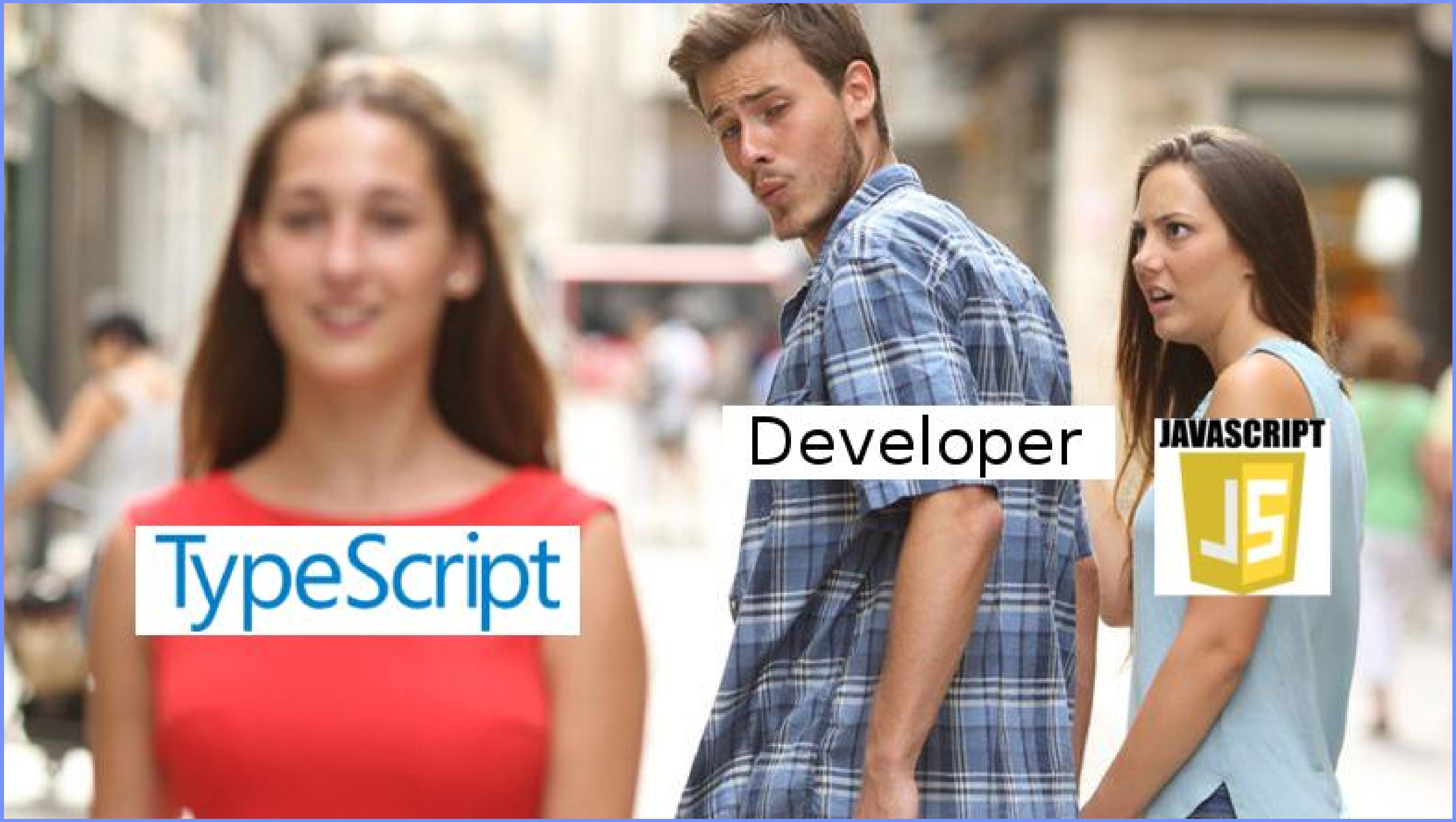
TypeScript in React:
A Love Story ❤️

Kylie Stewart, Engineer at Formidable


TypeScript
Developer
JAVASCRIPT
JS

```
yarn create react-app your-app --typescript
```

What is TypeScript, exactly?

Statically Typed

Java, TypeScript, Swift

Dynamically Typed

PHP, JavaScript, Python

Compared to JavaScript

```
class Button extends Component {
  render() {
    return (
      <button {...this.props}>{children}</button>
    );
  }
}

Button.defaultProps = {
  href: '',
  disabled: false
};

export default Button;
```

```
interface IButtonProps {
  href: string;
  disabled?: boolean;
  size?: string;
}

class Button = React.Component<IButtonProps> => {
  public static defaultProps: Partial<IButtonProps> = {
    href: '',
    disabled: false
  };

  public render() {
    return (
      <button {...this.props}>{children}</button>
    );
  }
};

export default Button;
```

What else?

Interfaces

```
interface IButtonProps {
  href: string;
  disabled?: boolean;
  size?: string;
}

class Button = React.Component<IButtonProps> => {
  public static defaultProps: Partial<IButtonProps> = {
    href: '',
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  };

  public render() {
    return (
      <button {...this.props}>{children}</button>
    );
  }
};

export default Button;
```

Unions

```
interface IButtonProps {
  href: string;
  disabled?: boolean;
  size?: string;
  message?: string | string[];
}
```

Enums

```
enum ButtonSize = {
  Small,    // 0
  Medium,   // 1
  Large     // 2
}

interface IButtonProps {
  href: string;
  disabled?: boolean;
  size?: ButtonSize;
}
```

any

⚠

Object Literal Checks

```
function logMessage(anything: { message: string }) {
  console.log(anything.message);
}

const first = { message: "Hi React Denver", date: "2019-04-16T22:27:57.510Z" };
const second = { message: "I like cheese", priority: "high" };
const third = { note: "No message here" };

logMessage(first);       // 👍
logMessage(second);      // 👍
logMessage(third);       // 🔴 Error: property 'message' is missing
```

Allowing Extraneous Props

```
let someObj: {
  mustBeString: string;
  [index: string]?: any;
};

myObject = { mustBeString: 'hello', whatever: true };     // 👍🏼
myObject = { mustBeString: 1, extra: 'a string' };        // 🔴 Error: property 'mustBeString' must be type string
```

TS

📦 Create more portable code

📓 Write better documentation

🛠️ Easy refactoring

📈 Increase dev productivity

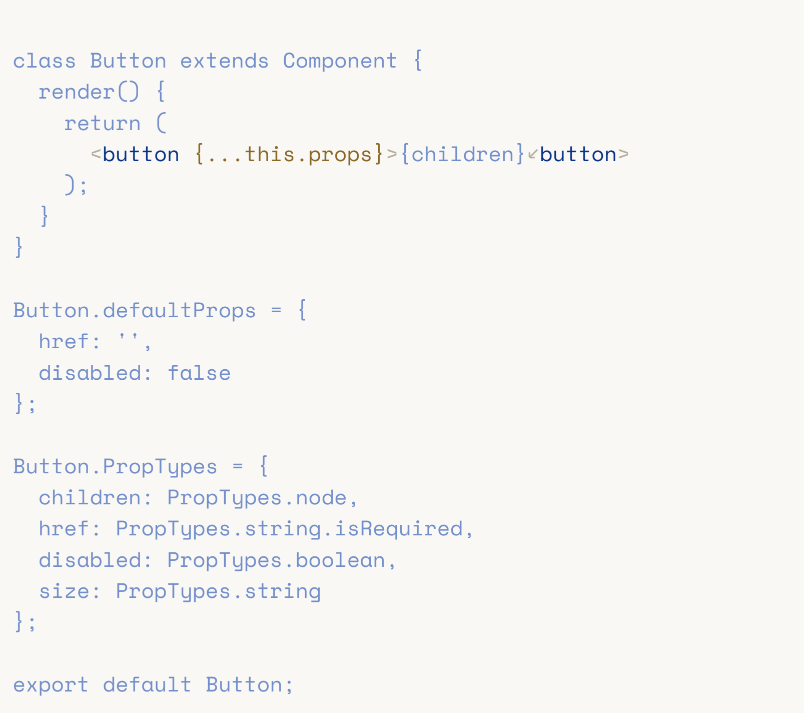
TypeScript Errors

`noImplicitAny`

`strictNullChecks`

Write Better Component APIs

PropTypes vs. Interfaces

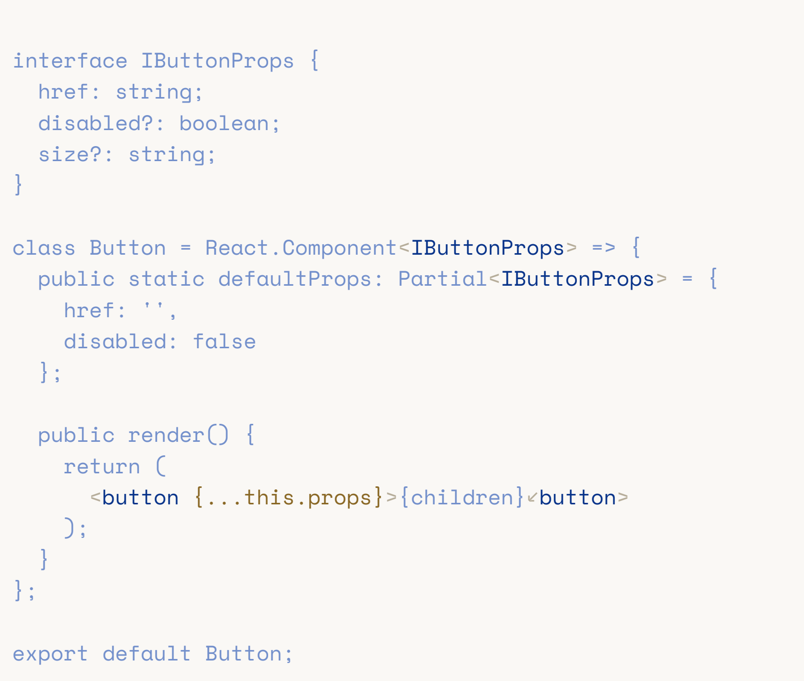


```
class Button extends Component {
  render() {
    return (
      <button {...this.props}>{children}</button>
    );
  }
}

Button.defaultProps = {
  href: '',
  disabled: false
};

Button.PropTypes = {
  children: PropTypes.node,
  href: PropTypes.string.isRequired,
  disabled: PropTypes.boolean,
  size: PropTypes.string
};

export default Button;
```



```
interface IButtonProps {
  href: string;
  disabled?: boolean;
  size?: string;
}

class Button = React.Component<IButtonProps> => {
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    href: '',
    disabled: false
  };

  public render() {
    return (
      <button {...this.props}>{children}</button>
    );
  }
};

export default Button;
```
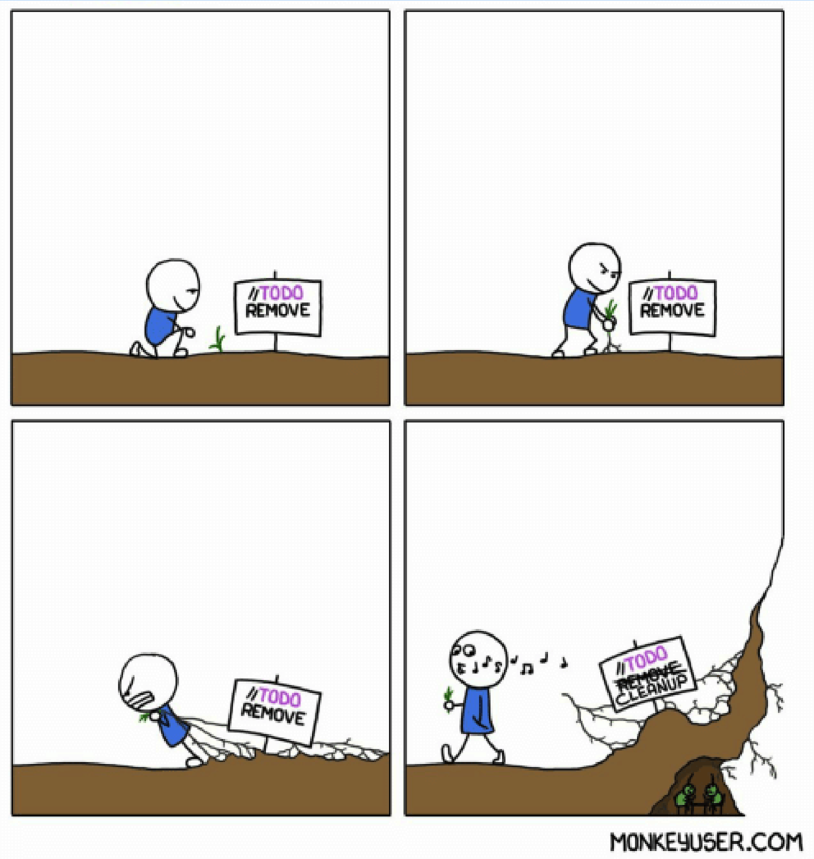

Composing Better Props and State


//TODO REMOVE
//TODO REMOVE
//TODO REMOVE
//TODO ~~REMOVE~~ CLEANUP
MONKEYUSER.COM

Extending Interfaces

```
interface IWithUserDataProps {
  id: number;
  age: number;
  firstName: string;
  lastName: string;
  nickname?: string;
}
```

```
interface IGreetingProps extends IWithUserDataProps {
  message: string;
}
```

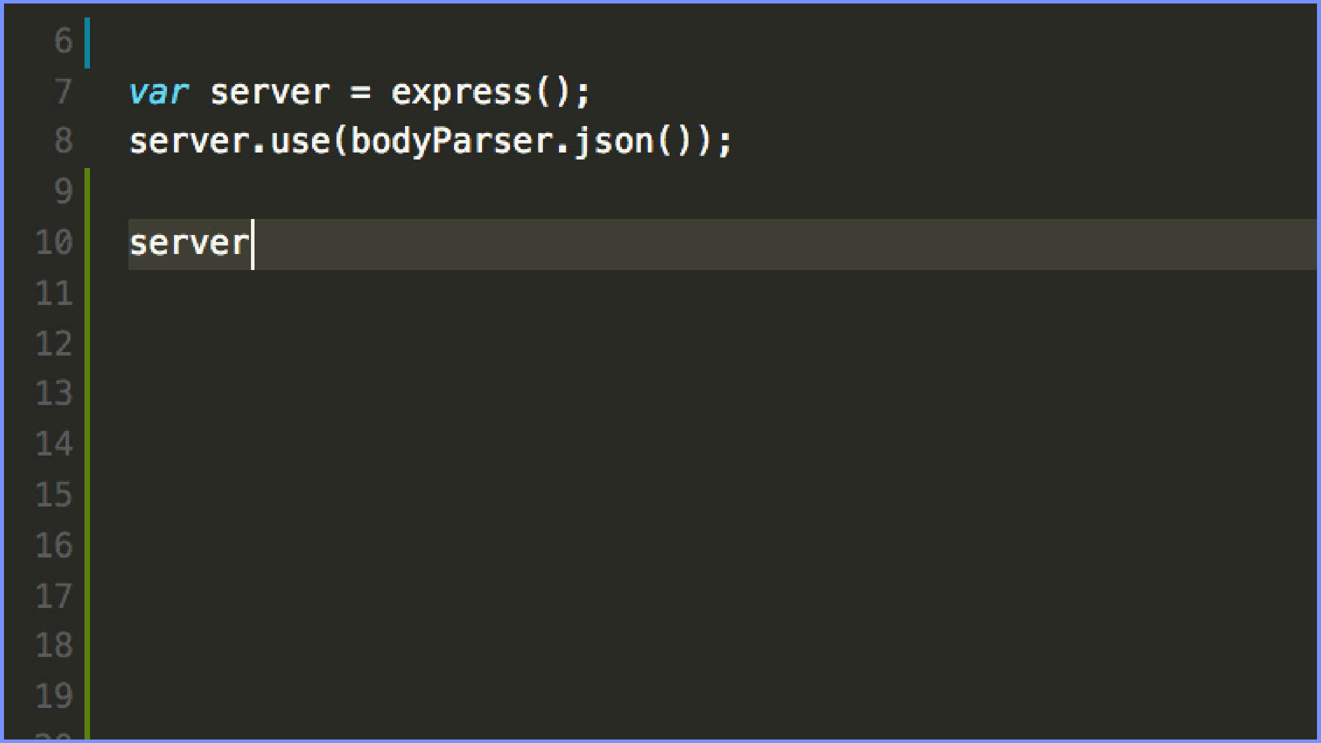
Interfaces x TDD

✅ Create more portable code

✅ Write better documentation

✅ Easy refactoring

❓ Increase dev speed

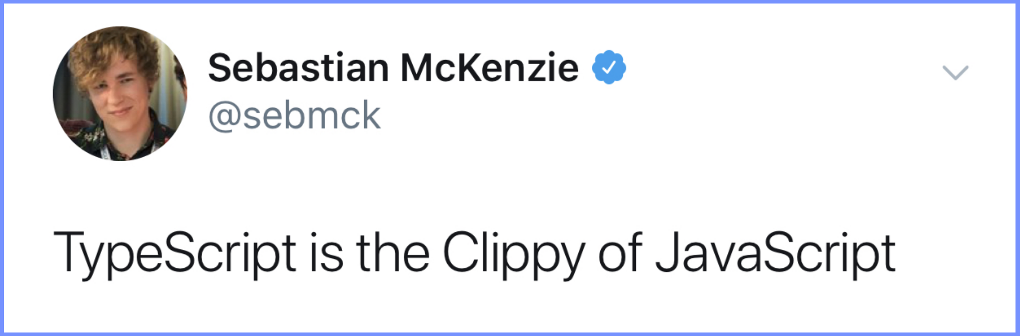


```

var server = express();
server.use(bodyParser.json());

server
```

Reads 3rd party
declaration files

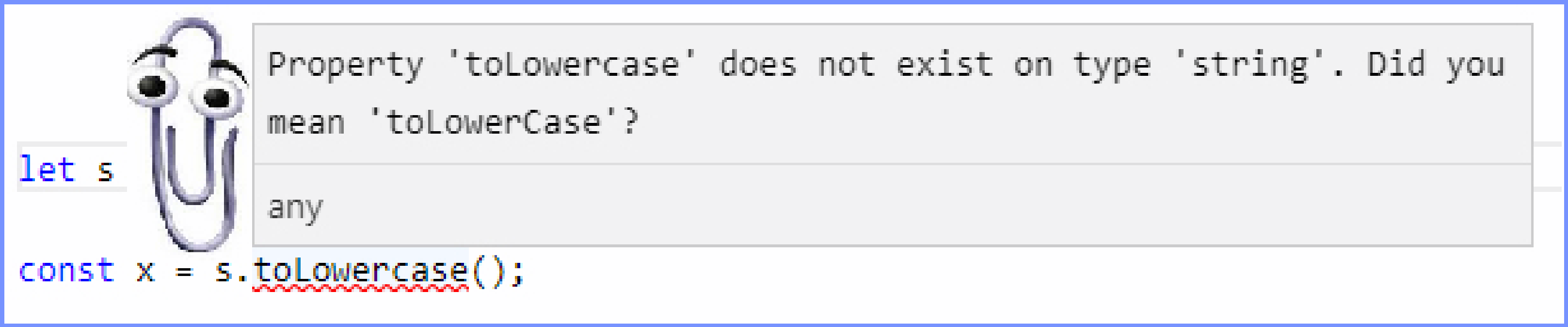
Gives you cleaner errors

Helps you refactor



Sebastian McKenzie
@sebmck

TypeScript is the Clippy of JavaScript



Property 'toLowercase' does not exist on type 'string'. Did you mean 'toLowerCase'?

any

```
let s

const x = s.toLowercase();
```

Try it for yourself!

https://typescriptcourses.com/typescript-fundamentals

https://www.typescriptlang.org/play

https://basarat.gitbooks.io/typescript

THANK YOU!

@KYLIESTEW ON TWITTER

`github.com/kale-stew/ts-in-react`