 // Add listener to rebuild the UI  
 animationController.addListener(() {  
 setState(() {  
 // This will trigger UI rebuild when animation values change  
 });  
 });  
  
 // Start the animation  
 animationController.forward();  
 }  
  
 @override  
 void dispose() {  
 // Dispose of the animation controller  
 animationController.dispose();  
 super.dispose();  
 }  
  
 @override  
 Widget build(BuildContext context) {  
 return MaterialApp(  
 title: "My App",  
 debugShowCheckedModeBanner: false,  
 home: Scaffold(  
 appBar: AppBar(  
 title: const Text(  
 "My App",  
 style: TextStyle(fontSize: 35, fontWeight: FontWeight.*bold*),  
 ),  
 ),  
 body: Center(  
 child: Container(  
 width: animation.value,  
 height: animation.value,  
 color: colorAnimation.value,  
 ),  
 ),  
 ),  
 );  
 }  
}

**Ripple Effect:**

import 'package:flutter/material.dart';  
  
void main() {  
 runApp(MyApp());  
}  
  
class MyApp extends StatelessWidget {  
 @override  
 Widget build(BuildContext context) {  
 return MaterialApp(  
 title: 'Ripple Effect',  
 debugShowCheckedModeBanner: false,  
 home: RippleEffectScreen(),  
 );  
 }  
}  
  
class RippleEffectScreen extends StatefulWidget {  
 @override  
 \_RippleEffectScreenState createState() => \_RippleEffectScreenState();  
}  
  
class \_RippleEffectScreenState extends State<RippleEffectScreen>  
 with SingleTickerProviderStateMixin {  
 late AnimationController \_animationController;  
  
 @override  
 void initState() {  
 super.initState();  
 \_animationController = AnimationController(  
 vsync: this,  
 duration: const Duration(seconds: 2),  
 )..repeat(); // Repeat animation infinitely  
 }  
  
 @override  
 void dispose() {  
 \_animationController.dispose();  
 super.dispose();  
 }  
  
 Widget \_buildRipple(double radius, double opacity) {  
 return AnimatedBuilder(  
 animation: \_animationController,  
 builder: (context, child) {  
 double scale = \_animationController.value;  
 return Container(  
 width: radius \* scale,  
 height: radius \* scale,  
 decoration: BoxDecoration(  
 shape: BoxShape.circle,  
 color: Colors.*blue*.withOpacity(opacity \* (1 - scale)),  
 ),  
 );  
 },  
 );  
 }  
  
 @override  
 Widget build(BuildContext context) {  
 return Scaffold(  
 appBar: AppBar(  
 title: const Text('Ripple Effect'),  
 ),  
 body: Center(  
 child: Stack(  
 alignment: Alignment.*center*,  
 children: [  
 // Multiple ripple circles  
 \_buildRipple(300, 0.2),  
 \_buildRipple(250, 0.3),  
 \_buildRipple(200, 0.4),  
 \_buildRipple(150, 0.5),  
 // Center icon  
 const Icon(  
 Icons.*add\_call*,  
 size: 40,  
 color: Colors.*white*,  
 ),  
 ],  
 ),  
 ),  
 );  
 }  
}

**shared preference:**

import 'package:flutter/material.dart';  
import 'package:shared\_preferences/shared\_preferences.dart';  
  
void main() {  
 runApp(MyApp());  
}  
  
class MyApp extends StatelessWidget {  
 @override  
 Widget build(BuildContext context) {  
 return MaterialApp(  
 debugShowCheckedModeBanner: false,  
 home: HomePage(),  
 );  
 }  
}  
  
class HomePage extends StatefulWidget {  
 @override  
 State<HomePage> createState() => \_HomePageState();  
}  
  
class \_HomePageState extends State<HomePage> {  
 var nameController = TextEditingController();  
 static const *KEYNAME* = "name";  
 var nameValue = "";  
  
 @override  
 void initState() {  
 super.initState();  
 getValue();  
 }  
  
 @override  
 Widget build(BuildContext context) {  
 return Scaffold(  
 appBar: AppBar(  
 title: Text('Simple Flutter App'),  
 ),  
 body: Center(  
 child: Column(  
 mainAxisAlignment: MainAxisAlignment.center,  
 children: [  
 TextField(  
 controller: nameController,  
 decoration: InputDecoration(  
 label: Text("Enter Data"),  
 focusedBorder: OutlineInputBorder(  
 borderRadius: BorderRadius.circular(12),  
 ),  
 ),  
 ),  
 SizedBox(  
 height: 12,  
 ),  
 ElevatedButton(  
 onPressed: () async {  
 var name = nameController.text.toString();  
 var pref = await SharedPreferences.*getInstance*();  
 pref.setString(*KEYNAME*, name);  
 },  
 child: Text("Save")),  
 Text(nameValue),  
 ],  
 ),  
 ),  
 );  
 }  
  
 void getValue() async {  
 var pref = await SharedPreferences.*getInstance*();  
 var getName = pref.getString(*KEYNAME*);  
 nameValue = getName ?? "No Saved Data";  
 }  
}