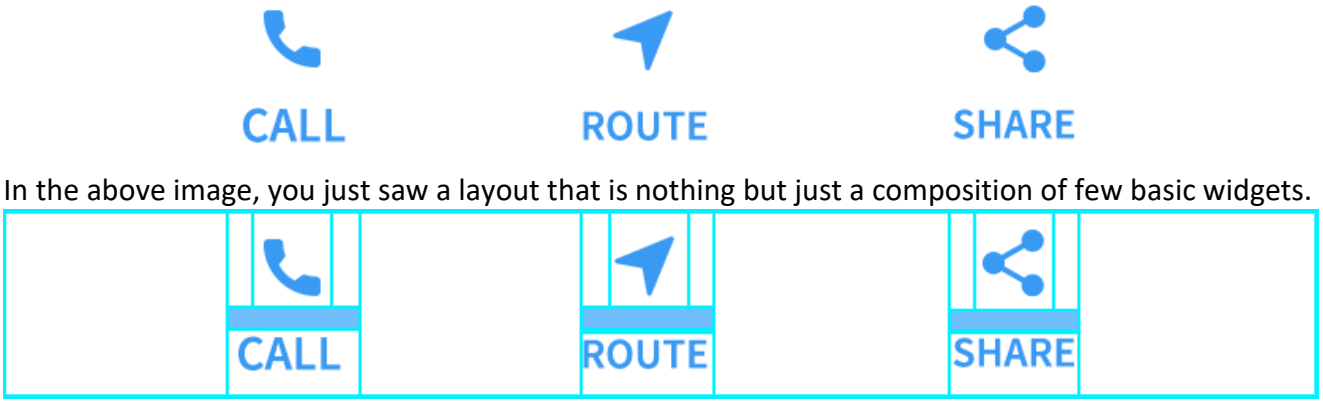
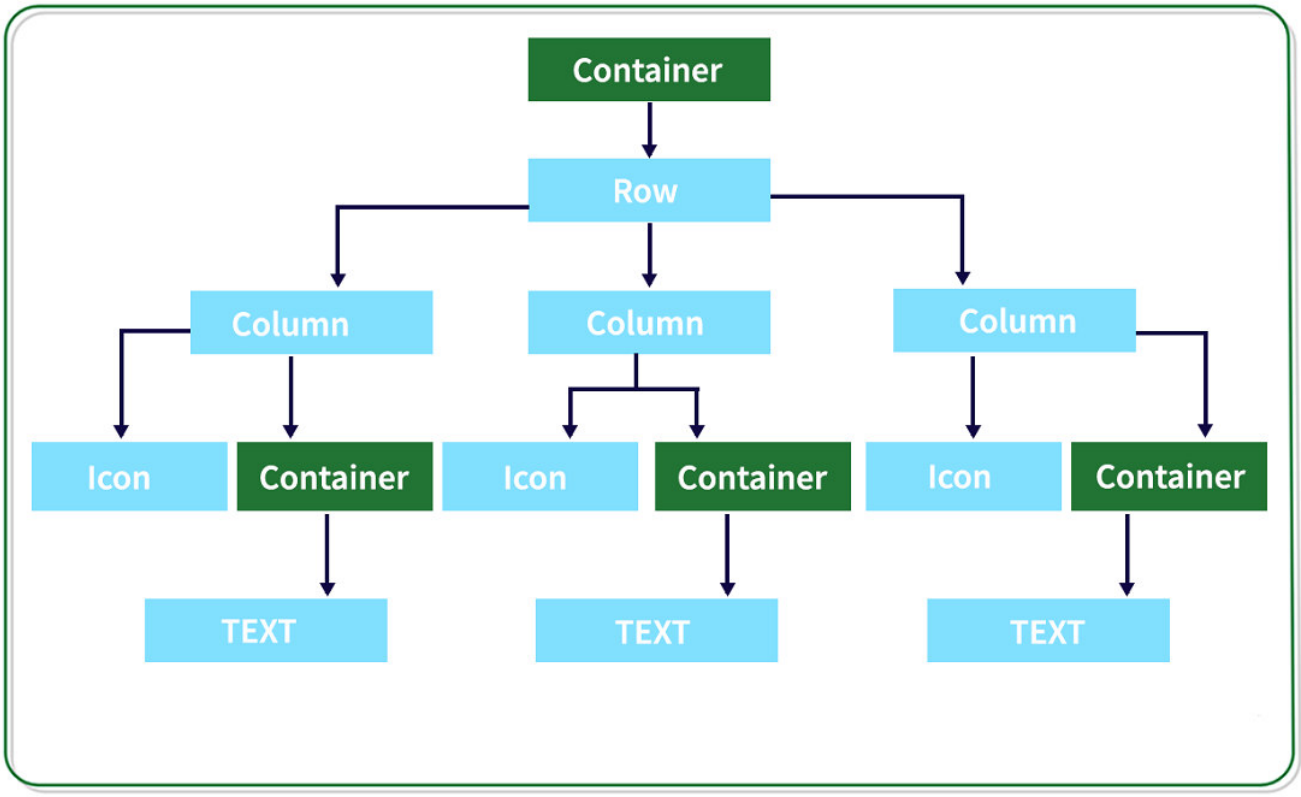


In the above image, you just saw a layout that is nothing but just a composition of few basic widgets.

Now look at the above image here we just outline the layouts, look closely you can see inside a raw widget there are 3 column widgets and each column contains an icon and a label. Take a look at the below widget tree diagram.



Now look closely fig 2 and fig 03, Parent widget is a row widget, inside that 3rd column widget and in each column, there is an icon and inside the container, there is a text widget.

Standard Widgets :

Some basic and useful widgets are used in almost all the app in flutter. Standard widgets in flutter are Container, GridView, ListView, Stack.

Container:

The container is the most used widget in flutter. We can add padding, margin, border, and background color-like properties in this widget and we can customize it according to our requirement. It contains only a single widget or child.

Grid View:

Grid view widget is a two-dimensional scrollable list, by default it provides two pre-fabricated lists, but you can customize it and build your custom grid.

- You can change grid.count property and specify the number of columns.
- gridView.extend allows the maximum pixel width of a tile.

List View:

List view is like a column widget, but it has a plus that is it can be *scrollable*. Listview can be horizontal or vertical. If the contents in the list view are not fitting then it adds *scrollable* functionality.

Stack:

Everybody knows the meaning of stack, i.e on top of another. Exactly this widget serve in that way we can put the widget on top of another.

- The first widget in the list of children is the base widget; subsequent children are overlaid on top of that base widget.
- The stack can not be scrollable.

Material Widgets:

Card :

A card is from the Material library, It can contain a single child, all the modern app use card in their app. In Flutter, a Card features slightly rounded corners and a drop shadow, giving it a 3D effect. By changing the card elevation property you can control the 3D effect like a drop shadow.

ListTile:

ListTile is also from the material library. For an easy way to create a row containing up to 3 lines of text and optional leading and trailing icons. ListTile is most commonly used in Card or ListView but can be used elsewhere.

11. Performance Steps and Results –

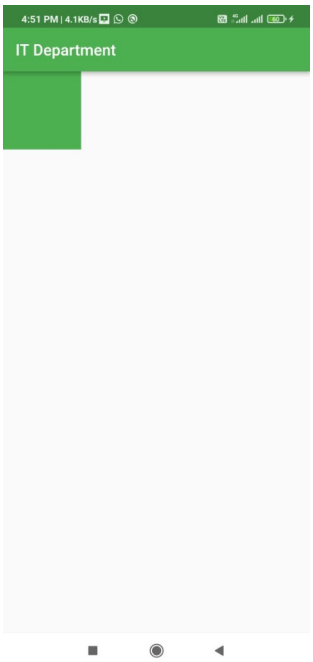
Q1	Use Container Widget in flutter App development.

Source code:

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

//Example for explaining Layout using Container
void main() {
  runApp(MyApp());
}

class MyApp extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    return MaterialApp(
      title: 'FAMT',
      theme: ThemeData(
        primarySwatch: Colors.green,
      ),
      home: MyHomePage(),
      debugShowCheckedModeBanner: false,
    );
```

```
  }
}

class MyHomePage extends StatefulWidget {
  @override
  _MyHomePageState createState() => _MyHomePageState();
}

class _MyHomePageState extends State<MyHomePage> {
  @override
  Widget build(BuildContext context) {
    return Scaffold(
        appBar: AppBar(
          title: Text("IT Department"),
        ),
        body: SafeArea(
          // Container implementation
          child: Container(
            height: 100.0,
            width: 100.0,
            color: Colors.green,
          ),
        ));
  }
}
```

Output:



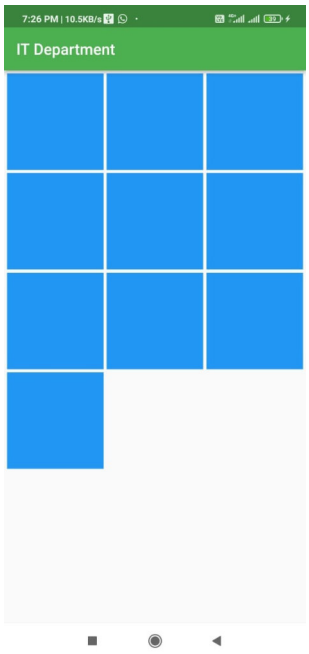
Q2	Use GridView Widget in flutter App development.

Source code:

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

//Example for explaining Layout using Gridview
void main() {
  runApp(MyApp());
}

class MyApp extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    return MaterialApp(
      title: 'FAMT',
      theme: ThemeData(
        primarySwatch: Colors.green,
      ),
      home: MyHomePage(),
      debugShowCheckedModeBanner: false,
    );
  }
}

class MyHomePage extends StatefulWidget {
  @override
  _MyHomePageState createState() => _MyHomePageState();
}

class _MyHomePageState extends State<MyHomePage> {
  Widget _buildGrid() => GridView.extent(
      maxCrossAxisExtent: 150,
      padding: const EdgeInsets.all(4),
      mainAxisSpacing: 4,
      crossAxisSpacing: 4,
      children: _buildGridTileList(10));

  List<Container> _buildGridTileList(int count) => List.generate(
      count,
      (i) => Container(
            width: 100,
            height: 100,
            color: Colors.blue,
          ));

  @override
  Widget build(BuildContext context) {
    return Scaffold(
        appBar: AppBar(
          title: Text("IT Department"),
```

```
        ),
        body: Center(child: _buildGrid()));
  }
}
```

Output:



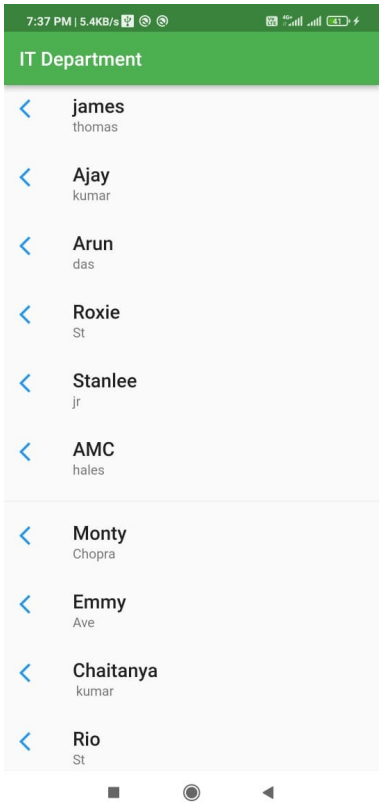
Q3	Use ListView Widget in flutter App development.

Source code:

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

//Example for explaining Layout using ListView
void main() {
  runApp(MyApp());
}

class MyApp extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    return MaterialApp(
      title: 'FAMT',
      theme: ThemeData(
        primarySwatch: Colors.green,
      ),
      home: MyHomePage(),
      debugShowCheckedModeBanner: false,
    );
  }
```

```
}

class MyHomePage extends StatefulWidget {
  @override
  _MyHomePageState createState() => _MyHomePageState();
}

class _MyHomePageState extends State<MyHomePage> {
  // function returning List view widget
  Widget _buildList() => ListView(
        // name is a listTile widget which is defined below
        children: [
          name('james', 'thomas'),
          name('Ajay', 'kumar'),
          name('Arun', 'das'),
          name('Roxie', 'St'),
          name('Stanlee', 'jr'),
          name('AMC', 'hales'),
          Divider(),
          name('Monty', "Chopra"),
          name('Emmy', 'Ave'),
          name('Chaitanya', ' kumar'),
          name('Rio', 'St'),
        ],
      );

// name is a function returning ListTile widget
  ListTile name(String firstName, String lastName) => ListTile(
        title: Text(firstName,
            style: TextStyle(
              fontWeight: FontWeight.w500,
              fontSize: 20,
            )),
        subtitle: Text(lastName),
        leading: Icon(
          Icons.arrow_back_ios,
          color: Colors.blue[500],
        ),
      );

  @override
  Widget build(BuildContext context) {
    return Scaffold(
        appBar: AppBar(
          title: Text("IT Department"),
        ),
        body: Center(child: _buildList()));
  }
}
```

Output:



Q4	Use StackView Widget in flutter App development.

Source code:

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

//Example for explaining Layout using Stackview
void main() {
  runApp(MyApp());
}

class MyApp extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    return MaterialApp(
      title: 'FAMT',
      theme: ThemeData(
        primarySwatch: Colors.green,
      ),
      home: MyHomePage(),
      debugShowCheckedModeBanner: false,
    );
  }
}

class MyHomePage extends StatefulWidget {
```

```
  @override
  _MyHomePageState createState() => _MyHomePageState();
}

class _MyHomePageState extends State<MyHomePage> {
  // function returning List view widget

// this function returns a stack widget
  Widget _buildStack() => Stack(
        alignment: const Alignment(0.6, 0.6),
        children: [
          Container(
            width: 150,
            height: 150,
            decoration:
                BoxDecoration(color: Colors.black45, shape: BoxShape.circle),
            child: Center(
              child: Text(
                'Mia B',
                style: TextStyle(
                  fontSize: 20,
                  fontWeight: FontWeight.bold,
                  color: Colors.black,
                ),
              ),
            ),
          ),
        ],
      );

  @override
  Widget build(BuildContext context) {
    return Scaffold(
        appBar: AppBar(
          title: Text("IT Department"),
        ),
        body: Center(child: _buildStack()));
  }
}
```

Output:

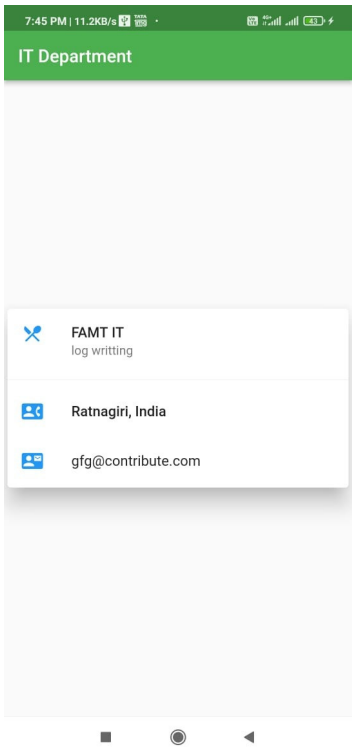
Q5	Use CardView Widget in flutter App development.

Source code:

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

//Example for explaining Layout using CardView
void main() {
  runApp(MyApp());
}

class MyApp extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    return MaterialApp(
      title: 'FAMT',
      theme: ThemeData(
        primarySwatch: Colors.green,
      ),
      home: MyHomePage(),
      debugShowCheckedModeBanner: false,
    );
  }
}

class MyHomePage extends StatefulWidget {
  @override
  _MyHomePageState createState() => _MyHomePageState();
}

class _MyHomePageState extends State<MyHomePage> {
  Widget _buildCard() => SizedBox(
        height: 210,
        child: Card(
          elevation: 20,
          child: Column(
            children: [
              ListTile(
                title: Text('FAMT IT',
                    style: TextStyle(fontWeight: FontWeight.w500)),
                subtitle: Text('log writting'),
                leading: Icon(
                  Icons.restaurant_menu,
                  color: Colors.blue[500],
                ),
              ),
              Divider(),
              ListTile(
                title: Text('Ratnagiri, India',
                    style: TextStyle(fontWeight: FontWeight.w500)),
```

```
              leading: Icon(
                Icons.contact_phone,
                color: Colors.blue[500],
              ),
            ),
            ListTile(
              title: Text('gfg@contribute.com'),
              leading: Icon(
                Icons.contact_mail,
                color: Colors.blue[500],
              ),
            ),
          ],
        ),
      ),
    );

  @override
  Widget build(BuildContext context) {
    return Scaffold(
        appBar: AppBar(
          title: Text("IT Department"),
        ),
        body: Center(child: _buildCard()));
  }
}
```

Output:



Q6	Use ListTile Widget in flutter App development.

Source code:

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

//Example for explaining Layout using ListTile
void main() {
  runApp(MyApp());
}

class MyApp extends StatelessWidget {
  @override
  Widget build(BuildContext context) {
    return MaterialApp(
      title: 'FAMT',
      theme: ThemeData(
        primarySwatch: Colors.green,
      ),
      home: MyHomePage(),
      debugShowCheckedModeBanner: false,
    );
  }
}

class MyHomePage extends StatefulWidget {
  @override
  _MyHomePageState createState() => _MyHomePageState();
}

class _MyHomePageState extends State<MyHomePage> {
  @override
  Widget build(BuildContext context) {
    return Scaffold(
        appBar: AppBar(
          title: Text("IT Department"),
        ),
        body: Container(
          child: ListTile(
            title:
                Text('FAMT IT', style: TextStyle(fontWeight: FontWeight.w500)),
            subtitle: Text('log writting'),
            leading: Icon(
              Icons.restaurant_menu,
              color: Colors.blue[500],
            ),
          ),
        ));
  }
}
```

Output: