suora

Hans-Christian Otto

@muhdiekuh

Testing React Applications

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Testing React Applications

Photo by Will Francis on Unsplash

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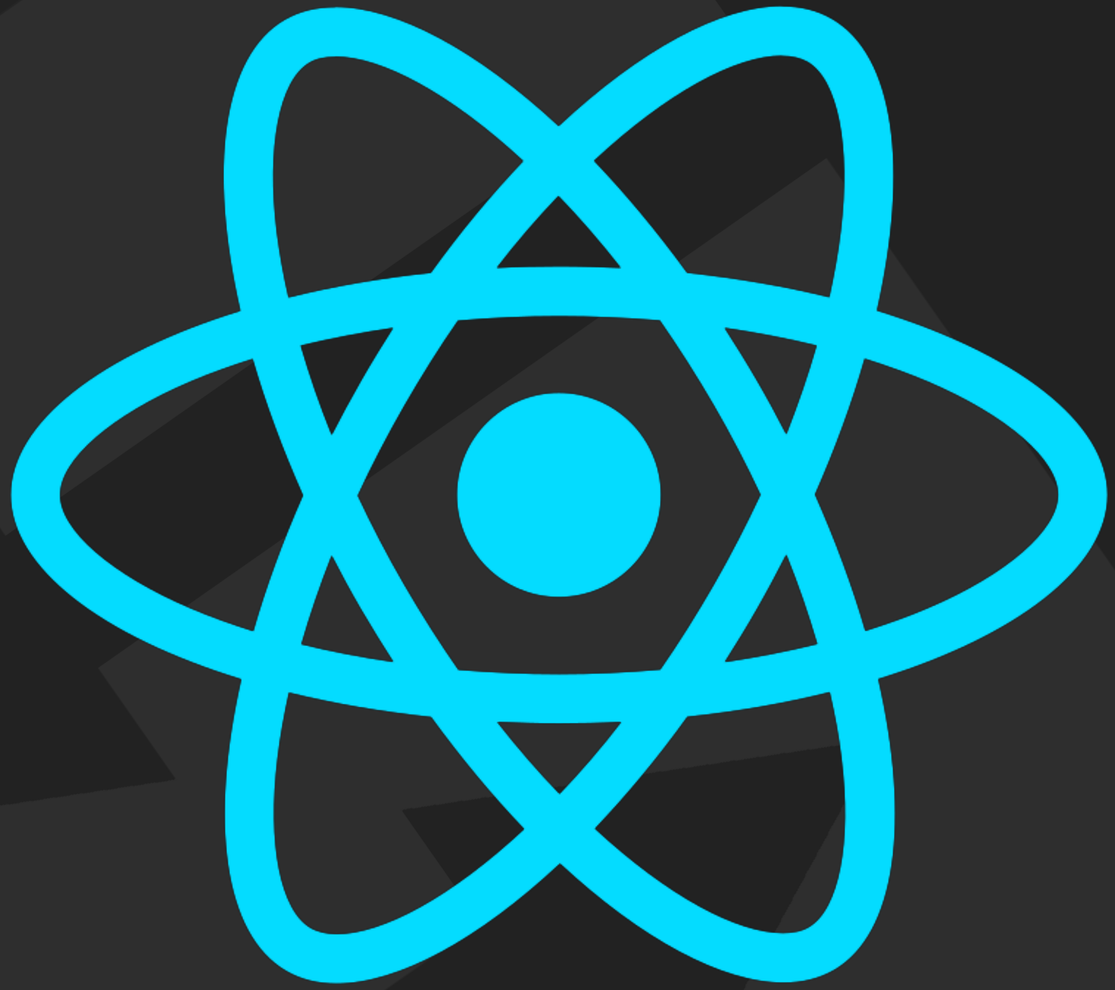
How to create nice react components?

Photo by Will Francis on Unsplash



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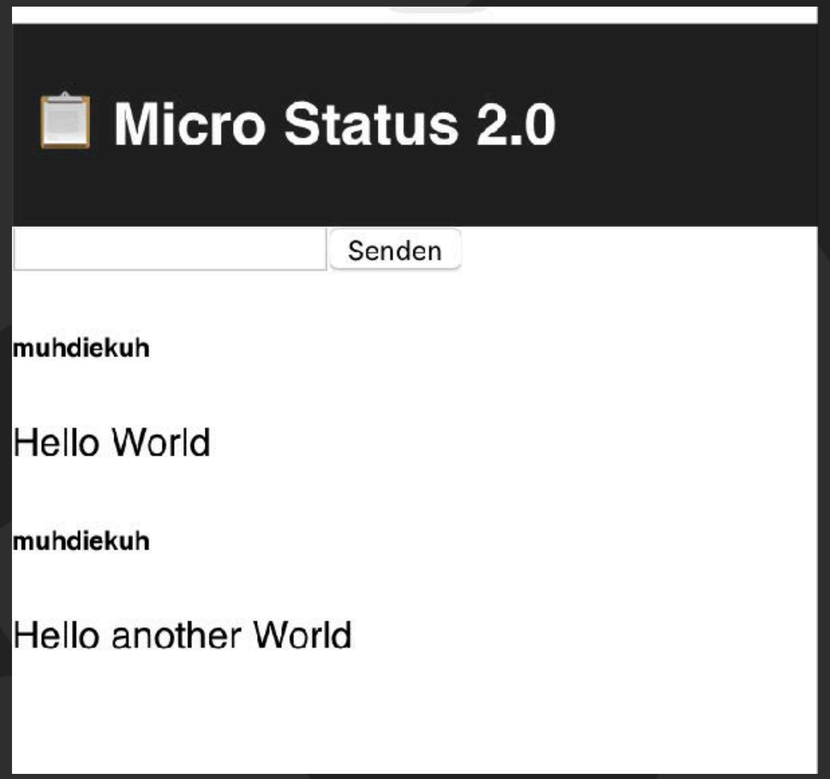
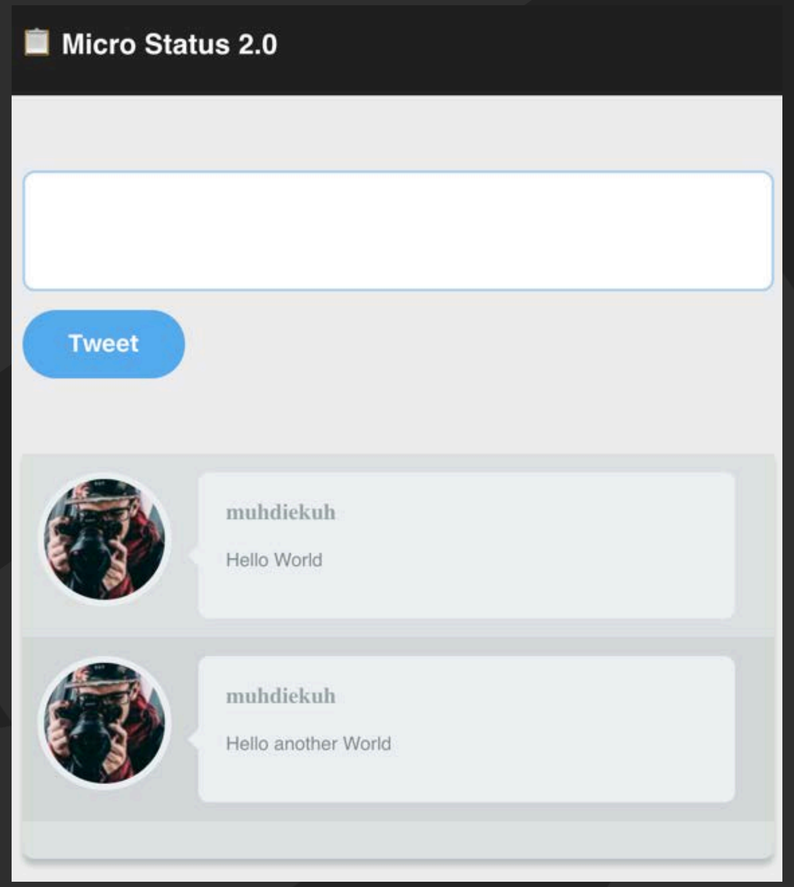
Let's create our very own Twitter

Photo by Marco Secchi on Unsplash


Micro Status 2.0
Senden
muhdiekuh
Hello World
muhdiekuh
Hello another World

Marcel made this look good.

Thanks, Marcel!



@MarcelFahle

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Let’s talk about testing.

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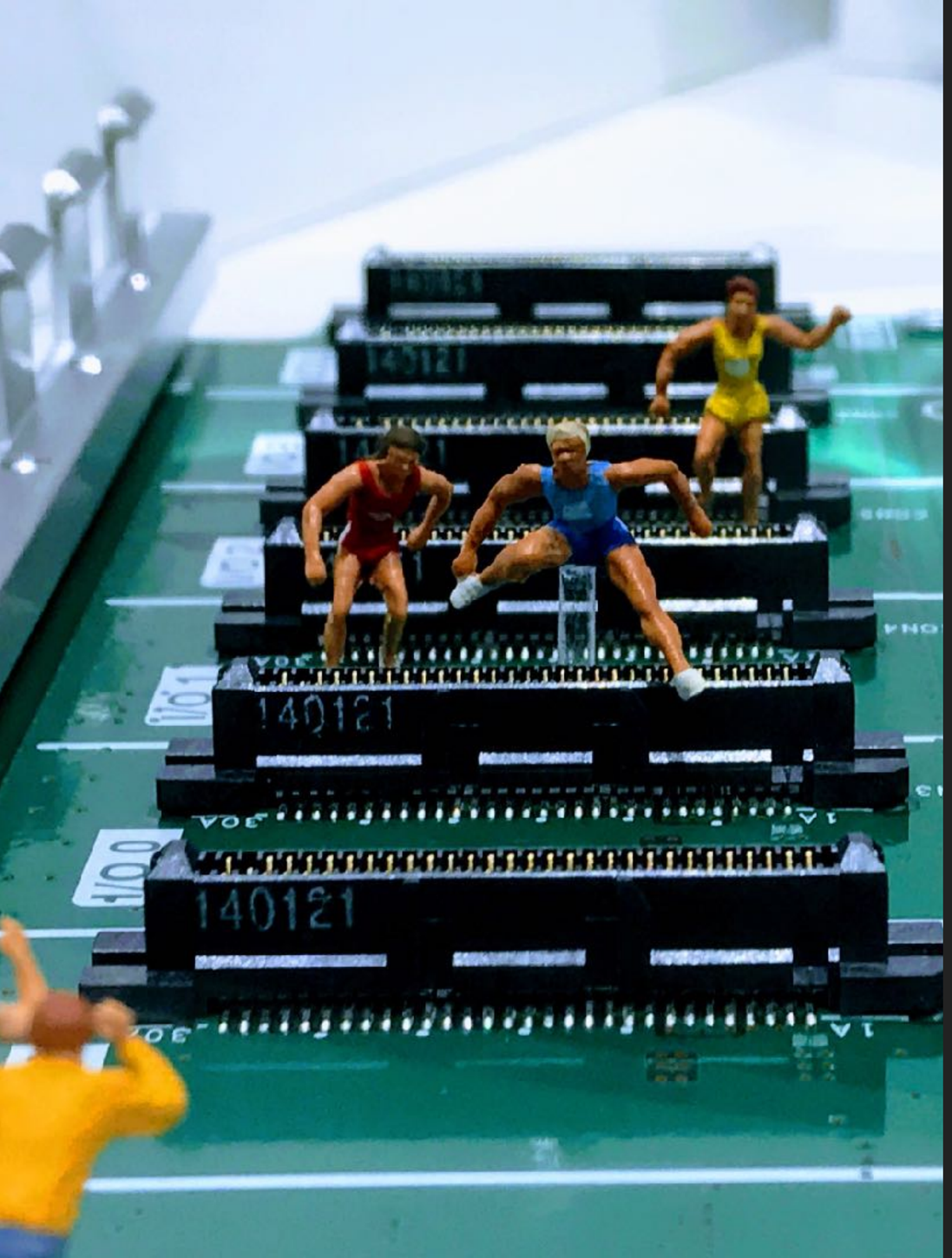
What is easy to test?

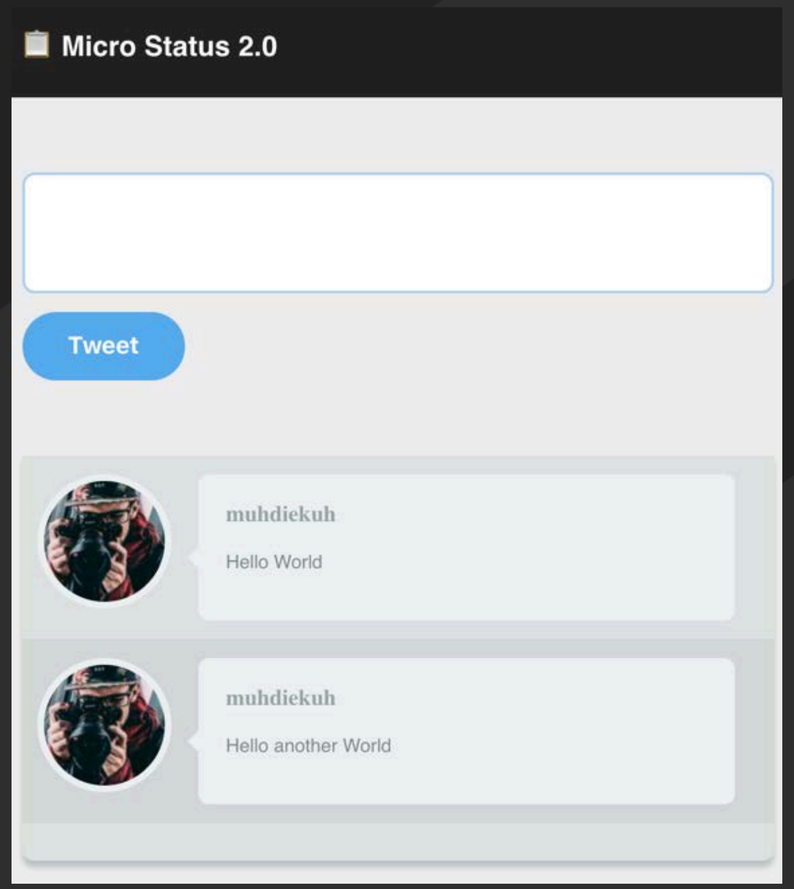
Photo by Simon Rae on Unsplash

Functions



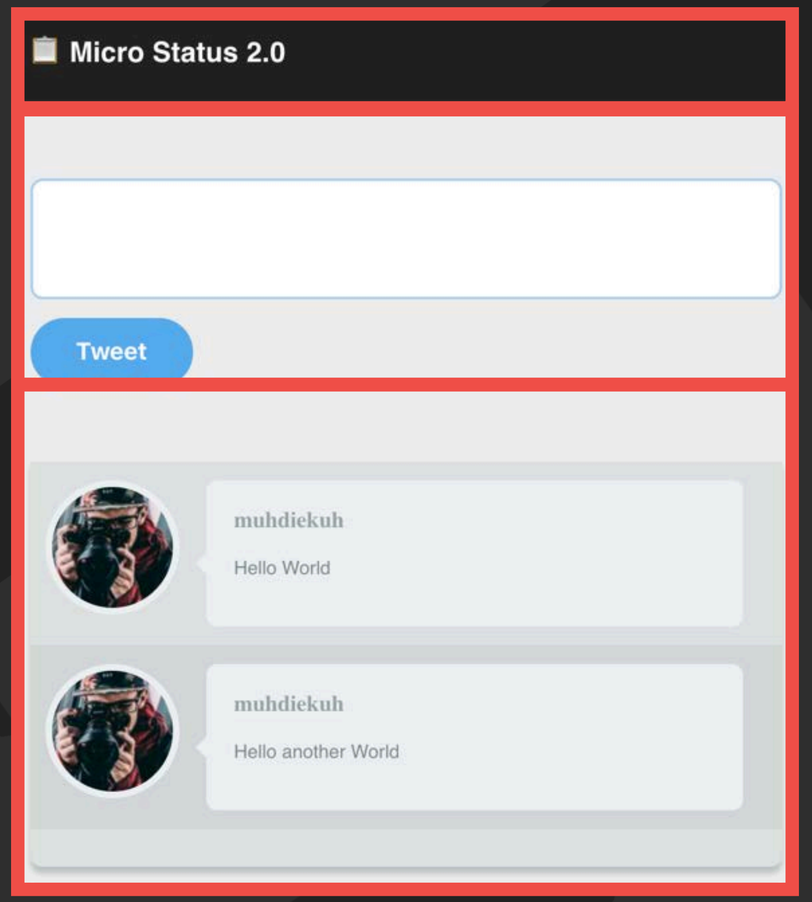
Functions that are:

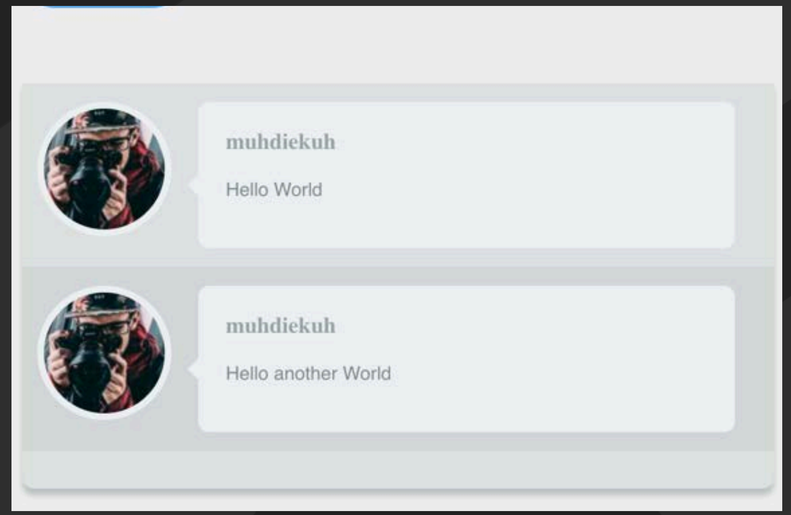
- ✓Small (Have a single responsibility)
- ✓Pure (Have no Side Effects)
- ✓Deterministic



- 😔Small (Have a single responsibility)
- 😔Pure (Have no Side Effects)
- 😔Deterministic

Let’s split it up!

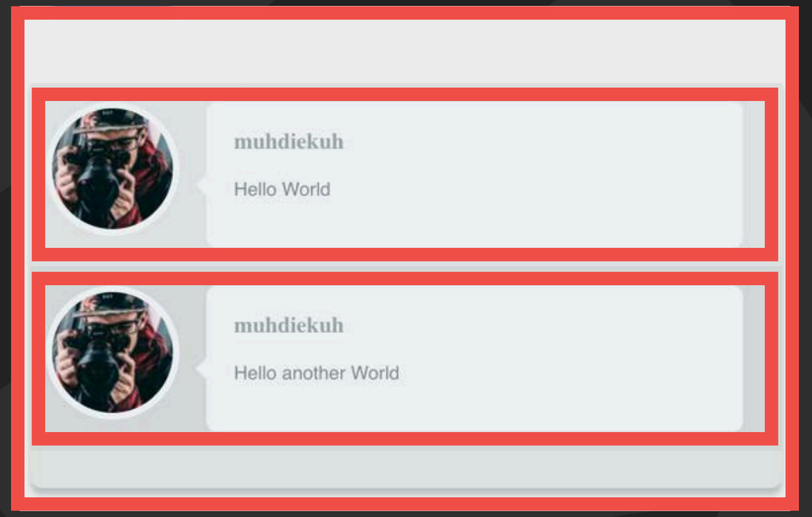

Micro Status 2.0
Tweet
muhdiekuh
Hello World
muhdiekuh
Hello another World

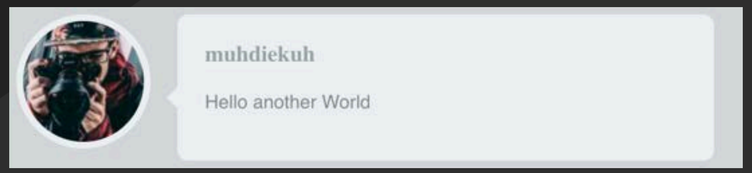


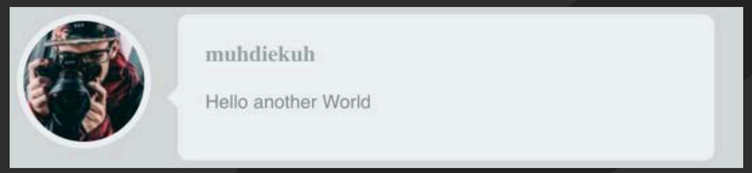
😐Small (Have a single responsibility)

😺Pure (Have no Side Effects)

😐Deterministic


muhdiekuh
Hello World
muhdiekuh
Hello another World


muhdiekuh
Hello another World



- 😺Small (Have a single responsibility)
- 😺Pure (Have no Side Effects)
- 😺Deterministic


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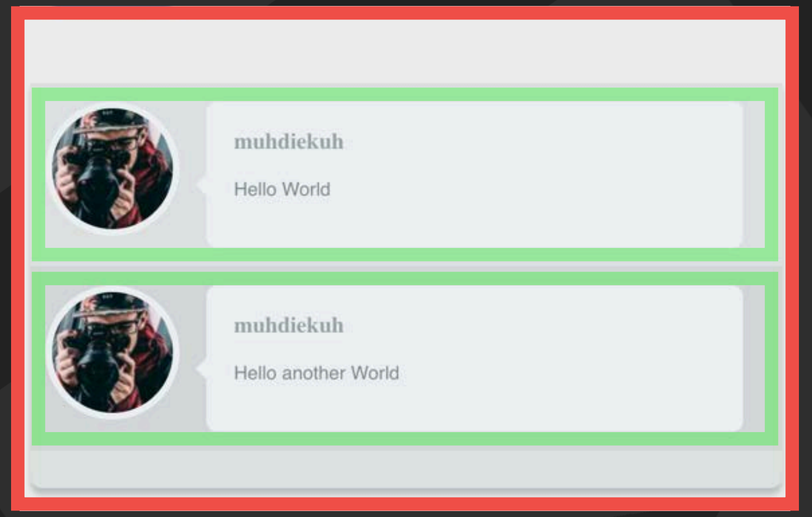
Photo by Markus Spiske on Unsplash


```
<TweetListItem
  tweet={{
    message: "Hello World!",
    userId: "tobmaster",
    id: 3,
    date: "2018-09-24T09:16:52+0200"
  }}
/>;
```

```
<li>
    <div class="avatar">
        <img src="http://i.pravatar.cc/100?u=tobmaster" />
    </div>
    <div class="tweet-wrapper">
        <div class="tweet">
            <h6>tobmaster</h6>
            <p>Hello World</p>
        </div>
        <div class="arrow" />
    </div>
</li>
```

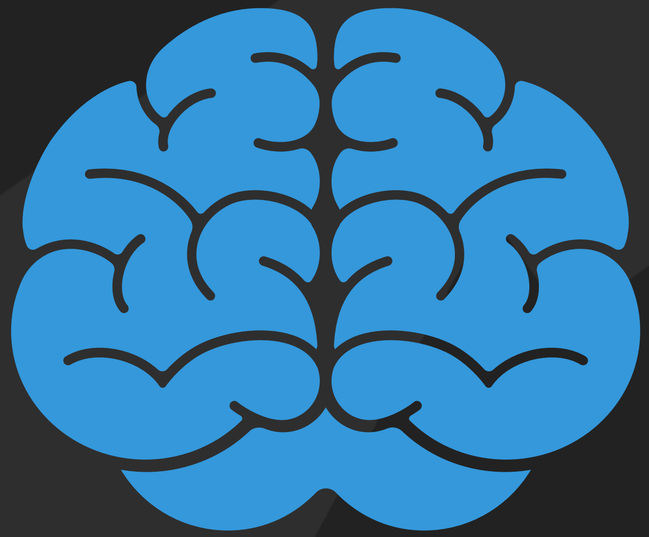
But...

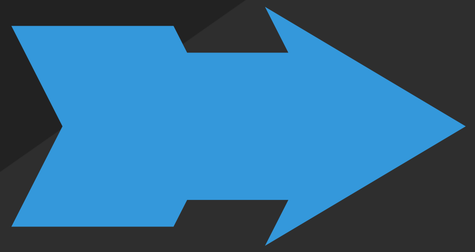
But…
What about the list?

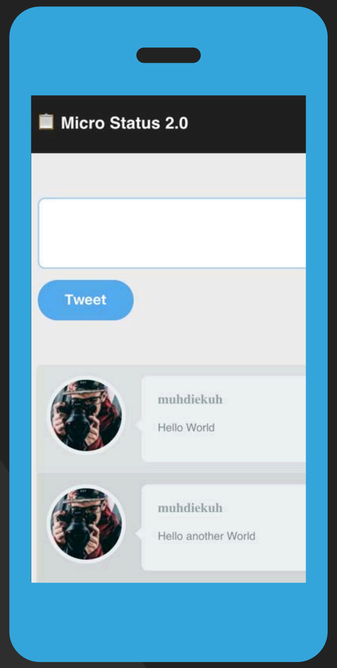

muhdiekuh
Hello World
muhdiekuh
Hello another World

Introducing:

components as a function of state







State

Component

Application / UI

Presentational Components

Container Components


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Photo by Markus Spiske on Unsplash

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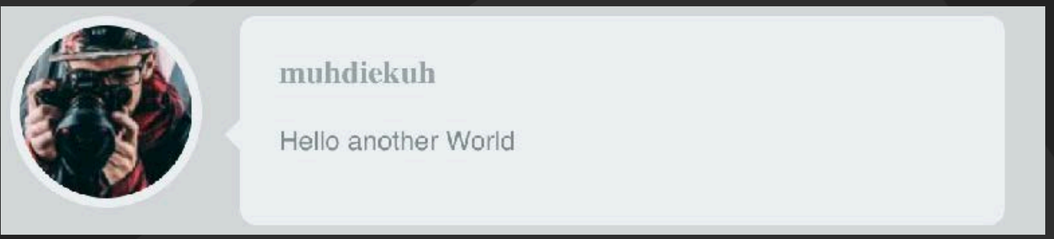


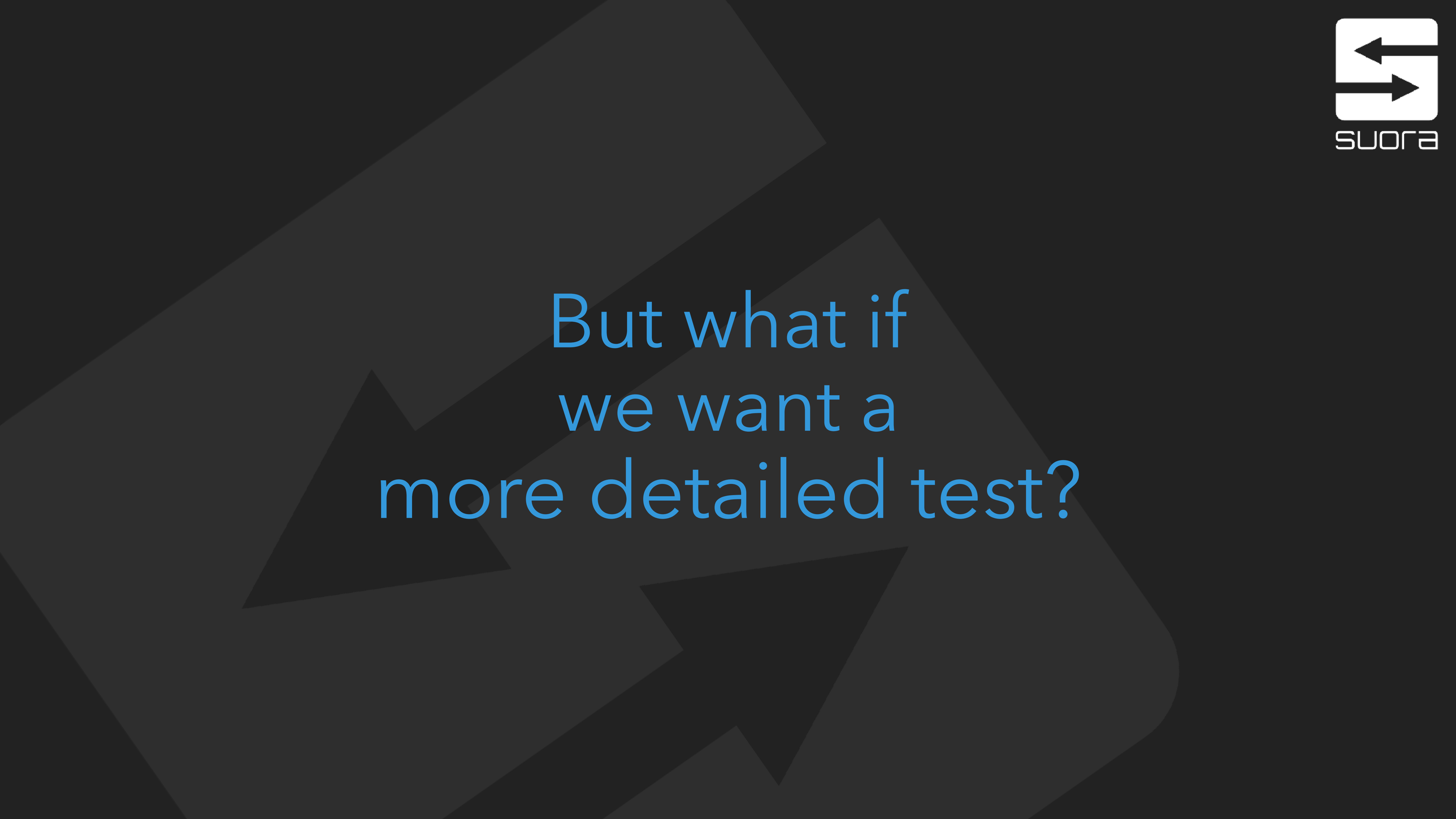
```
export class TweetListItem extends React.Component {
  public render() {
    const { tweet } = this.props;
    return (
      <li>
        <div className="avatar">
          <img src={`http://i.pravatar.cc/100?u=${tweet.userId}`} />
        </div>
        <div className="tweet-wrapper">
          <div className="tweet">
            <h6>{tweet.userId}</h6>
            <p>{tweet.message}</p>
          </div>
          <div className="arrow" />
        </div>
      </li>
    );
  }
}
```


```
 9 const tweet: Tweet = {
10   id: 1,
11   date: '2018-09-23T12:25:41.801Z',
12   message: 'Hello World!',
13   userId: 'muhdiekuh',
14 };
```


```
  2 import * as ReactDOM from 'react-dom';
[…]
 16 it('renders without crashing', () => {
 17   const div = document.createElement('div');
 18   ReactDOM.render(<TweetListItem tweet={tweet} />, div);
 19 });
```


```
21 it('renders and has a child', () => {
22   const div = document.createElement('div');
23   ReactDOM.render(<TweetListItem tweet={tweet} />, div);
24
25   const header =
div.childNodes[0].childNodes[1].childNodes[0].childNodes[0];
26
27   expect(header.nodeName).toEqual('H6');
28   expect(header.textContent).toEqual('muhdiekuh');
29 });
```


```
31 it('renders and somewhere has the authors name', () => {
32   const div = document.createElement('div');
33   ReactDOM.render(<TweetListItem tweet={tweet} />, div);
34   expect(div.innerHTML).toContain('muhdiekuh');
35 });
```



But what if
we want a
more detailed test?

Snapshot Tests


```
 3 import * as renderer from ,react-test-renderer';
[…]
37 it('renders according to snapshot', () => {
38   const tree =
renderer.create(<TweetListItem tweet={tweet} />).toJSON();
39   expect(tree).toMatchSnapshot();
40 });
```

src/component/__snapshots__/
TweetListItem.test.tsx.snap

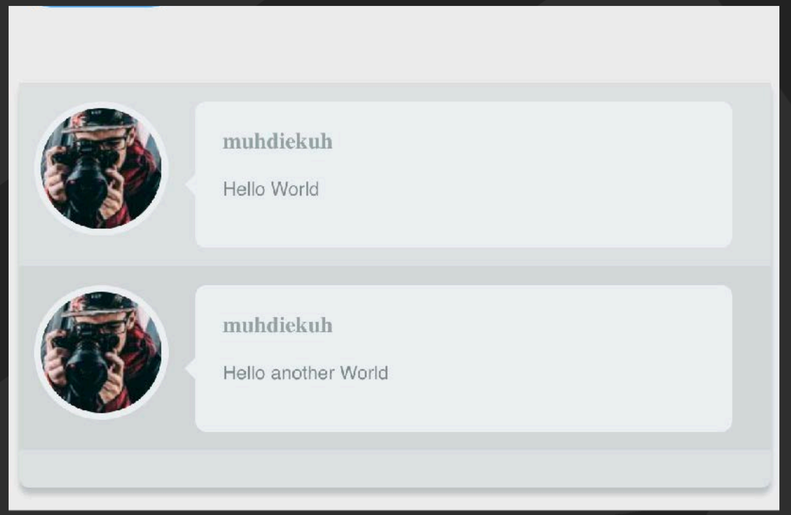

// Jest Snapshot v1, https://goo.gl/fbAQLP
exports[`renders according to snapshot 1`] = `

<div
className="avatar"
>
<img
src="http://i.pravatar.cc/100?u=muhdiekuh"
/>

<div
className="tweet-wrapper"
>
<div
className="tweet"
>
<h6>
muhdiekuh
</h6>

Hello World!

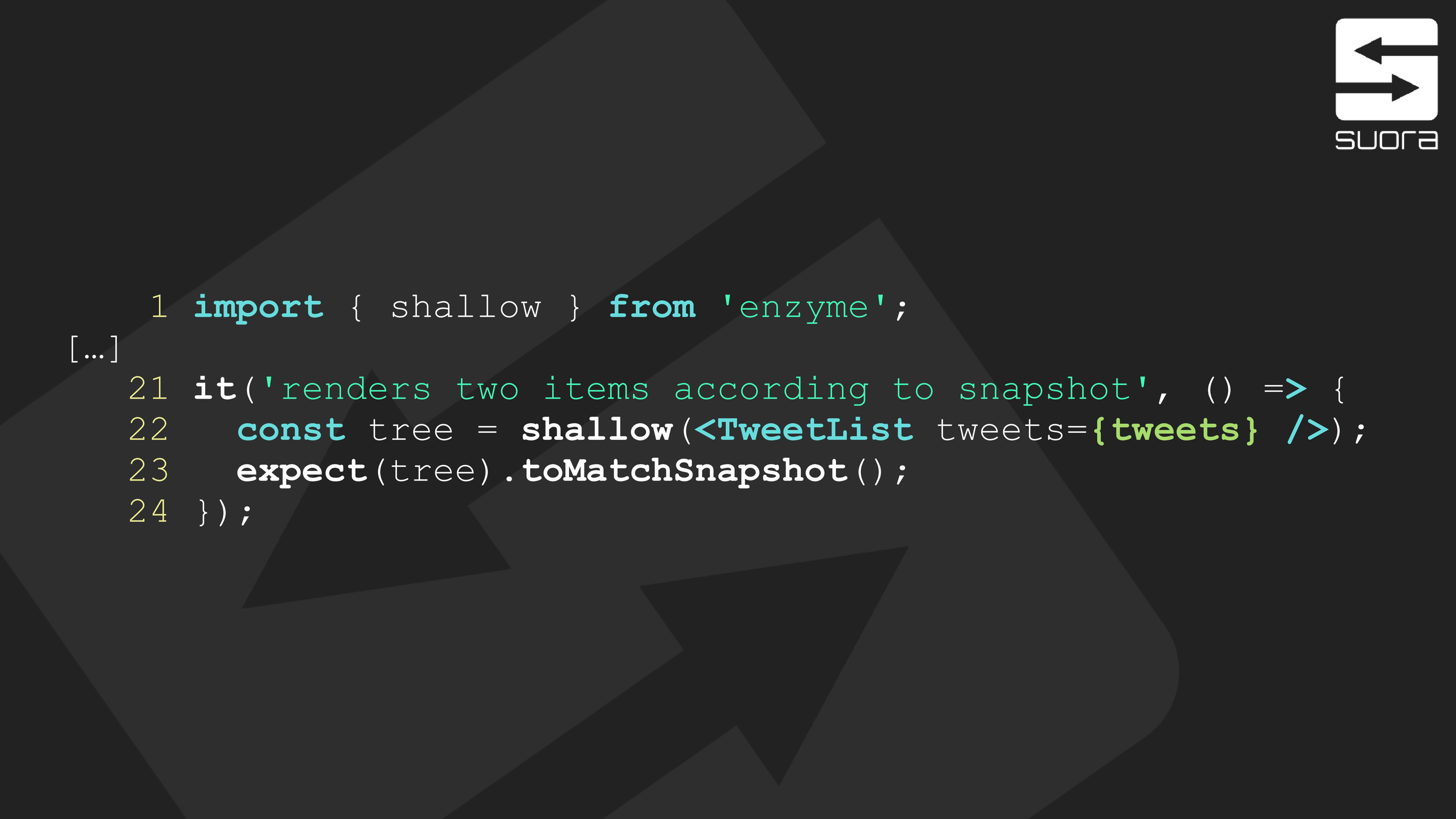
<div
suora


muhdiekuh
Hello World
muhdiekuh
Hello another World


```
 9 export class TweetList extends React.Component {
10   public render() {
11     const { tweets } = this.props;
12     return (
13       <ul className="timeline">
14         {tweets.map(tweet => (
15           <TweetListItem key={tweet.id} tweet={tweet} />
16         ))}
17       </ul>
18     );
19   }
20 }
```

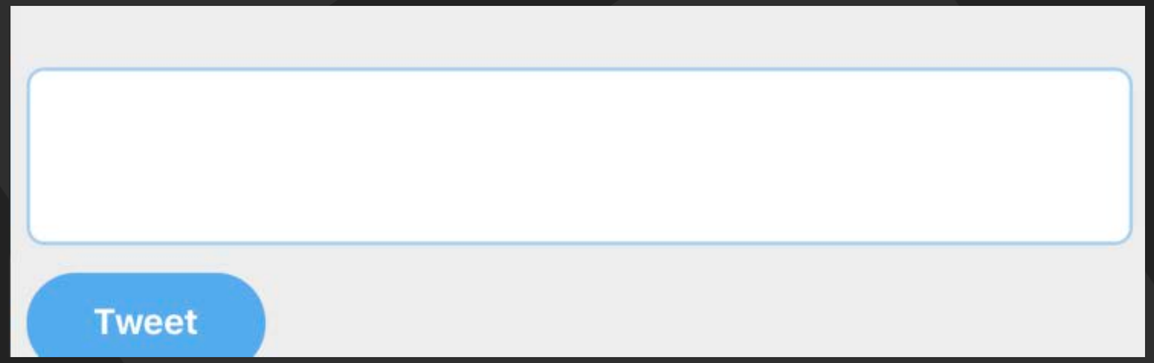
```
// Jest Snapshot v1, https://goo.gl/fbAQLP

exports[`renders multiple items according to snapshot 1`] = `
<ul
  className="timeline"
>
  <li>
    <div
      className="avatar"
    >
      <img
        src="http://i.pravatar.cc/100?u=muhdiekuh"
      />
    </div>
    <div
      className="tweet-wrapper"
    >
      <div
        className="tweet"
      >
        <h6>
          muhdiekuh
        </h6>
        <p>
          Hello World!
        </p>
      </div>
      <div
        className="arrow"
      />
    </div>
  </li>
  <li>
    <div
      className="avatar"
    >
      <img
```




```
  1 import { shallow } from 'enzyme';
[…]
 21 it('renders two items according to snapshot', () => {
 22   const tree = shallow(<TweetList tweets={tweets} />);
 23   expect(tree).toMatchSnapshot();
 24 });
```

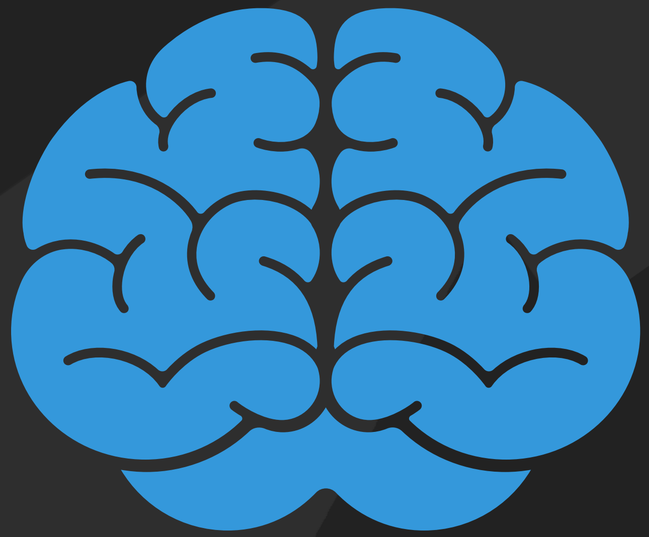
```
exports[`renders two items according to snapshot 1`] = `
<ul
  className="timeline"
>
  <TweetListItem
    key="1"
    tweet={
      Object {
        "date": "2018-09-22T12:25:41.801Z",
        "id": 1,
        "message": "Hello World!",
        "userId": "muhdiekuh",
      }
    }
  />
  <TweetListItem
    key="2"
    tweet={
      Object {
        "date": "2018-09-23T12:25:41.801Z",
        "id": 2,
        "message": "Hello from the other side!",
        "userId": "tobmaster",
      }
    }
  />
</ul>
`;
```

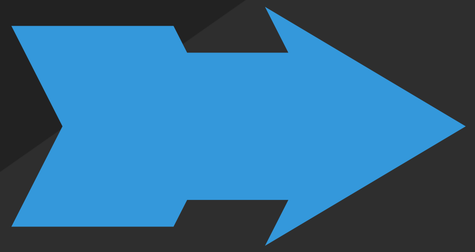

Tweet

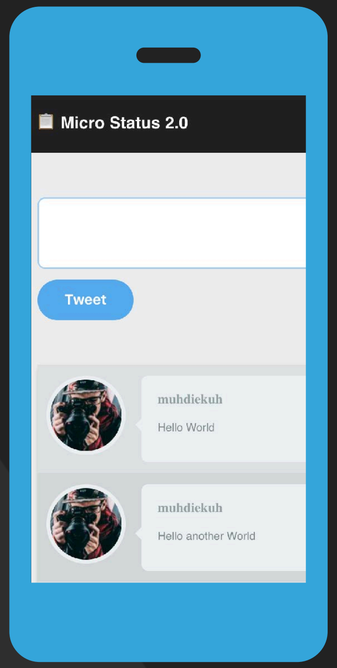

```
 1 import { mount } from 'enzyme';

14 it('contains a text after the user typed', () => {
15   const wrapper = mount(
16     <TweetWritingForm userId="muhdiekuh" addTweet={() => {}} />,
17   );
18   wrapper
19     .find('input[name="text"]')
20     .simulate('change', { target: { value: 'Hello World!' } });
21
22   // Ensure value is in the field
23   expect(wrapper).toMatchSnapshot();
24 });
25
```

```
26 it('submitting the form will result in a new tweet', () => {
27   const addTweetCallback = jest.fn();
28
29   const wrapper = mount(
30     <TweetWritingForm userId="muhdiekuh" addTweet={addTweetCallback} />,
31   );
32   wrapper
33     .find('input[name="text"]')
34     .simulate('change', { target: { value: 'Hello World!' } });
35
36   wrapper.find('button[type="submit"]').simulate('submit');
37
38   expect(addTweetCallback).toHaveBeenCalledTimes(1);
39   expect(addTweetCallback).toHaveBeenCalledWith(
40     expect.objectContaining({
41       userId: 'muhdiekuh',
42       message: 'Hello World!',
44     }),
45   );
50 });
```



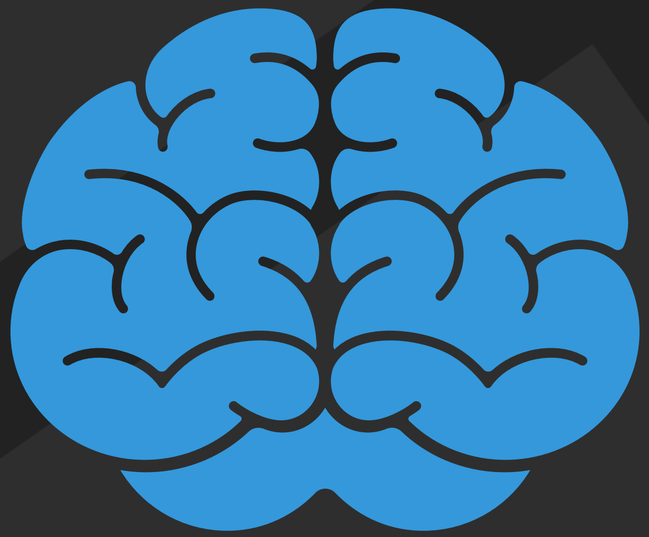




State

Component

Application / UI



Redux


```
12 export const fetchTweets = () => ({
13   type: FETCH_TWEETS,
14   payload: fetch('http://localhost:4712/tweets')
.then(response =>
15     response.json(),
16   ),
17 });
```


```
10 const mockStore = configureStore(middlewares);
11 describe('tweets action creators', () => {
14   fetch.resetMocks();
16
17   it('should execute fetch data', () => {
18     const store = mockStore({});
19     const tweet = { /* */ };
27     fetch.mockResponseOnce(JSON.stringify([tweet]));
28
30     return store.dispatch(fetchTweets()).then(() => {
31       const actions = store.getActions();
32       expect(actions[0]).toEqual({ type:
'FETCH_TWEETS_PENDING' });
33       expect(actions[1]).toEqual({
34         type: 'FETCH_TWEETS_FULFILLED',
35         payload: [tweet],
36       });
37     });
```

Esses poetas

Esse tem um plano, e já se aplaude.
Esse arde em memória, lembra e sopra.
Esse quer ter saudade, abre e morde.
Esse tem mistério, solta e fecha.
Esse faz humor, diz que desdiz.

Hooks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And the real world?
Photo by Kyle Glenn on Unsplash


suora
Puppeteer-jest

storybook-storyshots

storyshots-puppeteer

react-testing-library

What's the take away?

Photo by Sandra Ahn Mode on Unsplash

Clean components are easy to test.


ASK MORE
QUESTIONS

https://github.com/SuoraGmbH/micro-status

suora

Thank you & have fun!

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c.otto@suora.com

@muhdiekuh
@SuoraGmbH
suora.com