

institute of



Mobile Application Development



Flutter Layout Basics

Single-child vs Multi-child widgets

Apart from state perspective, there is also composition perspective for widgets. Some widgets can contain a single widget, while the others can contain multiple (single or more) widgets.

Single-child widgets

Most of the single-child widgets compose the predecessor widgets using the `child` keyword. Some single-child widget examples:

- Container
- Center

```
Container(child: Text("Demo"))
```

Multi-child widgets compose predecessor widgets using the `children` keyword. Some single-child widget examples:

- Row
- Column

```
Column(  
  children:  
<Widget>[  
  Icon(Icons.add),  
  Text("Demo"),  
  Placeholder()  
  ],  
)
```

Multi-child widgets

Some widgets may contain more than one predecessor widgets which every predecessor will be used for different purposes, like `Scaffold` widget. These widgets will not follow the same design principle as we saw in `Row` and `Column`, but will use different parameter names.

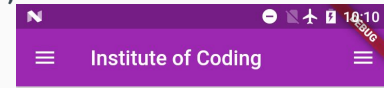
```
Scaffold(  
  appBar: AppBar(title: Text('Institute of Coding')),  
  body: Container(child: Text("Demo")),  
)
```

Scaffold

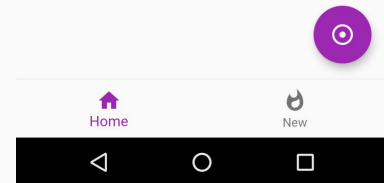
Scaffold, as one of the most complex widgets, is used to create skeleton of any screen and has navigational helpers including app bars, drawers, bottom sheets and more.

Scaffold

```
Scaffold(  
  appBar: AppBar(title: Text('Institute of Coding')),  
  drawer: Drawer(child: Placeholder()),  
  floatingActionButton: FloatingActionButton(child: Icon(Icons.adjust)),  
  endDrawer: Drawer(child: Placeholder()),  
  bottomNavigationBar: BottomNavigationBar(  
    items: [  
      BottomNavigationBarItem(  
        icon: Icon(Icons.home), title: Text("Home")),  
      BottomNavigationBarItem(  
        icon: Icon(Icons.whatshot), title: Text("New"))  
    ],  
  ),  
  body: Container(child: Center(child: Text("Welcome"))),  
)
```



Welcome!

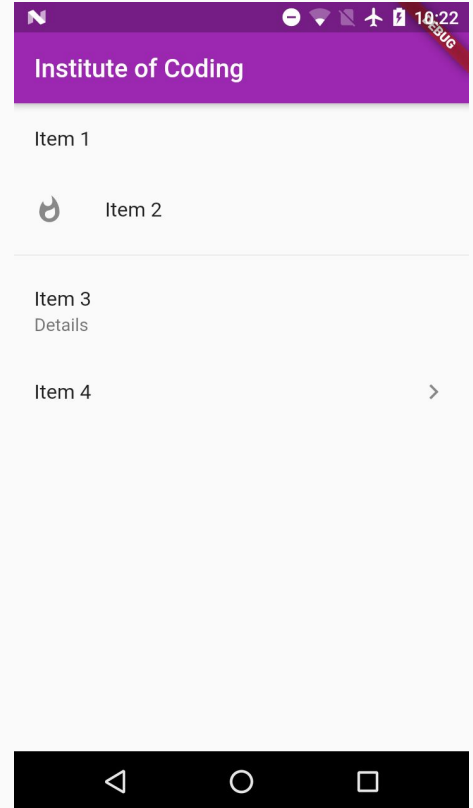


Lists are one of the most common elements of every mobile app. Flutter provides easy-to-use `ListView` widget, where you can put any widget you need inside it. For the best user experience, it's recommended to use `ListTile` widget, as it will style the contents depending on the platform you use.

You can separate the list contents using the `Divider` widget.

ListView

```
ListView(  
  children: <Widget>[  
    ListTile(title: Text("Item 1")),  
    ListTile(title: Text("Item 2"), leading: Icon(Icons.whatshot)),  
    Divider(),  
    ListTile(  
      title: Text("Item 3"),  
      subtitle: Text("Details"),  
    ),  
    ListTile(  
      title: Text("Item 4"),  
      trailing: Icon(Icons.navigate_next),  
    ),  
  ],  
)
```



Either in content or in profile pictures, virtually every mobile application needs to display images. These images can be shipped with the app, or it can be downloaded from the internet. Flutter built-in provides displaying images from several sources.

Displaying images shipped with the app

Create a folder names **assets** and put an image in it(ioc.jpg in this example).

Then add at the end of the **pubspec.yaml** file:

```
assets:  
  - assets/ioc.jpg
```

You can use this image in the application as follows:

```
Image.asset("assets/ioc.jpg")
```

Displaying images from the Internet

Displaying images from the Internet is easier. All you need to do is:

```
Image.network("https://picsum.photos/500")
```

Let's put all these together!

Using all the widgets we know, let's create a pseudo Whatsapp chat list screen!

```
Scaffold(  
  floatingActionButton: FloatingActionButton(  
    child: Icon(Icons.message),  
    backgroundColor: Colors.teal,  
  ),  
  appBar: ...,  
  body: ...,  
),
```

We'll fill these.

Chat list - AppBar

```
AppBar(  
  title: Text('IoC Chat!'),  
  backgroundColor: Colors.teal[700],  
  actions: <Widget>[  
    IconButton(icon: Icon(Icons.search), onPressed: () {}),  
    IconButton(icon: Icon(Icons.more_vert), onPressed: () {})  
  ],  
)
```




We'll see it afterwards.

Chat list - Body

```
ListView(  
  children: <Widget>[  
    ListTile(  
      title: Text("Dennis Doe"),  
      subtitle: Text("See you 🙌"),  
      leading: CircleAvatar(  
        backgroundImage: NetworkImage("https://i.pravatar.cc/300"),  
      ),  
      trailing:  
        Text("09:30", style: Theme.of(context).textTheme.caption)  
    ],  
  )
```


Chat list - Body

```
ListView(  
  children: <Widget>[  
    ListTile(  We can have multiple list tiles!  
      title: Text("Dennis Doe"),  
      subtitle: Text("See you 🙌"),  
      leading: CircleAvatar(  
        backgroundImage: NetworkImage("https://i.pravatar.cc/300"),  
      ),  
      trailing:  
        Text("09:30", style: Theme.of(context).textTheme.caption)  
    ],  
  )
```

Chat list - Preview

