

Angular: Signals

The What and Why of Signals



Deborah Kurata

Developer | Content Creator | MVP | GDE

@deborahkurata | https://www.youtube.com/@deborah_kurata

Signal =

data value



```
price = 8.9;
```

```
quantity = 1;
```

```
price = signal();
```

```
quantity = signal();
```

```
price = 8.9;
```

```
quantity = 1;
```

```
price = signal();
```

```
quantity = signal();
```

```
price = 8.9;
```

```
quantity = 1;
```

```
price = signal(8.9);
```

```
quantity = signal();
```

```
price = 8.9;
```

```
quantity = 1;
```

```
price = signal(8.9);
```

```
quantity = signal(1);
```

```
price = signal(8.9);  
quantity = signal(1);
```

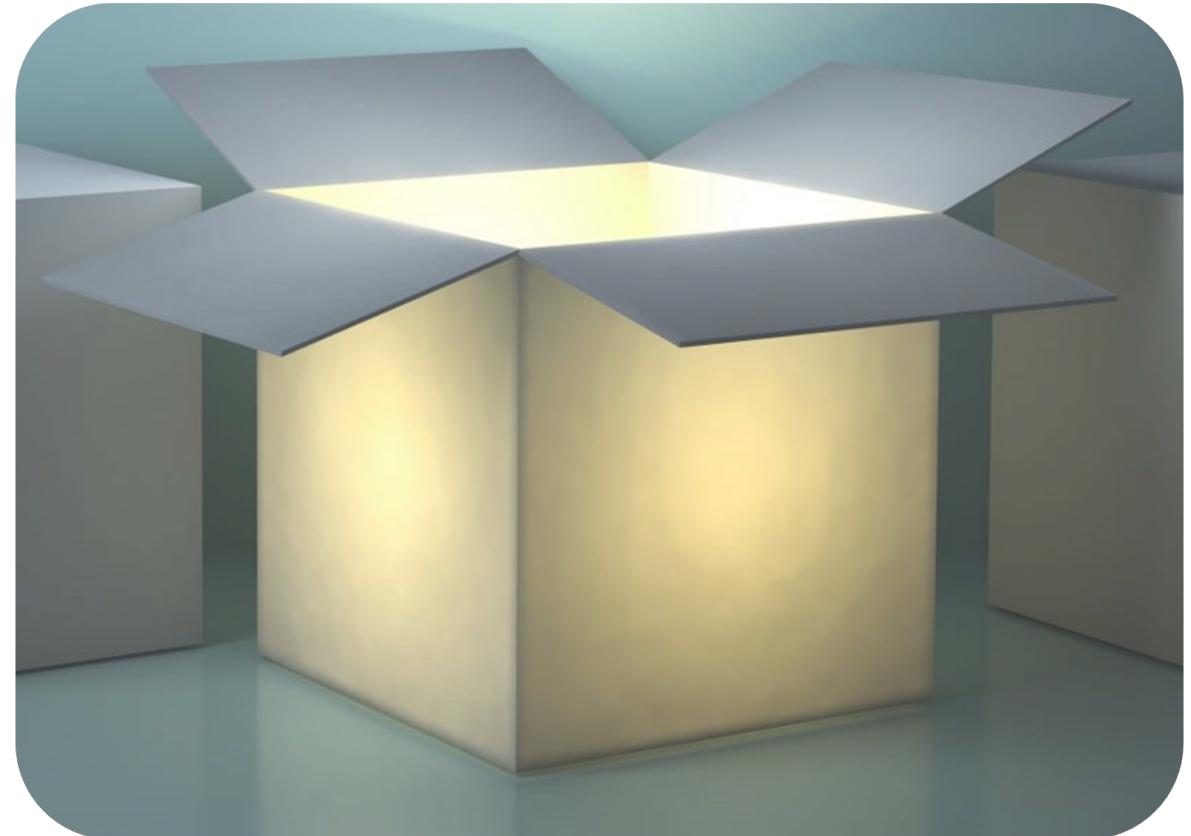
Product Selection

Hammer

Name:	Hammer
Description:	Curved claw steel hammer
Price:	\$8.90
Quantity:	<input type="button" value="-"/> <input type="text" value="1"/> <input type="button" value="+"/>
Total:	\$8.90

```
total = computed(() =>  
    this.price() * this.quantity());
```

Think of a Signal as a Box



Set a value into the box

When that value changes, the box glows

- Providing notification of the change



Course Introduction

Walk through the what and why of signals

Create

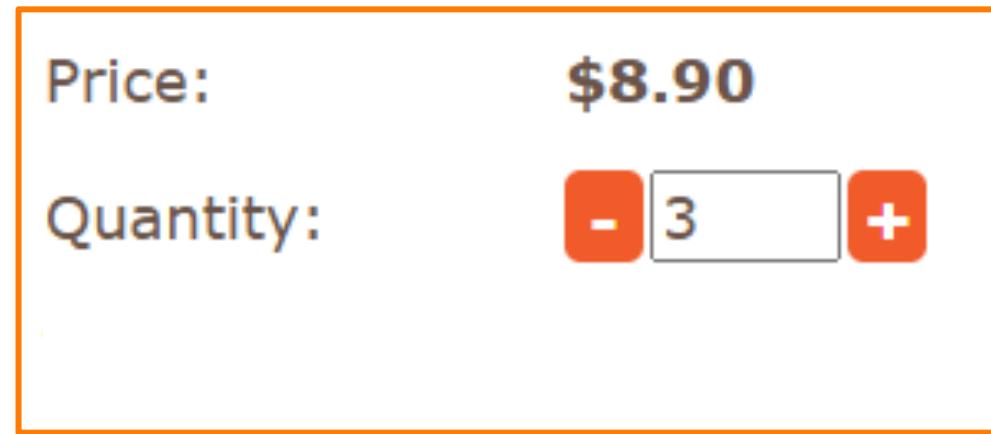
- Writable signals
- `computed()` signals
- `linkedSignals()`

Retrieve data directly into signals

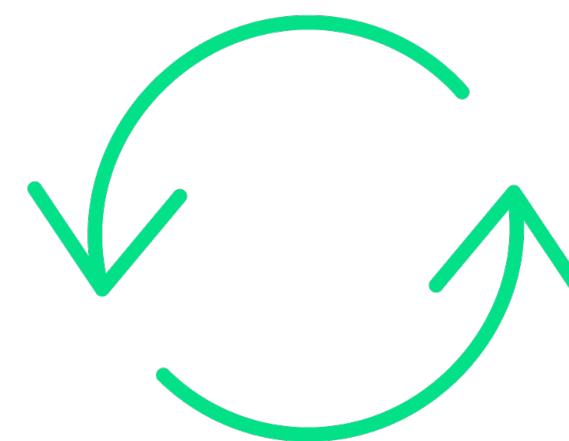
Build an Angular application using signals



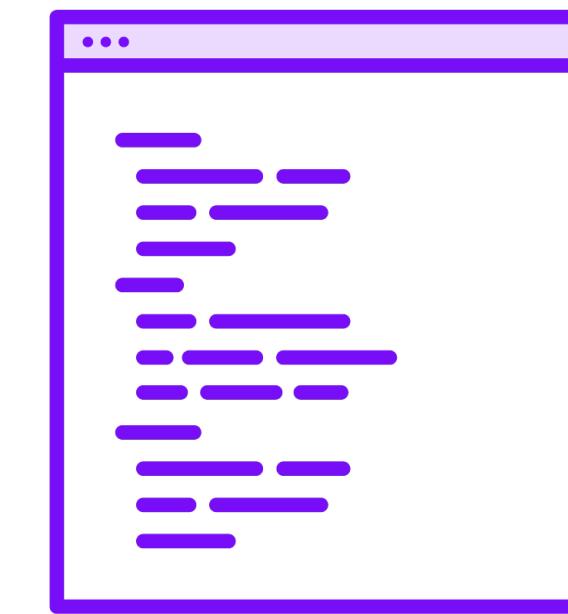
Why Signals?



Boost our application reactivity



Improve change detection



Simplify our code



Boosting Reactivity

```
let x = 5;  
let y = 3;  
  
let z = x + y;  
console.log(z);
```

What is z?

8

Boosting Reactivity

```
let x = 5;  
let y = 3;  
let z = x + y;  
console.log(z);  
  
x = 10;  
console.log(z);
```

Now what
is z?

8

Value is assigned when the expression is first evaluated

z does not react to changes in x or y



Cart

Product	Price	Quantity	Extended Price
Leaf Rake	\$19.95	2 ▾	\$39.90
Garden Cart	\$32.99	1 ▾	\$32.99
Video Game Controller	\$35.95	4 ▾	\$143.80

Delete
Delete
Delete**Cart Total**

Subtotal: \$216.69
Delivery: Free
Estimated Tax: \$23.29
Total: \$239.98

We want to react to changes

Boosting Reactivity

Variables

```
let x = 5;  
let y = 3;  
let z = x + y;  
  
console.log(z); // 8
```

```
x = 10;  
console.log(z); // 8
```

vs.

Signals

```
const x = signal(5);  
const y = signal(3);  
const z = computed(()=>  
    x() + y());  
  
console.log(z()); // 8  
  
x.set(10);  
console.log(z()); // 13
```



Improving Change Detection

zone.js

Product Selection

Hammer	
Name:	Hammer
Description:	Curved claw steel hammer
Price:	\$8.00
Quantity:	- <input type="text" value="1"/> +
Total:	\$8.00

```
<div>
  {{ price }}
</div>
```

```
price = 8.9;
```

UI

Template

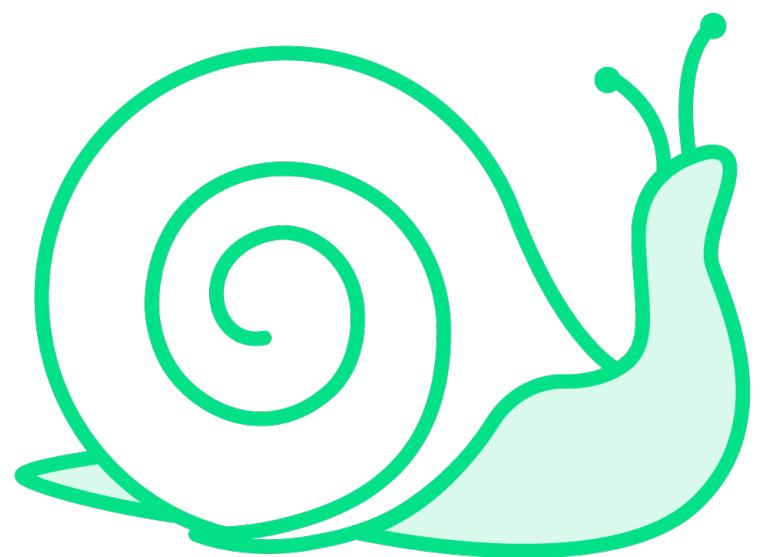
Component



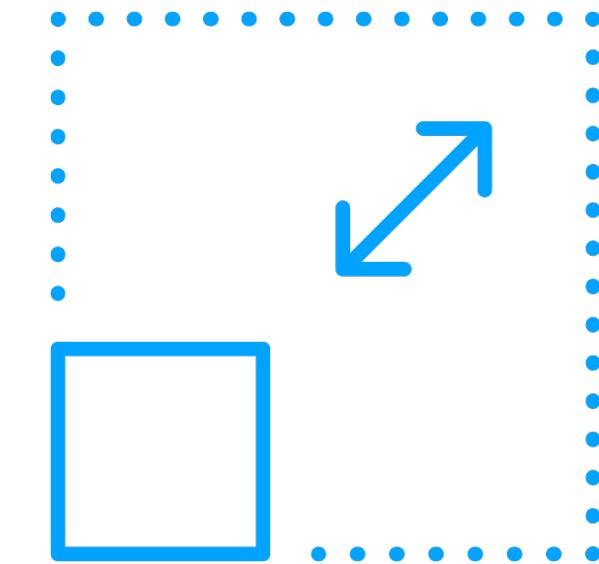
zone.js



Triggers too many
updates



Makes change
detection slower



Bloats our
applications



Improving Change Detection

zone.js

Product Selection

Hammer	
Name:	Hammer
Description:	Curved claw steel hammer
Price:	\$8.90
Quantity:	- <input type="button" value="1"/> +
Total:	\$8.90

```
<div>  
{{ price() }}  
</div>
```

```
price = signal(8.9);
```

UI

Template

Component



Simplifying Our Code

Product Selection

Hammer	
Name:	Hammer
Description:	Curved claw steel hammer
Price:	\$8.90
Quantity:	<input type="button" value="-"/> <input type="text" value="1"/> <input type="button" value="+"/>
Total:	\$8.90

Write code to react to events:

- In the change event for the quantity textbox, recalculate

VS.

Automatic!



Signals are a key part of many Angular features

Reactive Primitive



What should be a signal?



Signal =

data value

+

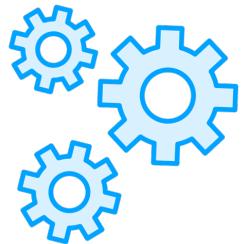
change notification



Signals



Provide change notifications



Help us write more reactive code



Improve change detection



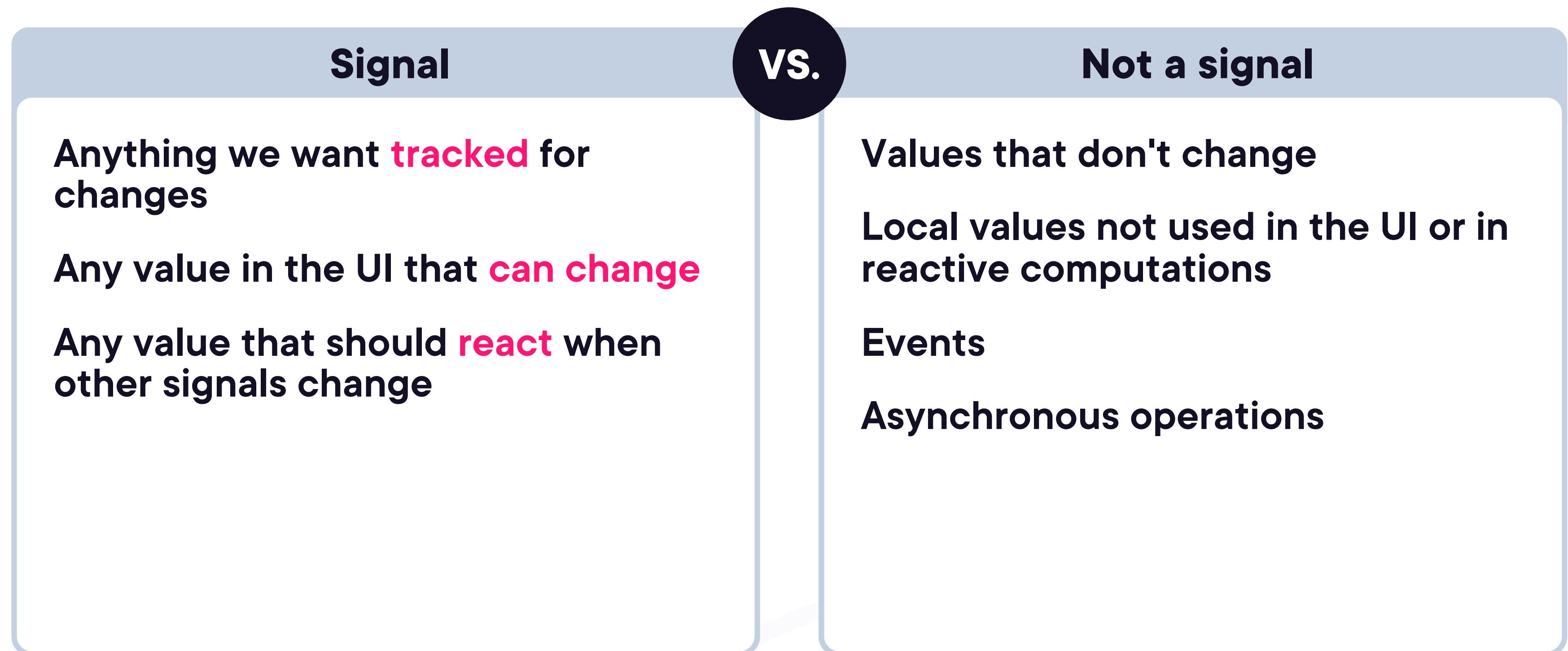
Simplify our code



Available since version 16



What Should Be a Signal?



GitHub

<https://github.com/DeborahK/angular-signals-ps-course>

Beginning sample application files:

apm-begin

Final (completed) sample application files:

apm-end

File with clickable links to additional information:

MOREINFO.md

