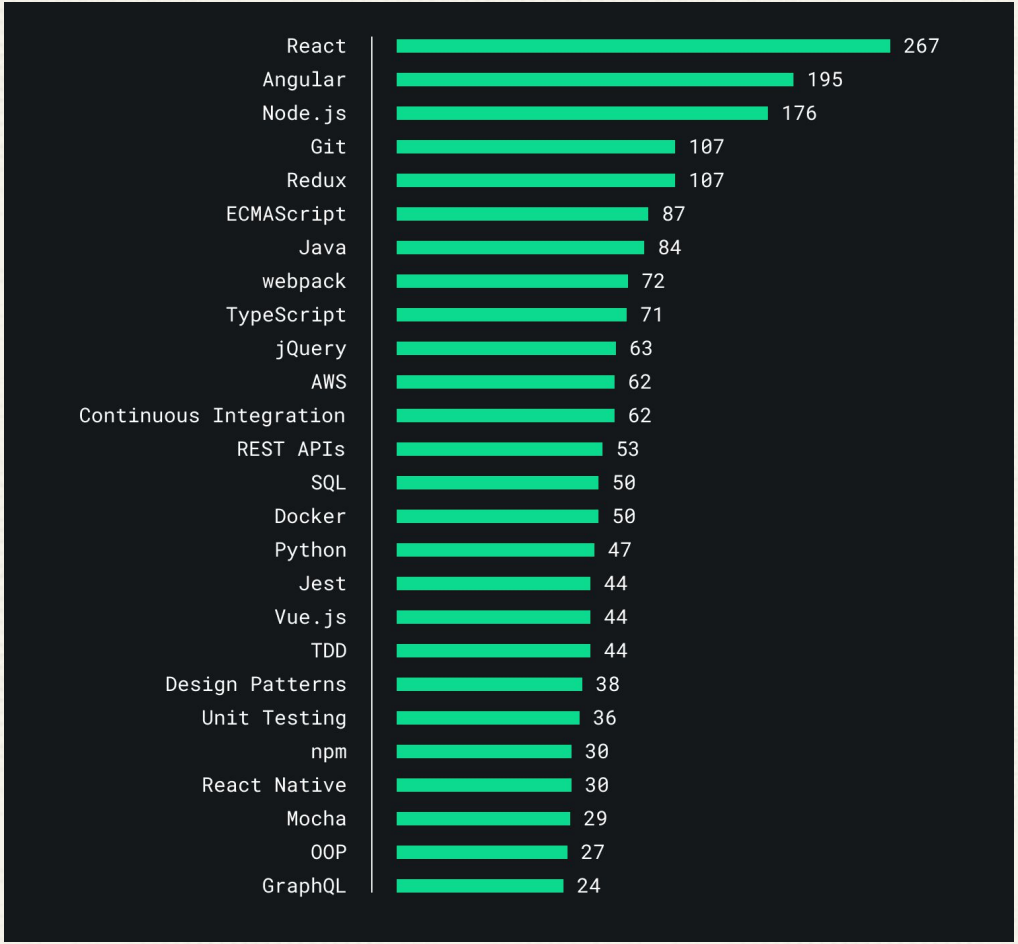
React workshop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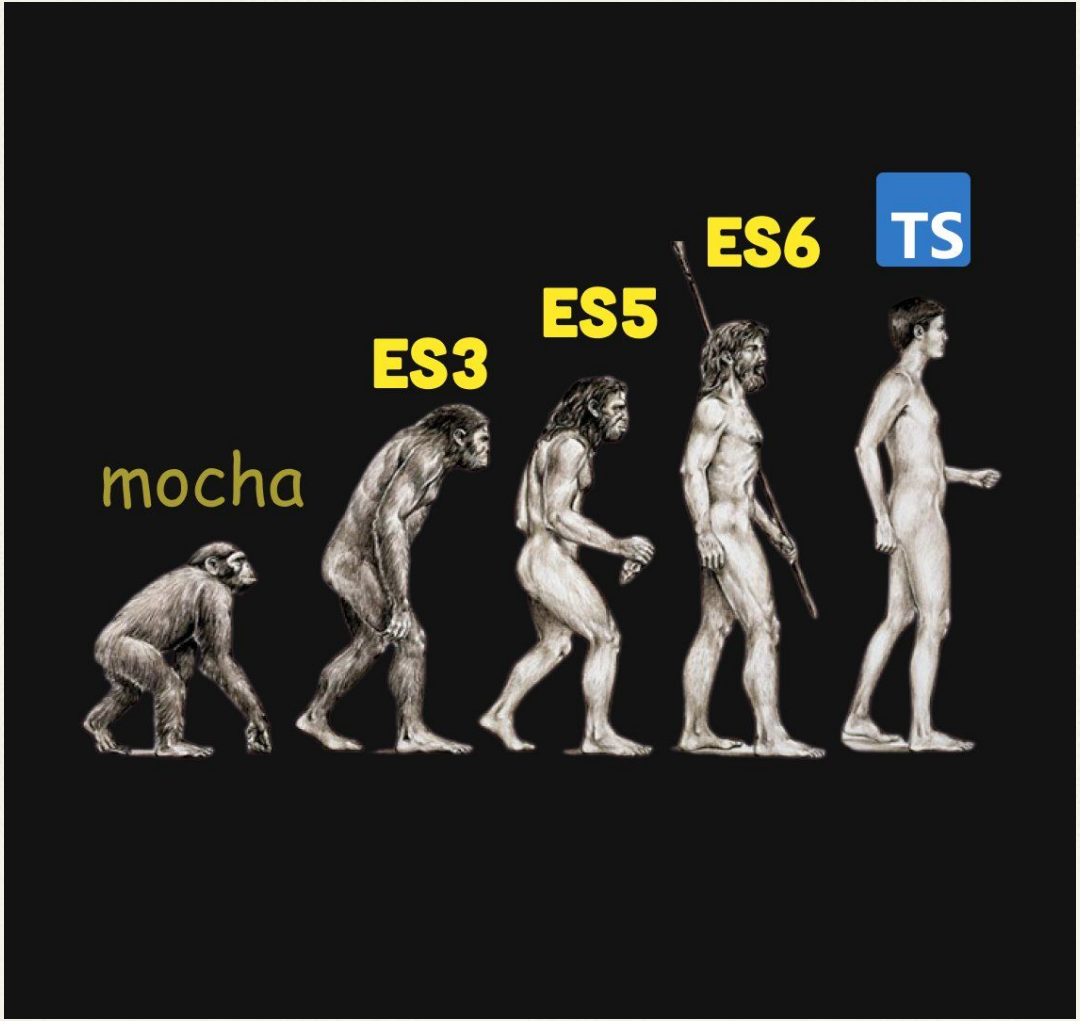
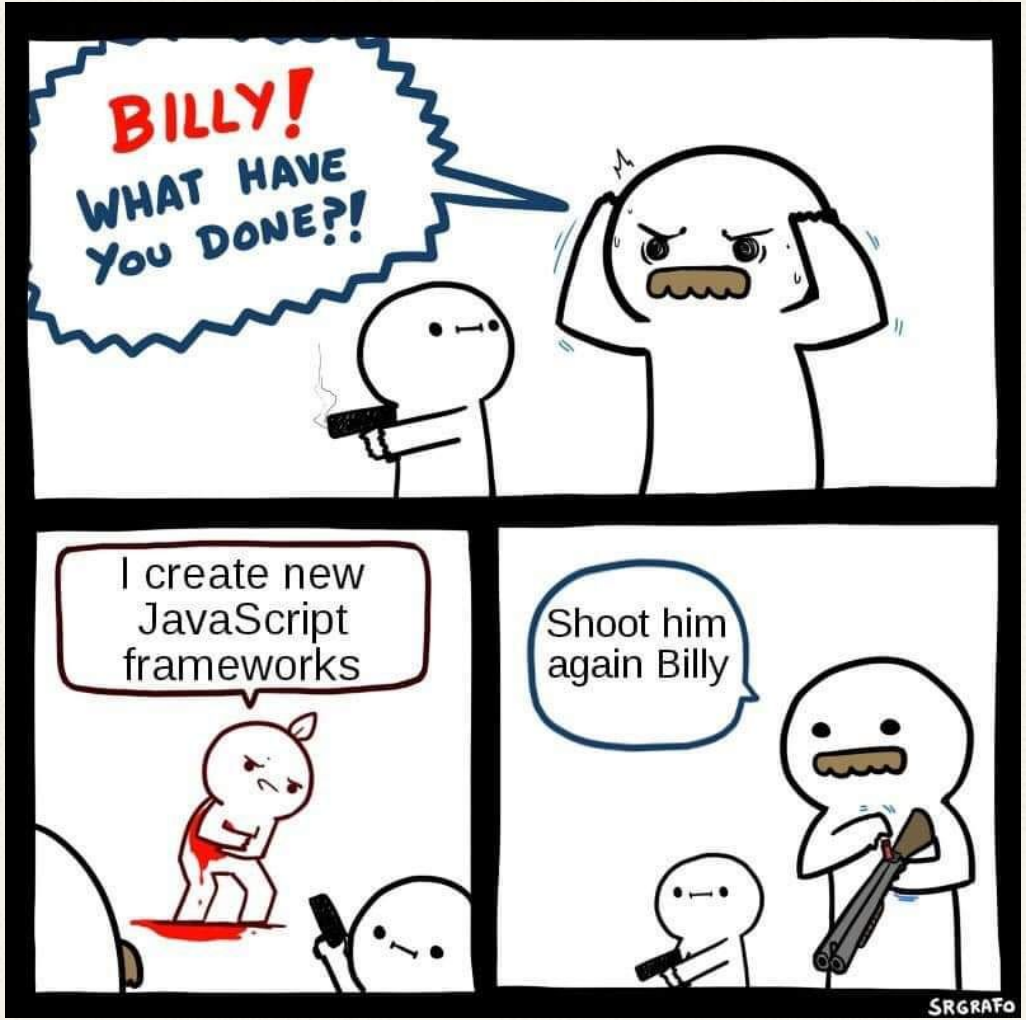
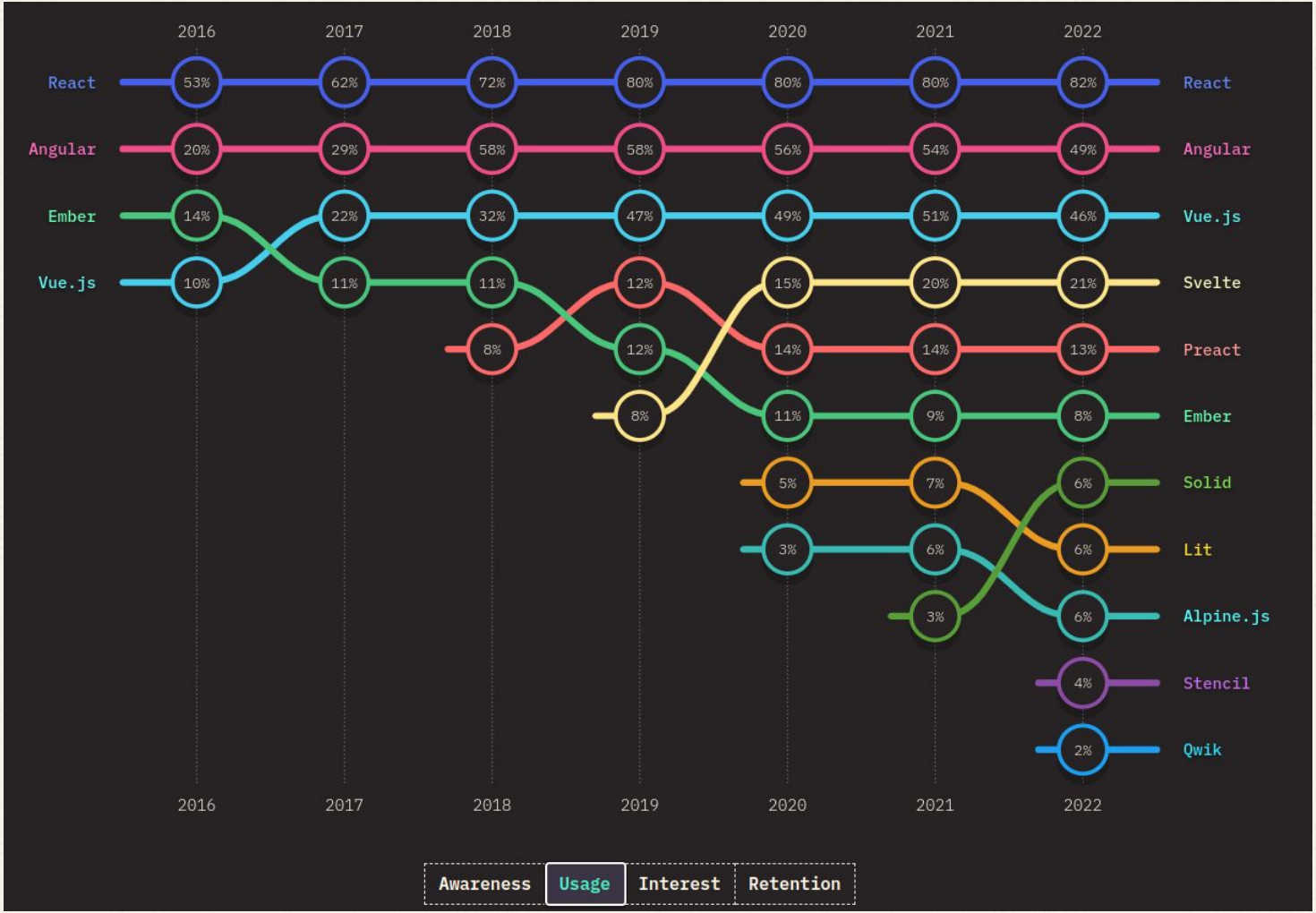

mocha
ES3
ES5
ES6
TS


BILLY!
WHAT HAVE YOU DONE?!
I create new JavaScript frameworks
Shoot him again Billy
SRGRAFO


2016
2017
2018
2019
2020
2021
2022
React
Angular
Ember
Vue.js
Svelte
Preact
Solid
Lit
Alpine.js
Stencil
Qwik
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62%
72%
80%
80%
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82%
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6%
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2%
Awareness
Usage
Interest
Retention

React advantages

- Easy to learn and use
- Creating dynamic Web Applications becomes easier
- Reusable components
- Performance enhancement
- The support of handy tools
- Known to be SEO friendly
- The benefit of having JavaScript library
- Scope for testing the code

React disadvantages

- The high pace of development
- Poor Documentation
- View Part
- JSX as a barrier

Array destructuring

```
const foo = ['one', 'two', 'three'];

const [red, yellow, green] = foo;
let [x, y, z, q] = foo;

[x, y] = [y, x];
```

Object destructuring

```
const user = {
  id: 42,
  isVerified: true
};
const {id, isVerified, job = “se”} = user;

function userId({id}) {
  return id;
}
console.log(userId(user));
```

Spread syntax

```
const parts = ['shoulders', 'knees'];
const lyrics = ['head', ...parts, 'and', 'toes'];

const arr = [1, 2, 3];
const arr2 = [...arr]; // like arr.slice()

const arr3 = [0, 1, 2];
const arr4 = [3, 4, 5];

arr5 = [...arr3, ...arr4];
```

Spread syntax

```
const obj1 = { foo: 'bar', x: 42 };
const obj2 = { foo: 'baz', y: 13 };

const clonedObj = { ...obj1 };
const mergedObj = { ...obj1, ...obj2 };
```

Array methods

```
// Arrow function
map((element) => { /* ... */ })
map((element, index) => { /* ... */ })
map((element, index, array) => { /* ... */ })


const numbers = [1, 4, 9];
const roots = numbers.map((num) => Math.sqrt(num));
const logs = numbers.map((num, i) => `Number ${num} is at
index ${i}`);
```

Array methods

```
function isBigEnough(value) {
  return value >= 10
}

const filtered = [12, 5, 8, 130, 44].filter(isBigEnough)

const fruits = ['apple', 'banana', 'grapes', 'mango', 'orange']
function filterItems(arr, query) {
  return arr.filter(function(el) {
    return el.toLowerCase().indexOf(query.toLowerCase()) !== -1
  })
}
console.log(filterItems(fruits, 'ap'))
console.log(filterItems(fruits, 'an'))
```

https://github.com/KubiGR/react-todo-workshop

Prerequisites: node

Checkout different branches to follow along

- chapter-1
- chapter-2
- ...
- master

In order to install dependencies, you need to run: npm install

And in order to start the development server, you need to run npm start

Recommended: React Developer Tools (browser extension)

JSX

```
// javascript xml
const myelement = <h1>I Love JSX!</h1>;
const myelement = React.createElement('h1', {}, 'I Love JSX!');
```

JSX

```
// expressions -> { }
return (<h1>React is {5 + 5} times better with JSX</h1>);
return (<img src={user.avatarUrl}></img>);
const myelement = (<h1>Hello, {formatName(user)}!</h1>);
```

JSX

```
// return exactly one DOM element
return (
  <div>
    <h1>I am a Header.</h1>
    <h1>I am a Header too.</h1>
  </div>
);
```

JSX

```
const title1 = React.createElement('h1', {}, 'I am a Header.');

const title2 = React.createElement('h1', {}, 'I am a Header
too.');

const container = React.createElement('div', {}, [title1,
title2]);
```

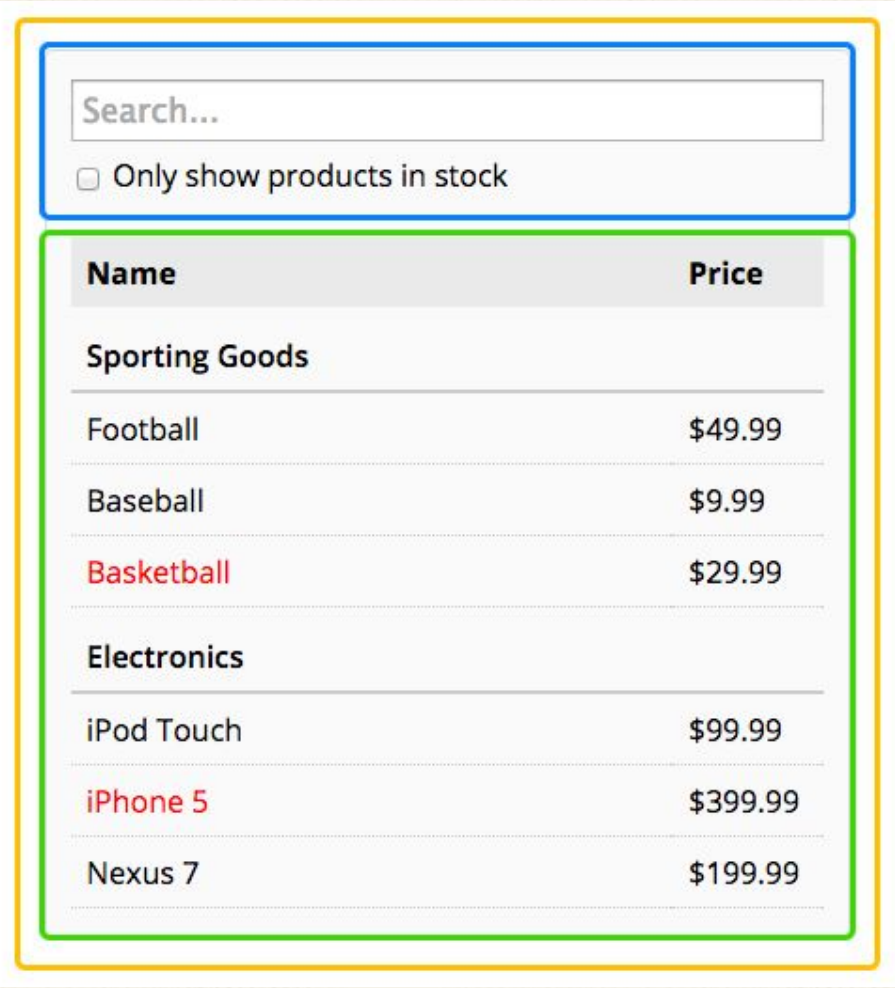
Components

Components are independent and reusable bits of code.

Components come in two types:

- class
- function

React components need to return JSX via a render() function (or return JSX directly, if they are function components).


Search...
Only show products in stock
Name
Price
Sporting Goods
Football
$49.99
Baseball
$9.99
Basketball
$29.99
Electronics
iPod Touch
$99.99
iPhone 5
$399.99
Nexus 7
$199.99

Props

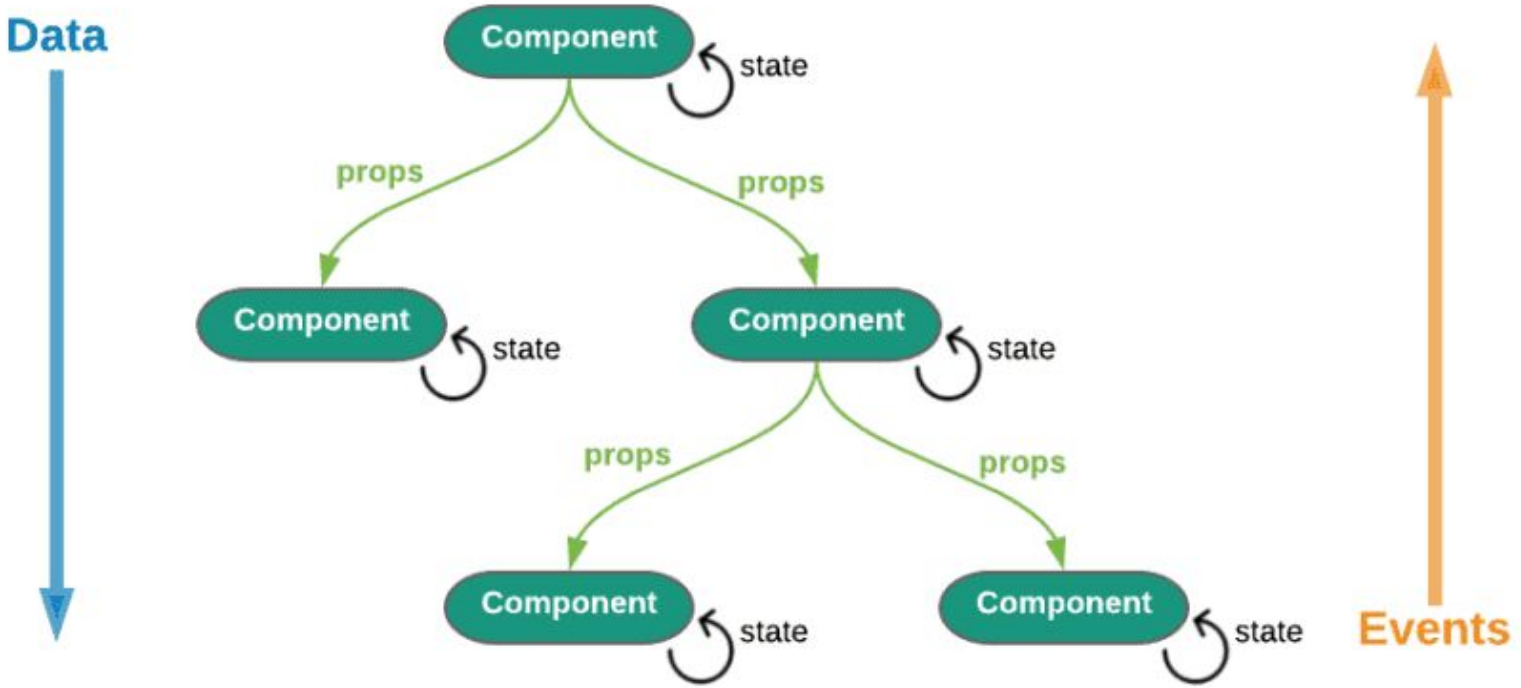
Props are arguments passed into React components.

Props are passed to components via HTML attributes.

Props

```
function Welcome(props) {
  return <h1>Hello, {props.name}</h1>;
}

function Welcome({ name }) {
  return <h1>Hello, {name}</h1>;
}

const element = <Welcome name="Sara" />;
```

React Data flow



State

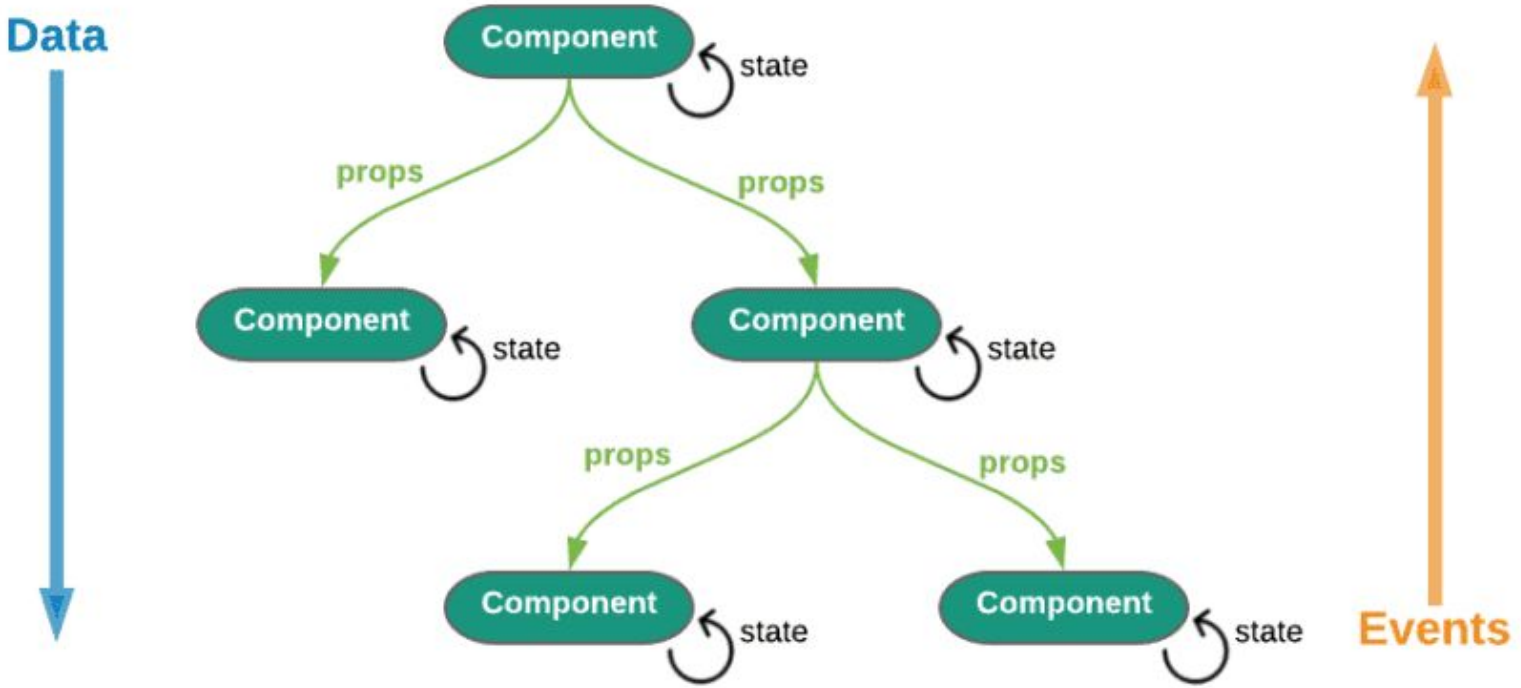
React components have a built-in state object.

The state object is where you store property values that belong to the component.

State

```
function Clock () {
  const [date, setDate] = useState(new Date());

  return (
    <div>
      <h2>
        It is {date.toLocaleTimeString()}.
      </h2>
    </div>
  );
}
```

React Data flow



State dos and don’ts

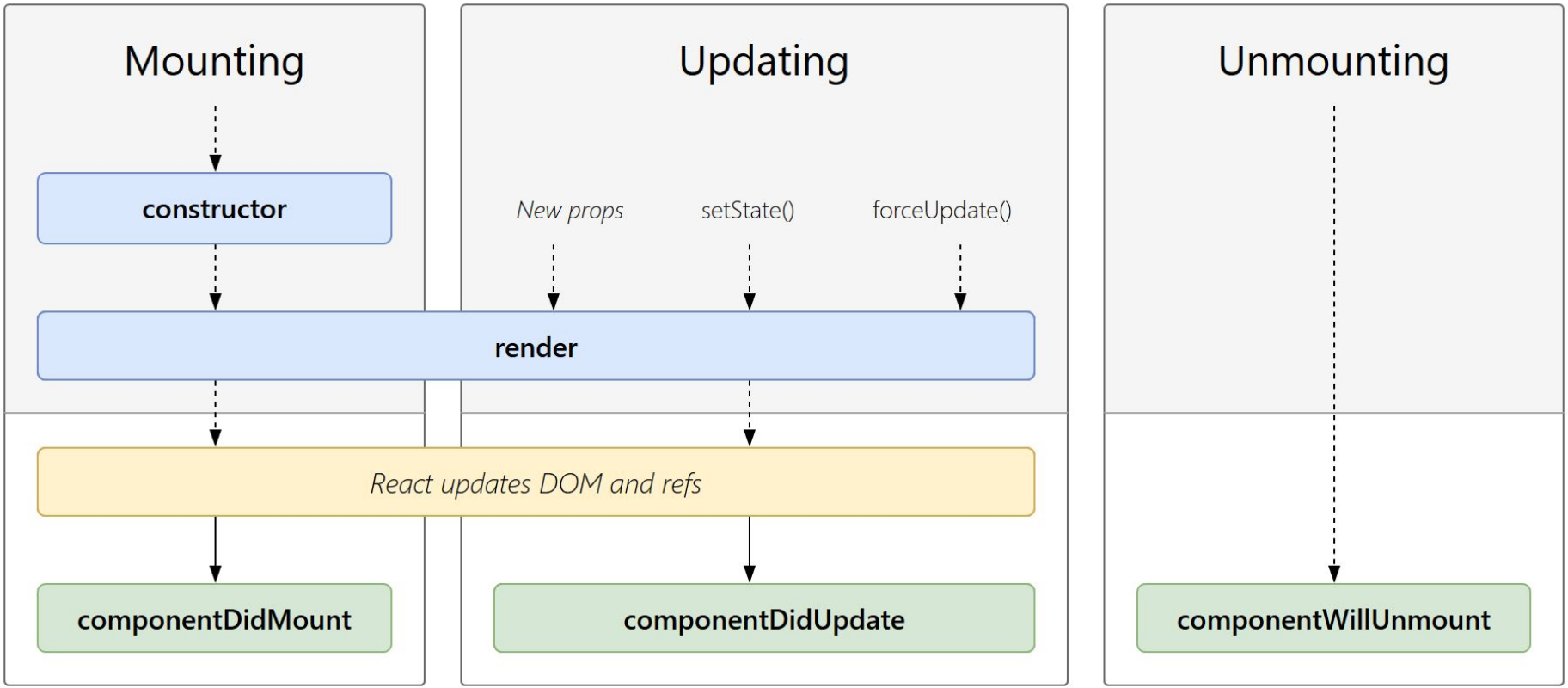
Do Not Modify State Directly (you won't get a re-render)

```
const [comment, setComment] = useState();

comment = 'Hello'; // wrong

setComment('Hello'); // correct
```

State Updates May Be Asynchronous (you depend on invalid data)

React may batch multiple setState() calls into a single update for performance.

```
setCounter(
  counter + increment,
);


setCounter((previousCounter) =>
  previousCounter + increment
);
```


Mounting
constructor
Updating
New props
setState()
forceUpdate()
render
Unmounting
React updates DOM and refs
componentDidMount
componentDidUpdate
componentWillUnmount

Effect hook

```
useEffect(() => {
  document.title = `You clicked ${count} times`;
});

componentDidMount() {
  document.title = `You clicked ${count} times`;
}
componentDidUpdate() {
  document.title = `You clicked ${count} times`;
}
```

Effect hook

```
useEffect(() => {
  ChatAPI.subscribeToFriendStatus(id, handleChange);

  return () => {
    ChatAPI.unsubscribeFromFriendStatus(id, handleChange );
  };
});
```

Ref hook

Essentially, useRef is like a “box” that can hold a mutable value in its .current property.

Mutating the .current property doesn’t cause a re-render.

If you pass a ref object to React, React will set its .current property to the corresponding DOM node whenever that node changes.

Ref hook

```
function TextInputWithFocusButton() {
  const inputEl = useRef(null);
  const onButtonClick = () => {
    inputEl.current.focus();
  };
  return (
    <>
      <input ref={inputEl} type="text" />
      <button onClick={onButtonClick}>
        Focus the input
      </button>
    </>
  );
}
```