



# React

By

**Utkarsh Malik**

**<https://www.utkarshmalik.com>**

## Companies Using React



React-related work as well. So if you choose React,

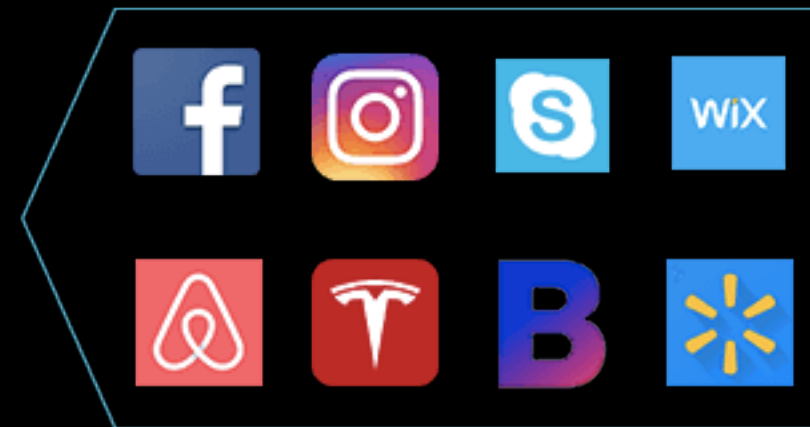


## Companies Using

ReactJs



React Native



Facebook



Facebook Ads Manager



Instagram



F8



Airbnb



Skype



Tesla



Walmart

● **React**  
Search term



● **vue**  
Search term



● **angular**  
Search term



+ Add comparison

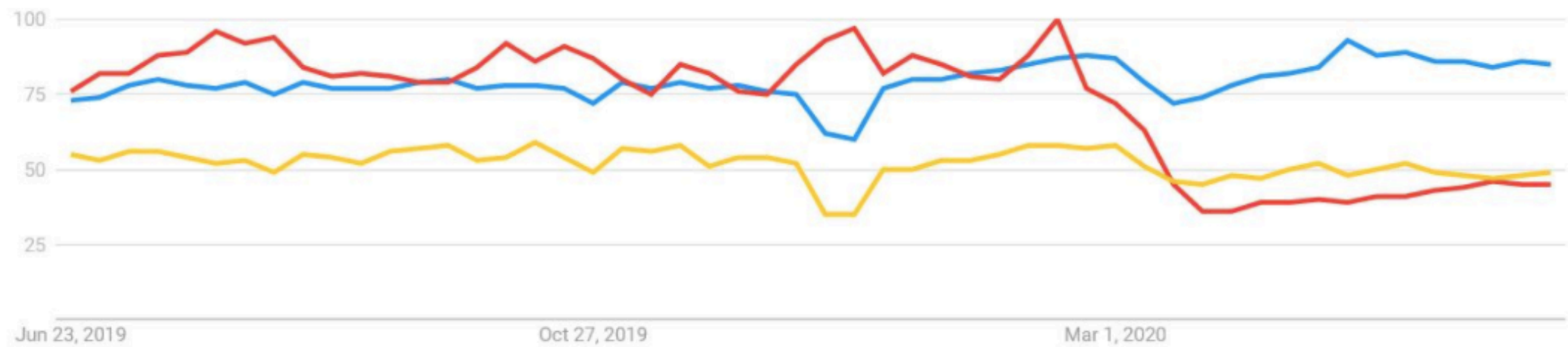
Worldwide ▾

Past 12 months ▾

All categories ▾

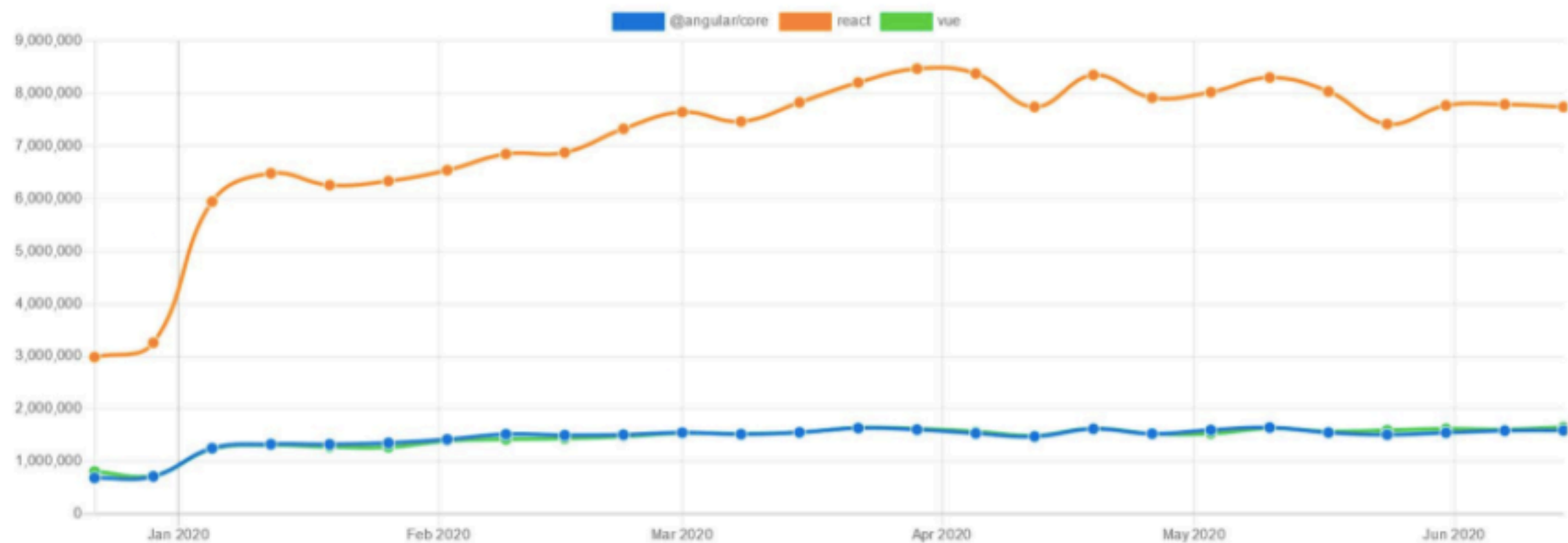
Web Search ▾

Interest over time



@angular/core x react x vue x + angular + ember-source

Downloads in past 6 Months ▾



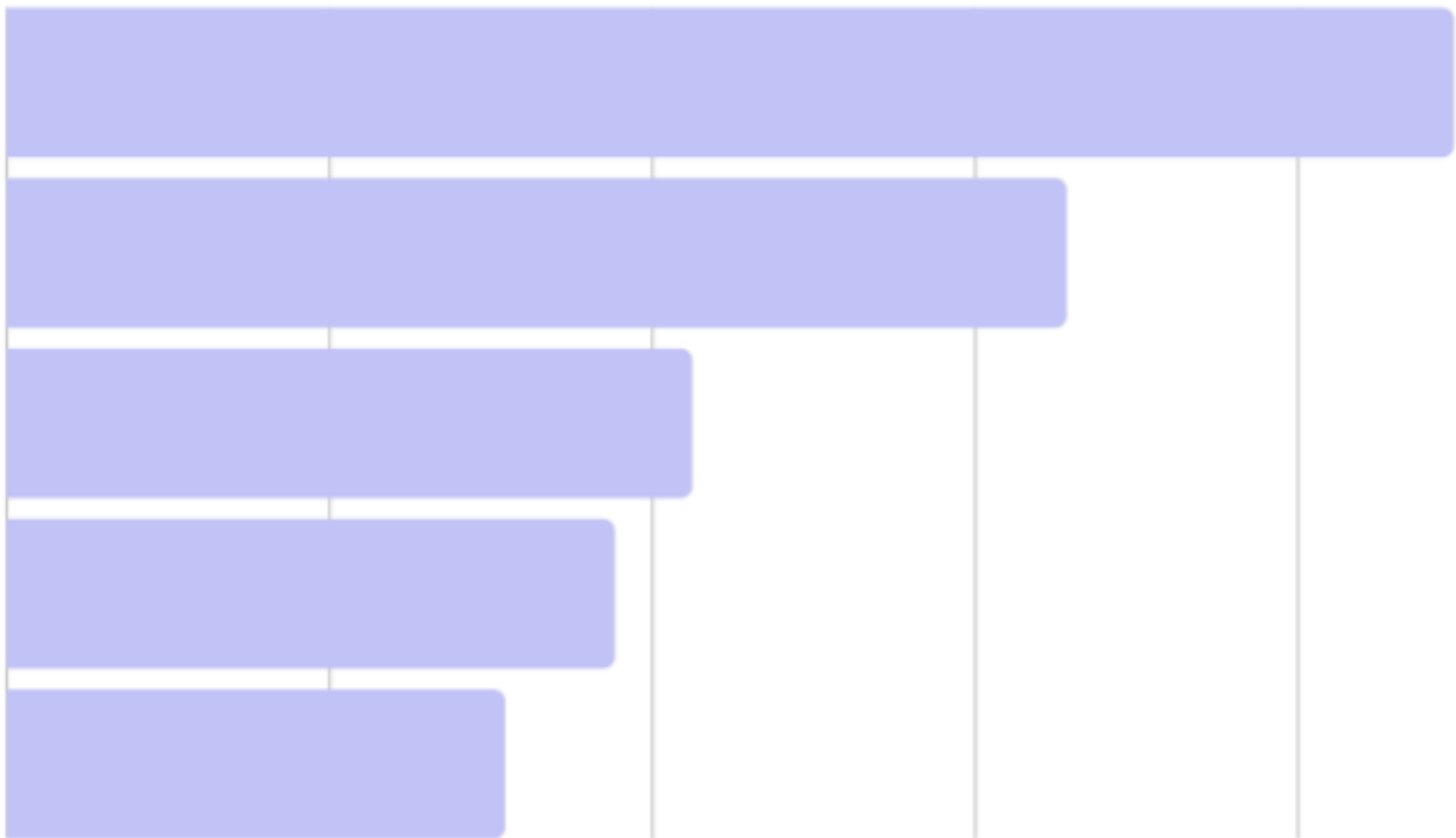
React.js - 22.4%

Vue.js - 16.4%

Angular - 10.6%

Django - 9.4%

Angular.js - 7.7%



1. Compositional Model
2. Declarative Nature
3. Components, not templates
4. Re-render on update
5. Virtual DOM (and events)
6. React is just Javascript

# Composition

```
function getProfilePic (username) {  
  return 'https://github.com/' + username + '.png?size=200';  
}
```

```
function getProfileLink (username) {  
  return 'https://github.com/' + username;  
}
```

```
function getProfileData (username) {  
  return {  
    pic: getProfilePic(username),  
    link: getProfileLink(username)  
  };  
}
```



```
1  function ProfilePic (username) {
2    return ( <img alt={username}
3      src={'https://github.com/' + username + '.png?size=200'} />)
4  }
5
6  function ProfileLink (username) {
7    return <a href={'https://github.com/' + username}>{username}</a>
8  }
9
10 function Profile (username) {
11   return (
12     <div className='profile'>
13       <ProfilePic username='username' />
14       <ProfileLink username='username' />
15     </div>
16   )
17 }
```

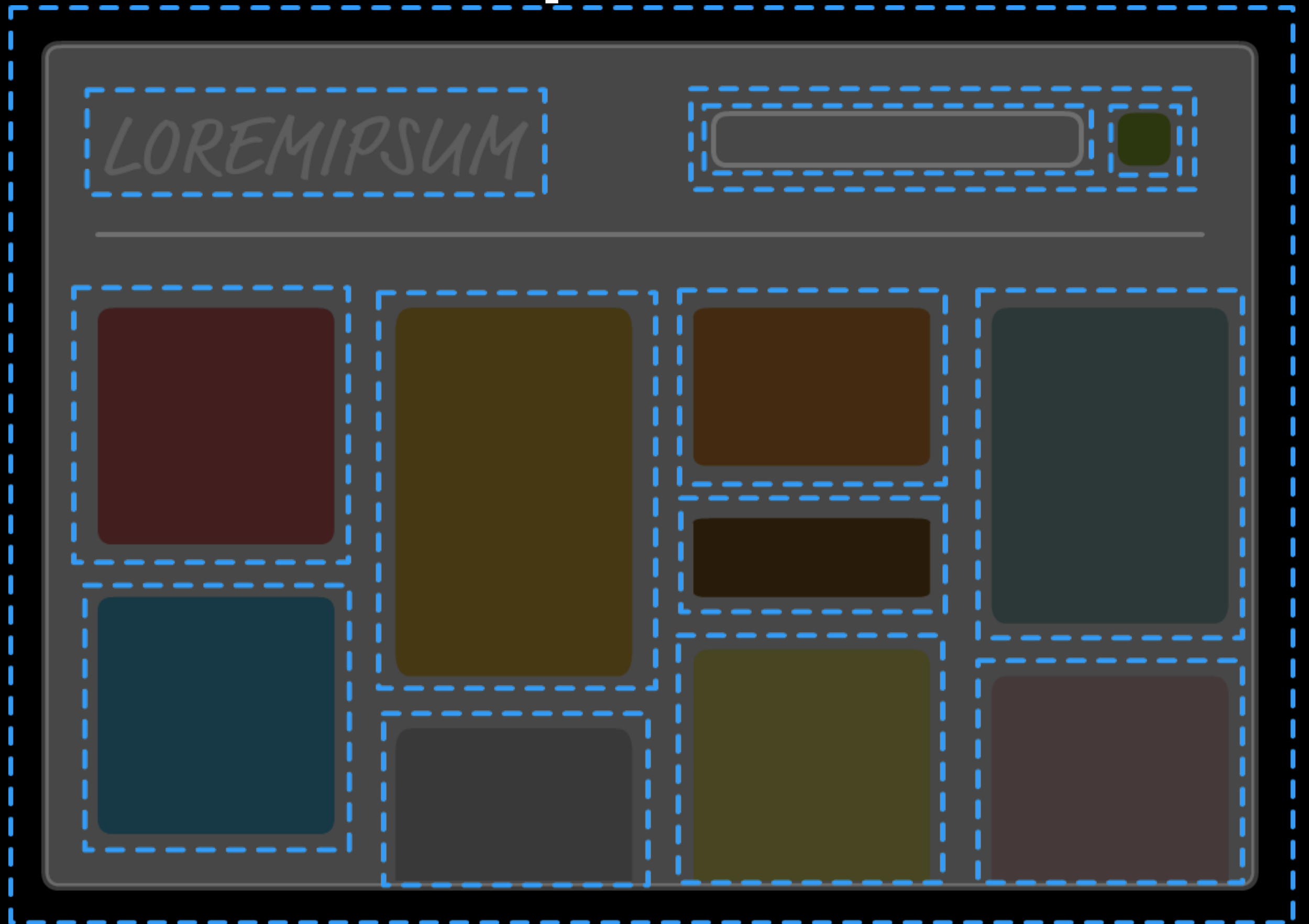
# Declarative

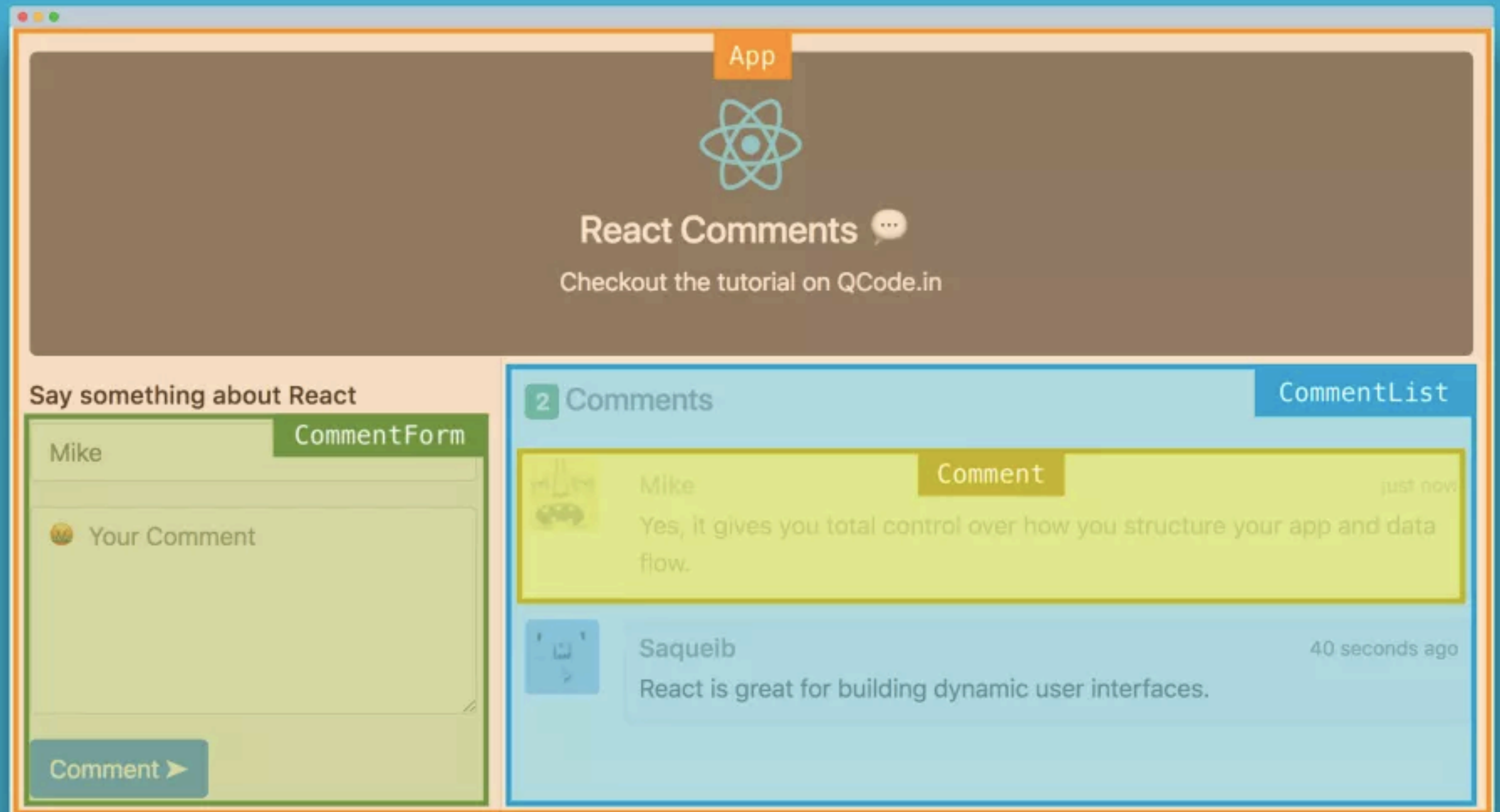
This is great analogy:

**\*An imperative response:** Go out of the north exit of the parking lot and take a left. Get on I-15 south until you get to the Bangerter Highway exit. Take a right off the exit like you're going to Ikea. Go straight and take a right at the first light. Continue through the next light then take your next left. My house is #298.

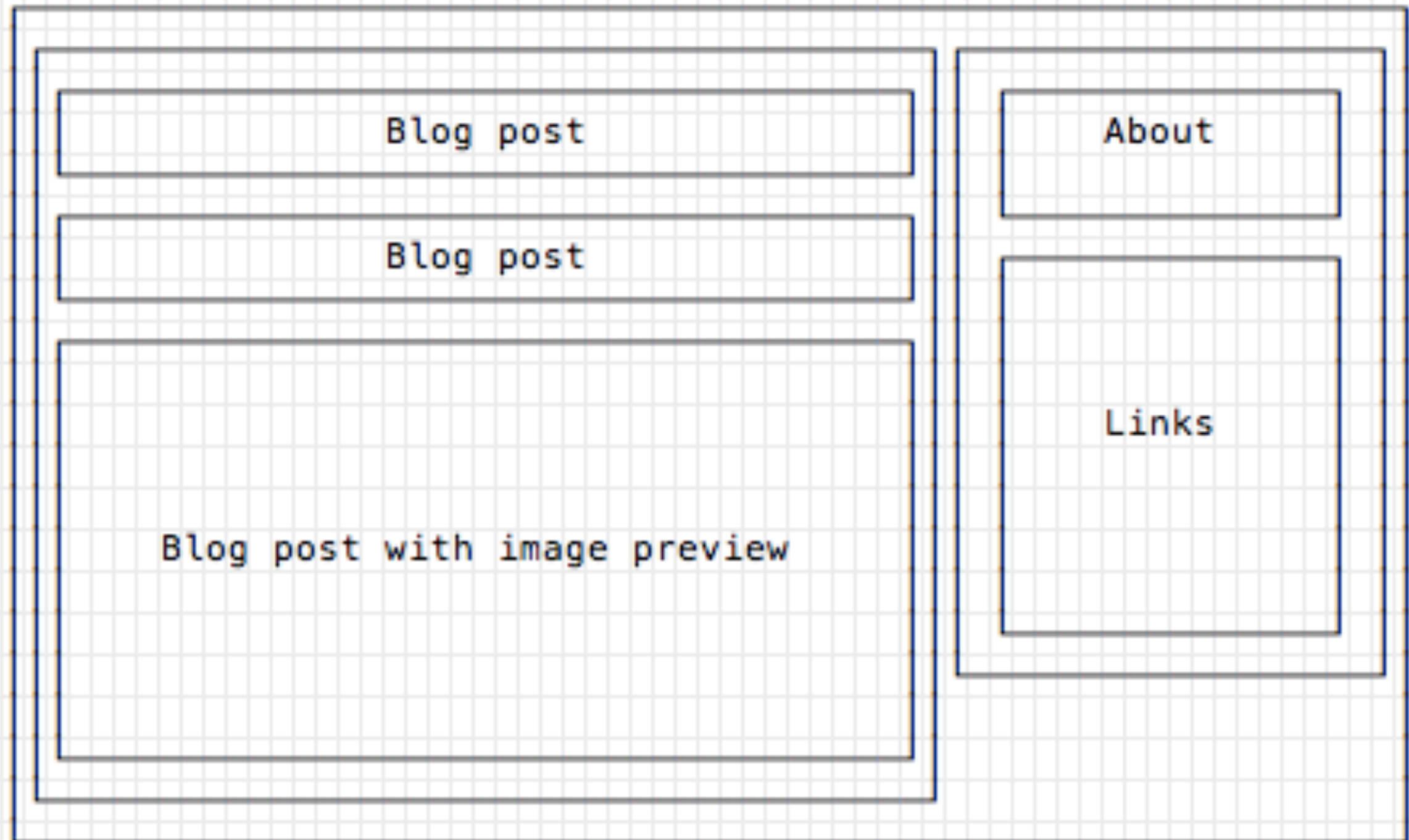
**A declarative response:** My address is 298 West Immutable Alley, Draper Utah 84020\*

# Components

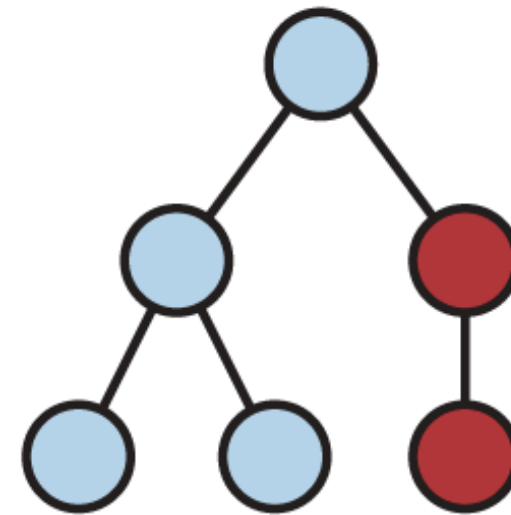
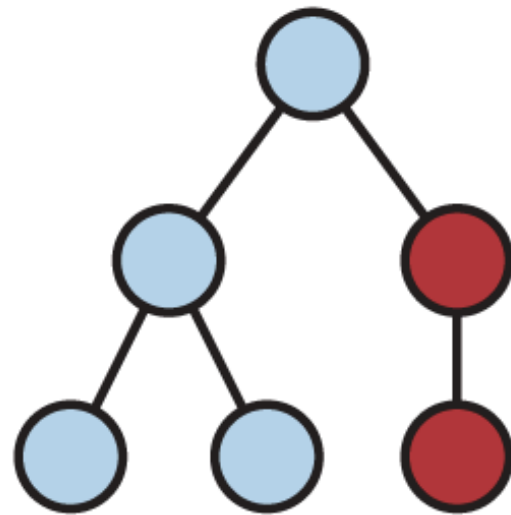
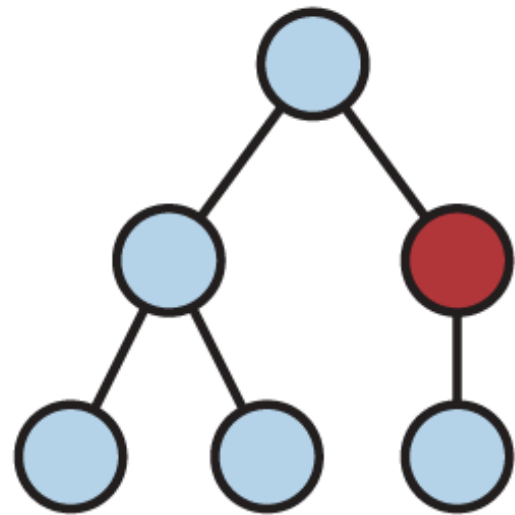




## A blog posts listing page



# VIRTUAL DOM



**Virtual  
DOM**

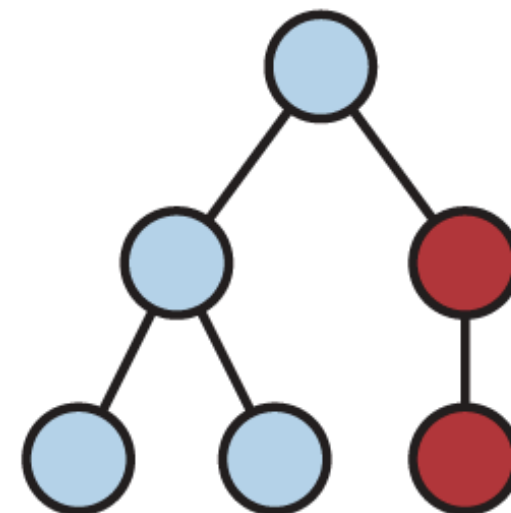
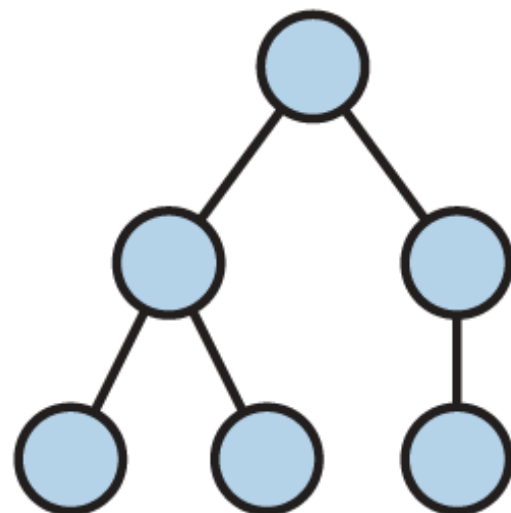
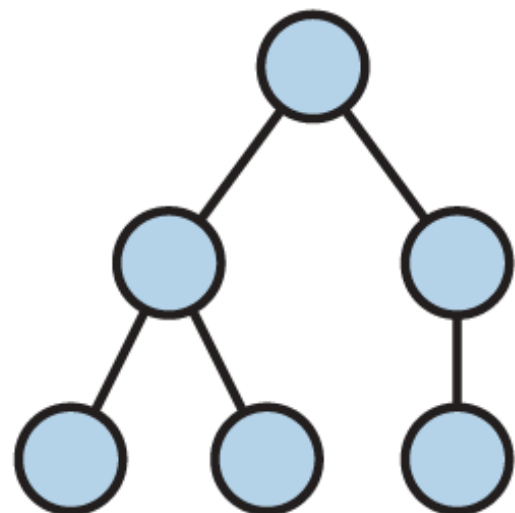
State Change



Compute Diff



Re-render



**Browser  
DOM**

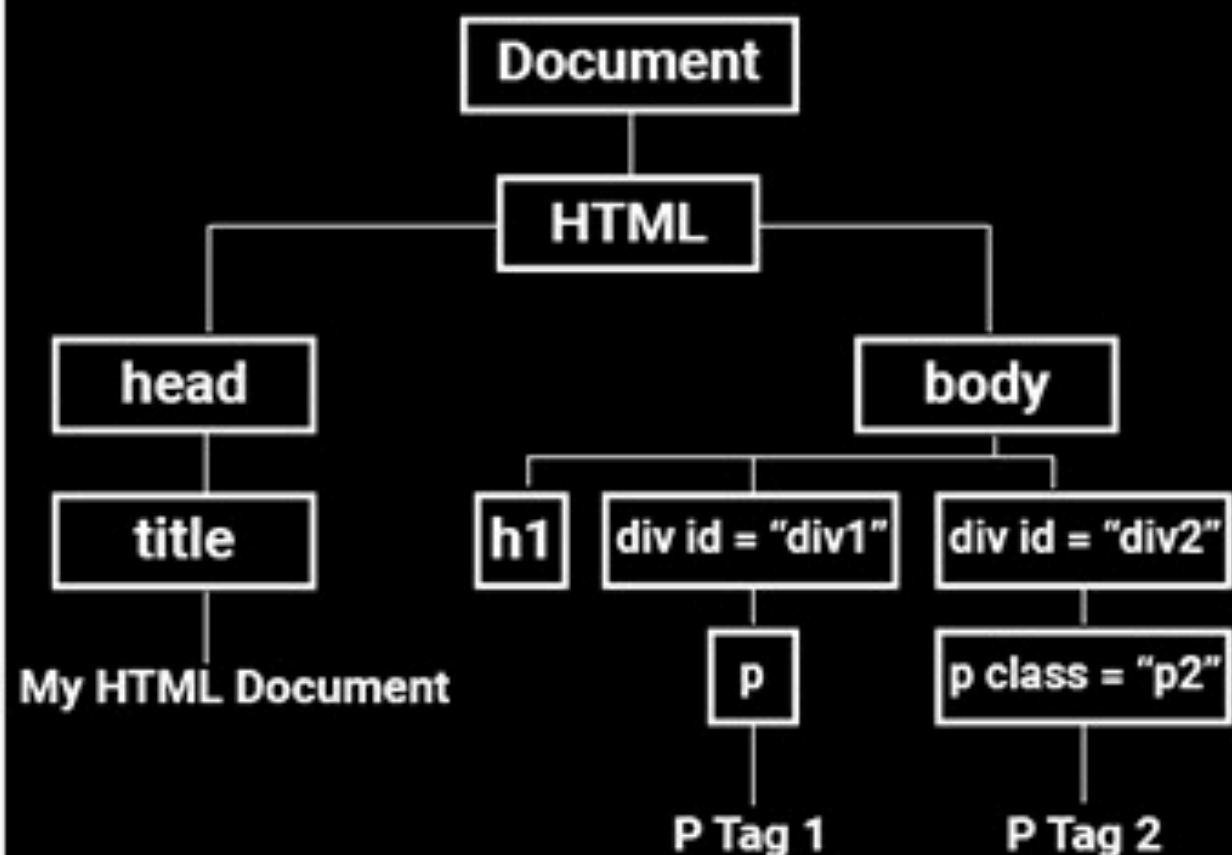


# What is Document Object Model ?

## HTML Document

```
index.html x
1 <html>
2   <head>
3     <title>My HTML Document</title>
4   </head>
5
6   <body>
7     <h1>Heading</h1>
8     <div id="div1">
9       <p>P Tag 1</p>
10    </div>
11    <div id="div2">
12      <p class="p2">P Tag 2</p>
13    </div>
14  </body>
15 </html>
```

## Document Object Model (DOM)



Won't rerendering be as slow  
as molasses?!



React has a **virtual DOM**  
(and events system).  
Optimized for performance and  
memory footprint

# On every update...

- React builds a new virtual DOM subtree
- ...diffs it with the old one
- ...computes the minimal set of DOM mutations and puts them in a queue

# It's fast!

Because the DOM is slow!

# It's fast!

Computes minimalDOM operations

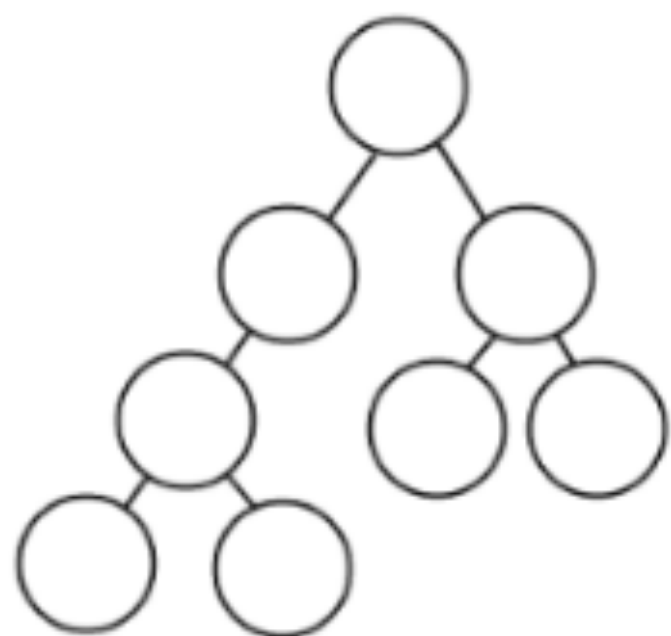
# It's fast!

Batched reads and writes for optimal  
DOM performance

# It's fast!

Usually faster than manual  
DOM operations

Virtual DOM

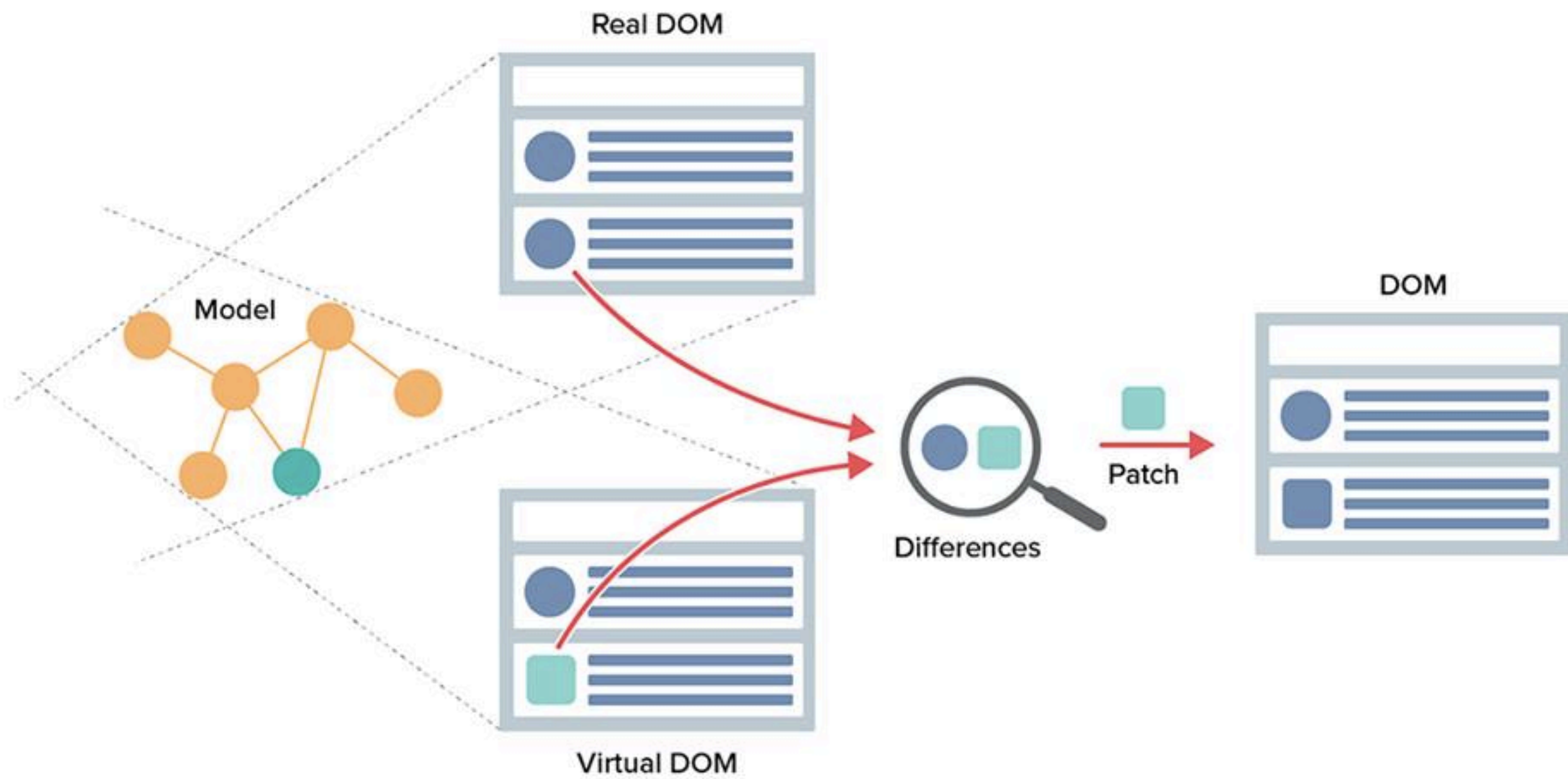


New virtual DOM



Affected nodes







# Why Should YOU Use React?

- Can be used for parts of your application
- Plays well with other libraries and technologies (meteor, rails, node)
- Components allow you to split work easily

