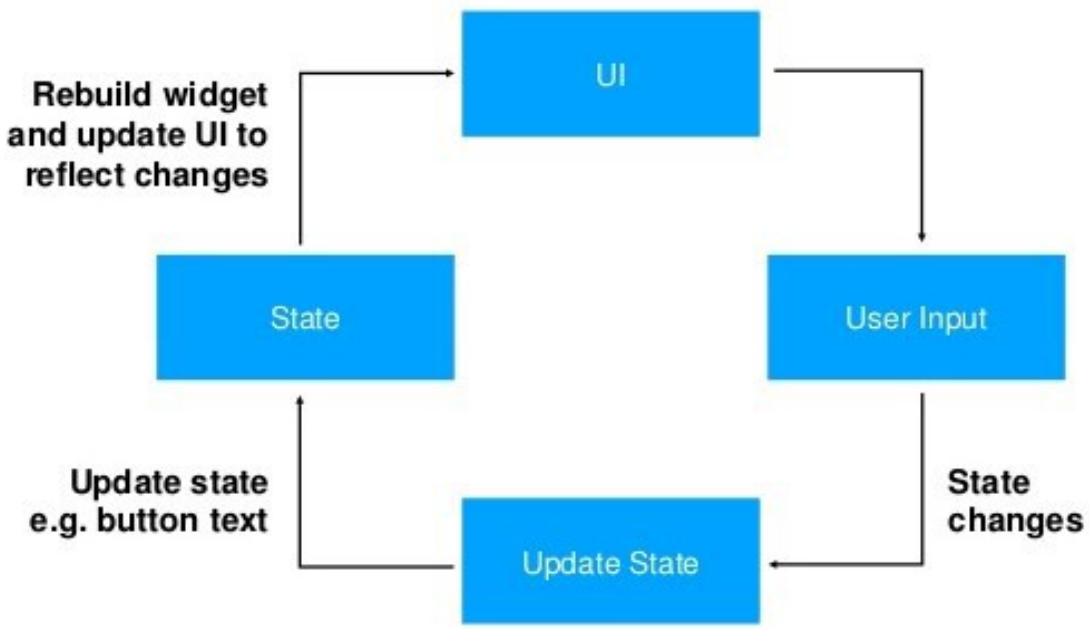
Stateful widgets

Stateful widgets

- This is the most important widget in flutter, because it holds a state widget,this one know when something changes and re-draws anything necessary on the screen.
- A stateful widget is defined as **any widget which changes its state within its lifetime**.

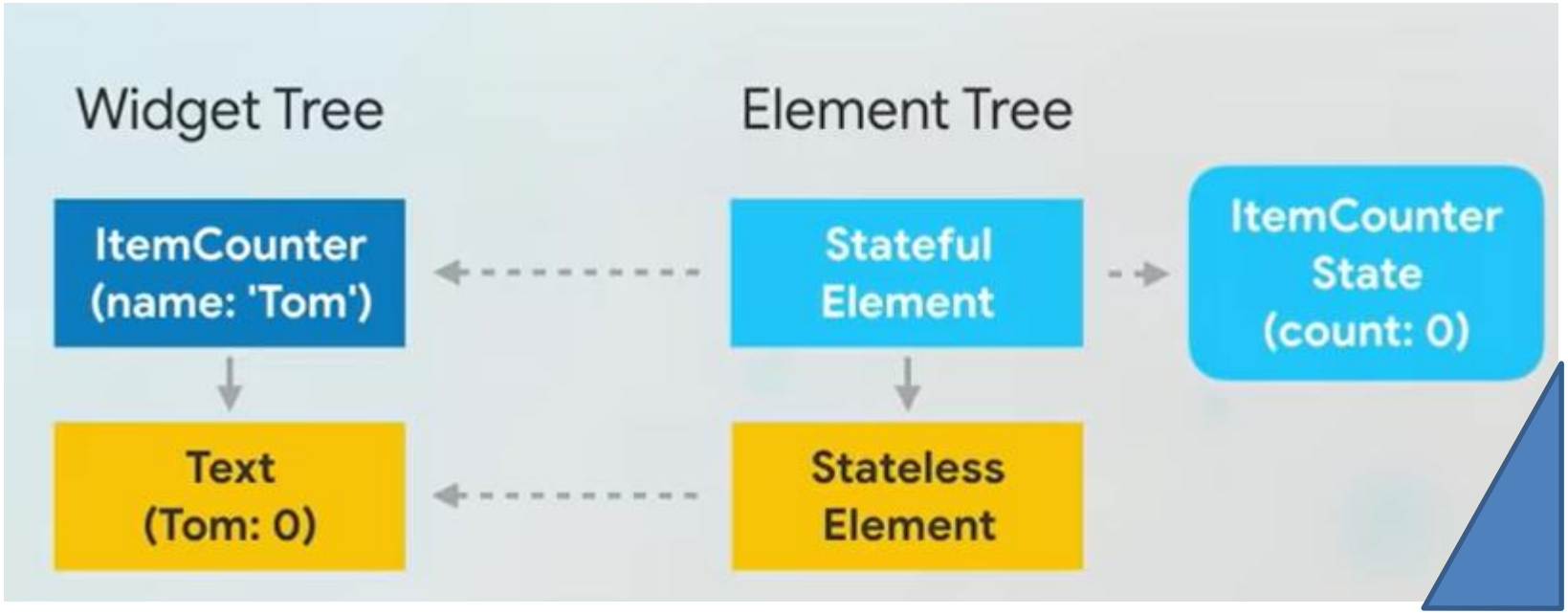
State

- The state is information that can read synchronously when the widget is built and might change during the lifetime of the widget.

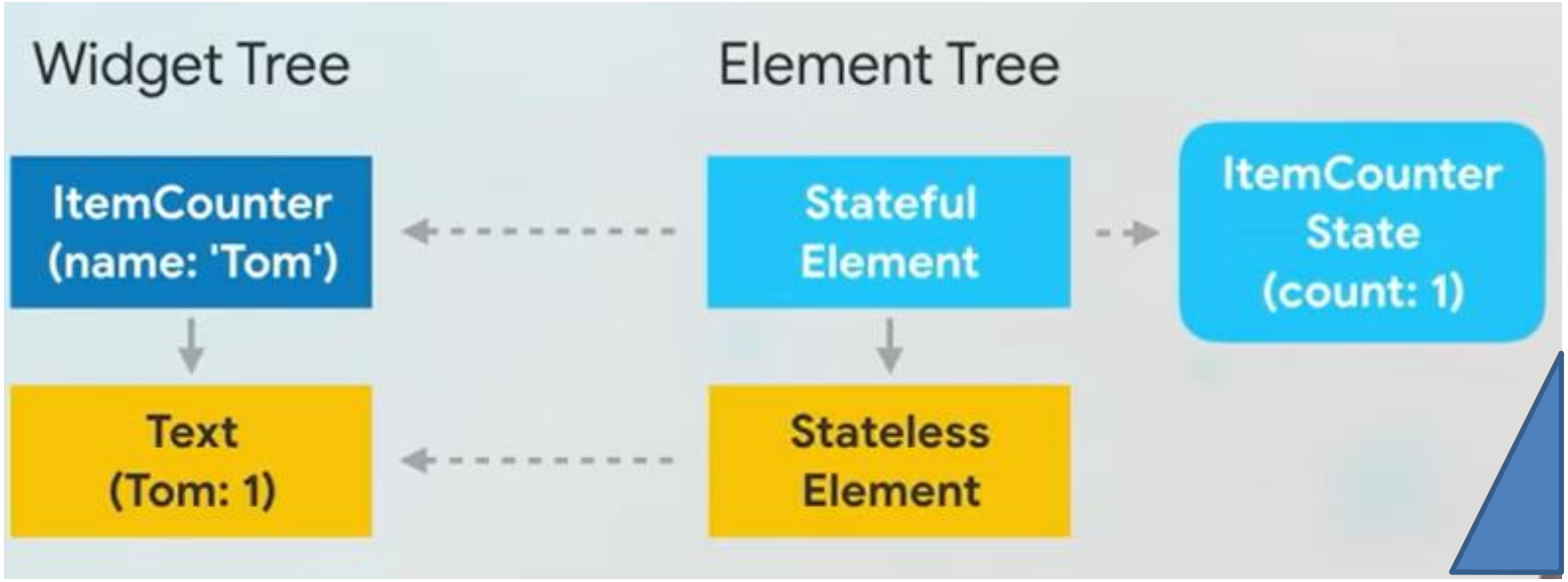

UI
User Input
Update State
State
Rebuild widget and update UI to reflect changes
State changes
Update state e.g. button text

```dart
class ItemCounter extends StatefulWidget {
 final String name;

 ItemCounter({this.name});

 @override
 _ItemCounterState createState() => _ItemCounterState();
}

class _ItemCounterState extends State<ItemCounter> {
 int count = 0;

 @override
 Widget build(BuildContext context) {
   return Text('${widget.name}: $count');
 }
}
```

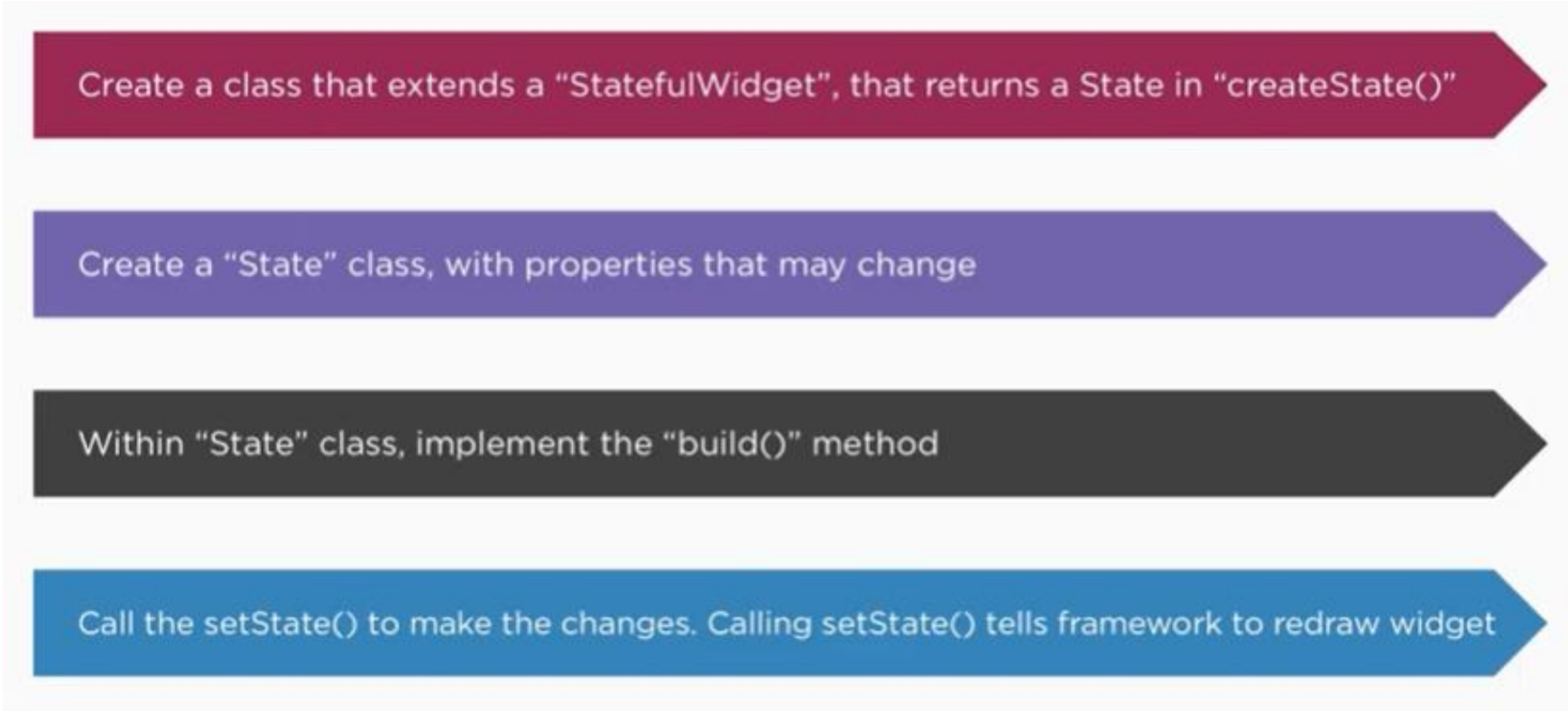
Stateful widget



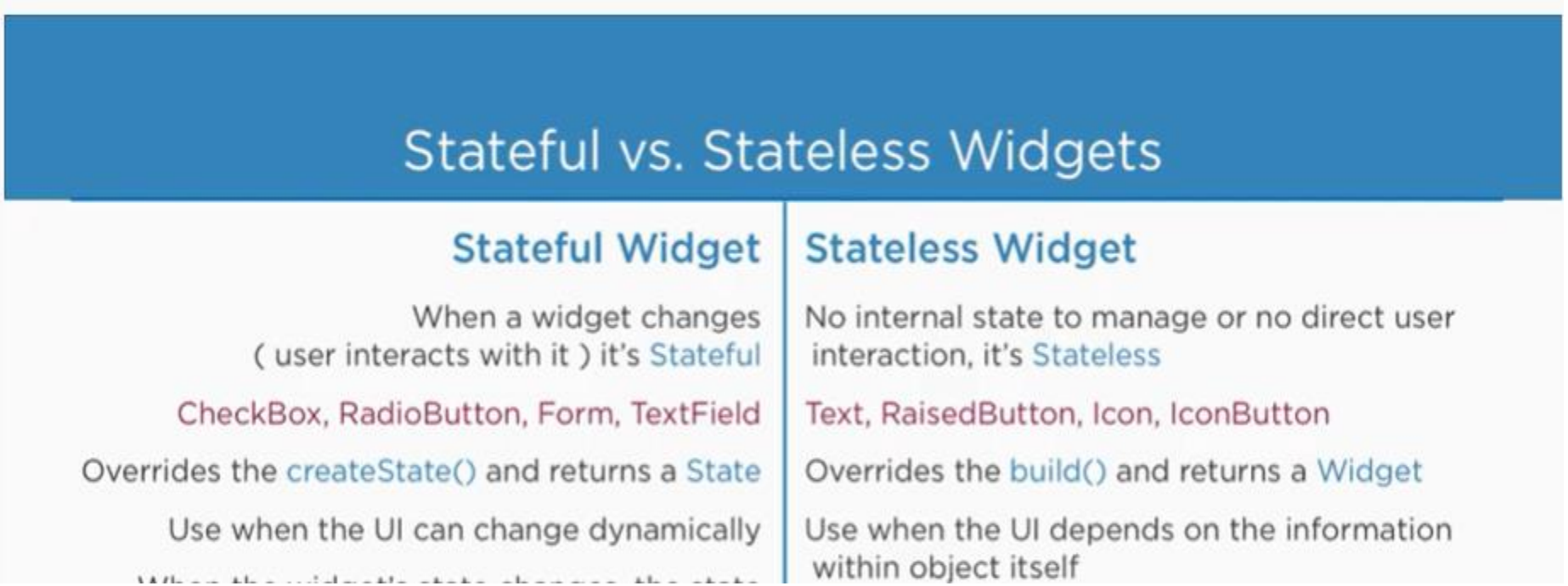
```dart
class _ItemCounterState extends State<ItemCounter> {
 int count = 0;

 @override
 Widget build(BuildContext context) {
   return GestureDetector(
     onTap: () {
       setState(() {
         count++;
       });
     },
     child: Text('${widget.name}: $count'),
   );
 }
}
```


Widget Tree
Element Tree
ItemCounter
(name: 'Tom')
Stateful
Element
ItemCounter
State
(count: 1)
Text
(Tom: 1)
Stateless
Element

Using Stateful widgets



Stateful vs. Stateless widgets



- Write a flutter program that allows user to enter city in text field and displays city name(demonstrate stateful widget)

main.dart

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

void main() {
  runApp(FavouriteCity());
  /*runApp(
  MaterialApp(
      title: 'Stateful Application Example',
      home: FavouriteCity(),
  )
  );
  */
}

class FavouriteCity extends StatefulWidget {

  @override
  State<StatefulWidget> createState() {
    return _FavoriteCityState();
  }
}
```

```
class _FavoriteCityState extends State<FavouriteCity> {
  String nameCity="";
  @override
  Widget build(BuildContext context) {
    debugPrint('Favorite city widget is created.');
    return  MaterialApp(
      title: 'Stateful Application Example',
      home:
      Scaffold(
      appBar: AppBar(
        title: Text('Stateful Application Example'),
      ),
      body: Container(
        margin: EdgeInsets.all(20.0),
        child: Column(
          children: <Widget>[
            TextField(onSubmitted: (String userInput){
              setState(() {
                debugPrint('setState is called. This tells framework to redraw the favorite city widget. ');
                nameCity=userInput;
              });
            },),
            Padding(padding: EdgeInsets.all(30.0),
            child: Text(
                  'Your best city is $nameCity',style: TextStyle(fontSize: 20.0),
                )
            )
          ],
        ),
      ),
      )
    );
  }
}
```

- https://www.youtube.com/watch?v=BlUd-BAu0DM
- https://www.youtube.com/watch?v=k-b6wvfjm1Y