Are Progressive Web Apps the Future of Web Development?

This talk is available on my website: https://oren.github.io

What are PWAs

(the developer's version)

- Native-level experience.

- Performance & responsiveness.

- Single codebase.

- Multiple devices, desktop and mobile.
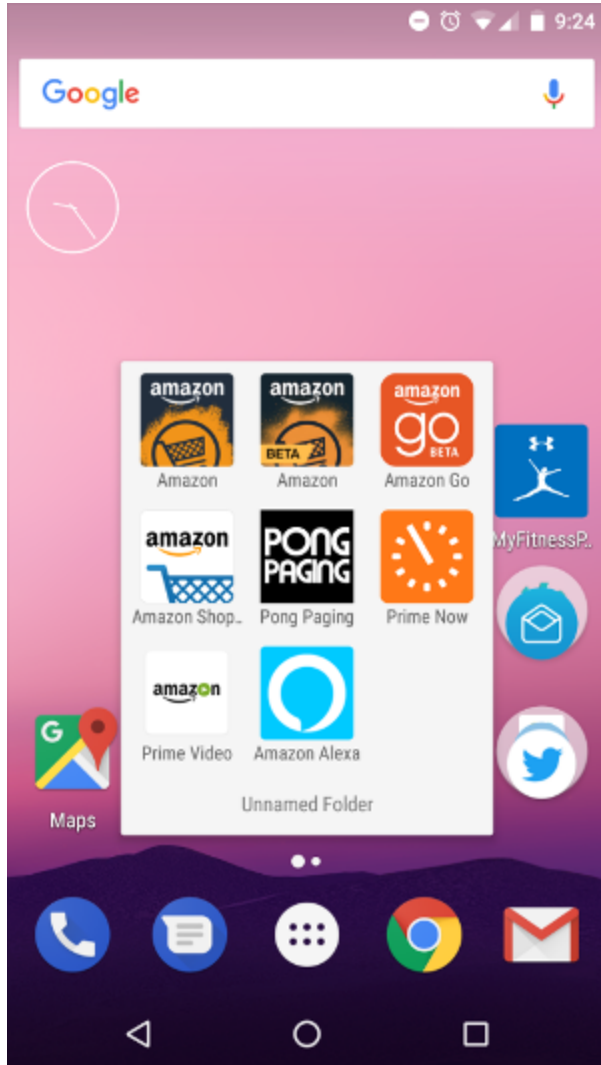
What are PWAs

(the product manager version)

A way to improve the following:

- Conversion rate

- Page visits

- User time spent on app

- Quicker time to market

- Business model freedom

- App discovery

- App installation fatigue

- App loyalty

- App reach

https://cloudfour.com/thinks/the-business-case-for-progressive-web-apps/

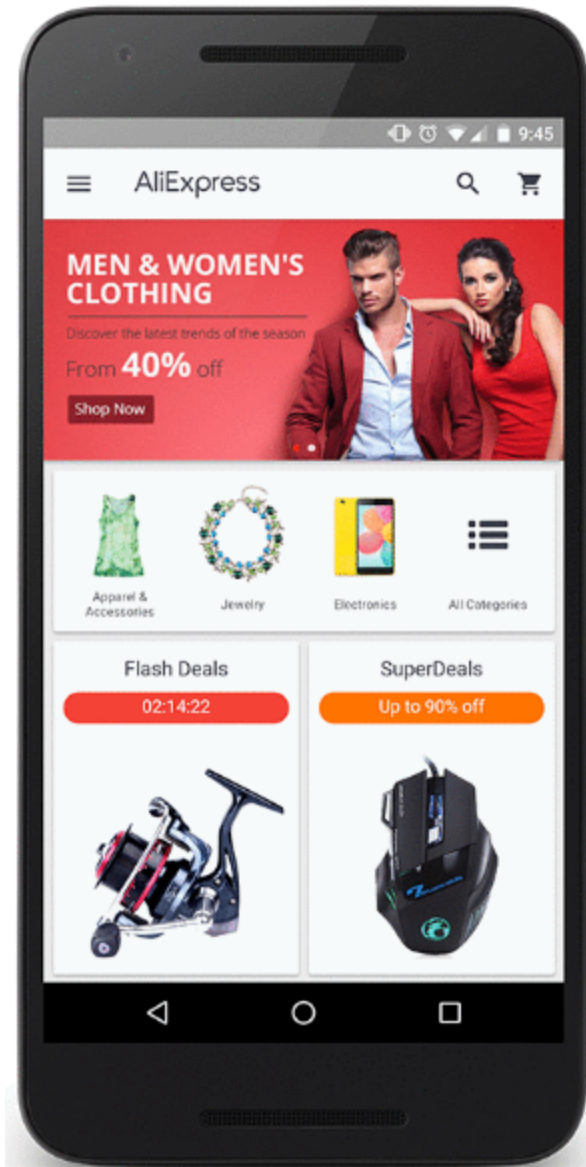# Not Everyone Lives in a Wealthy Nation
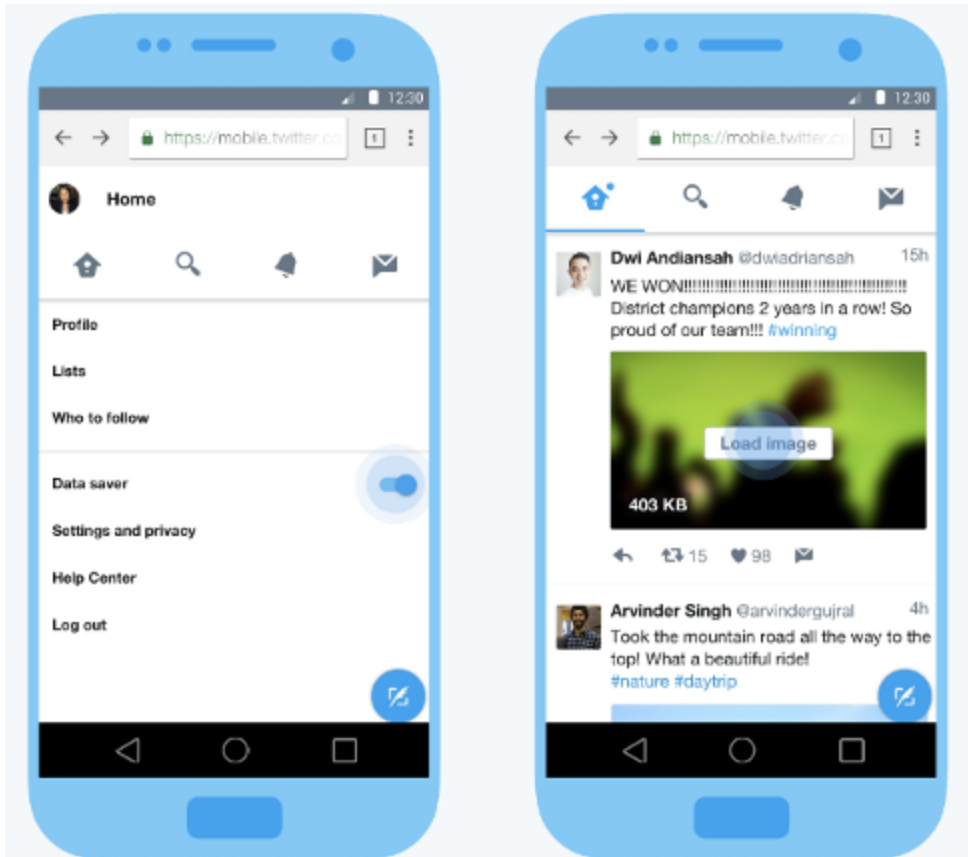
Apple

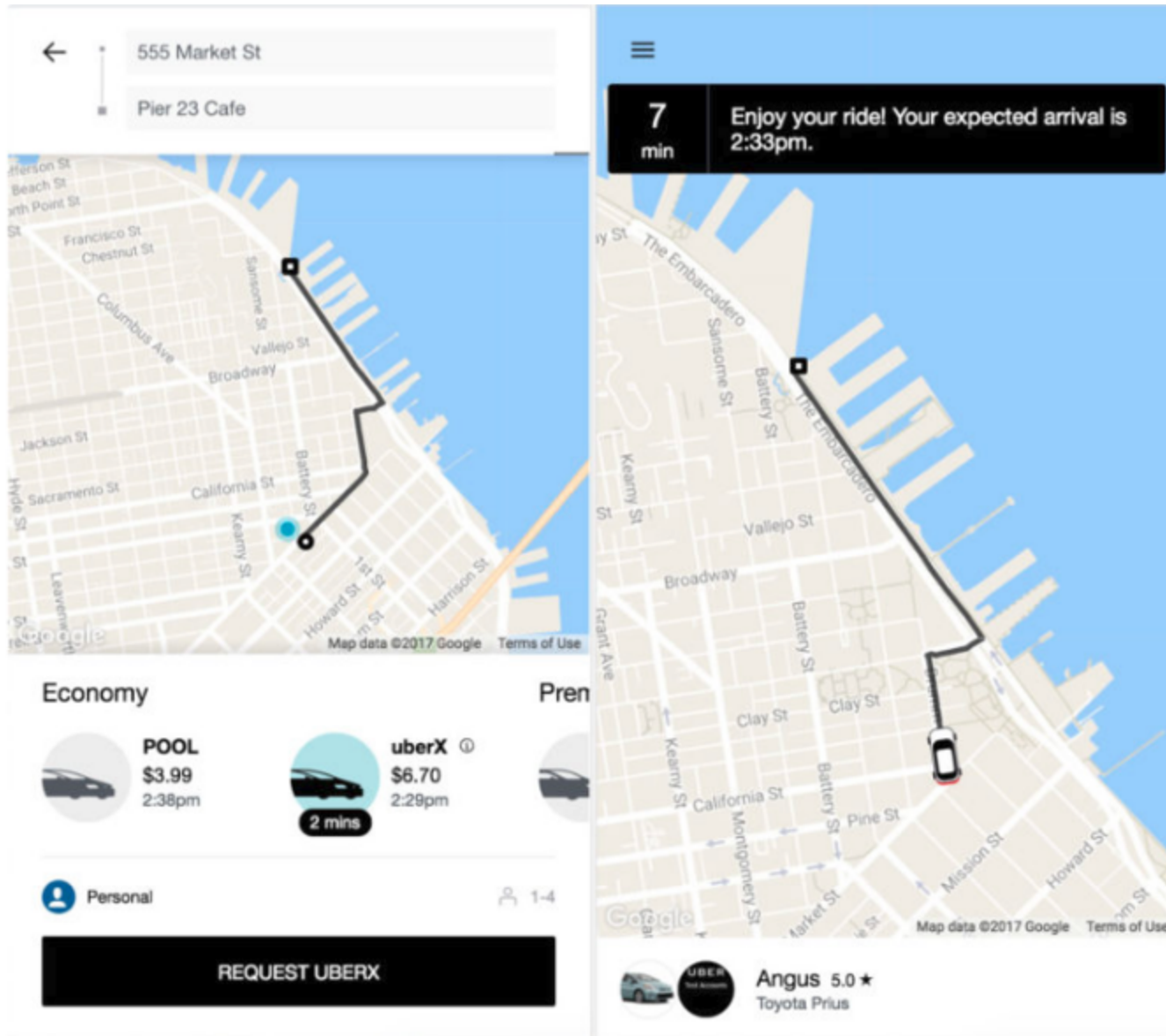(Takes 30% of your sales)

Show Case 1 - AliExpress

Show Case 2 - Twitter

Show Case 3 - UBER

How to Achieve a Native-like Experience?

- Available offline/weak network using Service Worker.

- Measure peformance with the tool Lighthouse.

- Icon on home screen.

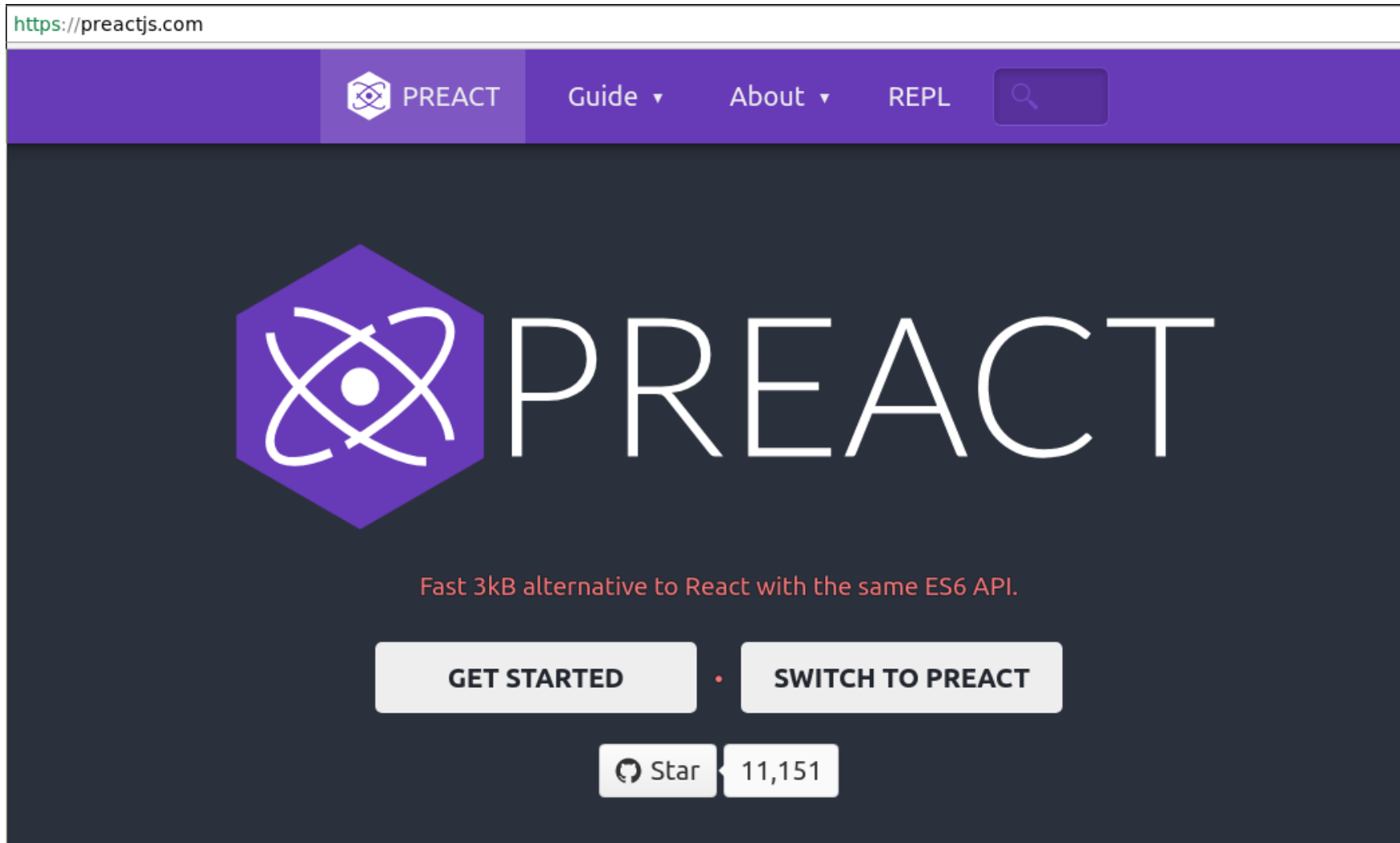- (Android/Mozilla/IE) App-like 'loading' page, no URL, push notification and more.

The PRPL Pattern

https://developers.google.com/web/fundamentals/performance/prpl-pattern/

- Precache
- Render initial route
- Push server
- Lazy-load

Preact

React on steroids - 3k, similar API

Preact - Performance

TodoMVC Benchmark

Preact	146	
Mithril	200	
Vue	208	
Knockout	410	
Vanilla	971	
React 15.0.2	1,449	
Angular 1.5.3	1,758	

0   500   1,000   1,500

Best time in milliseconds over 1 run (lower is better)

https://developit.github.io/preact-perf
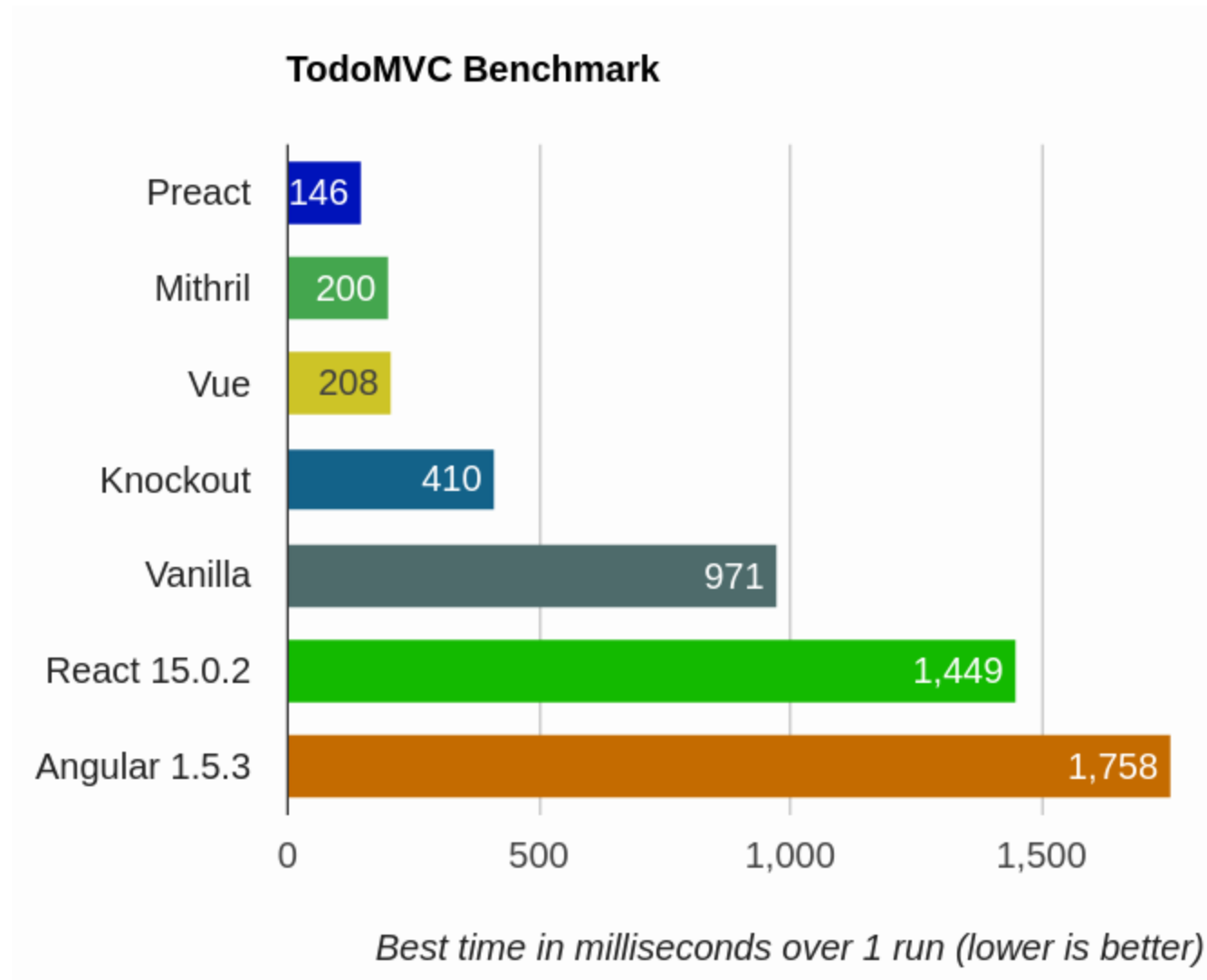
What does Webpack do for us?
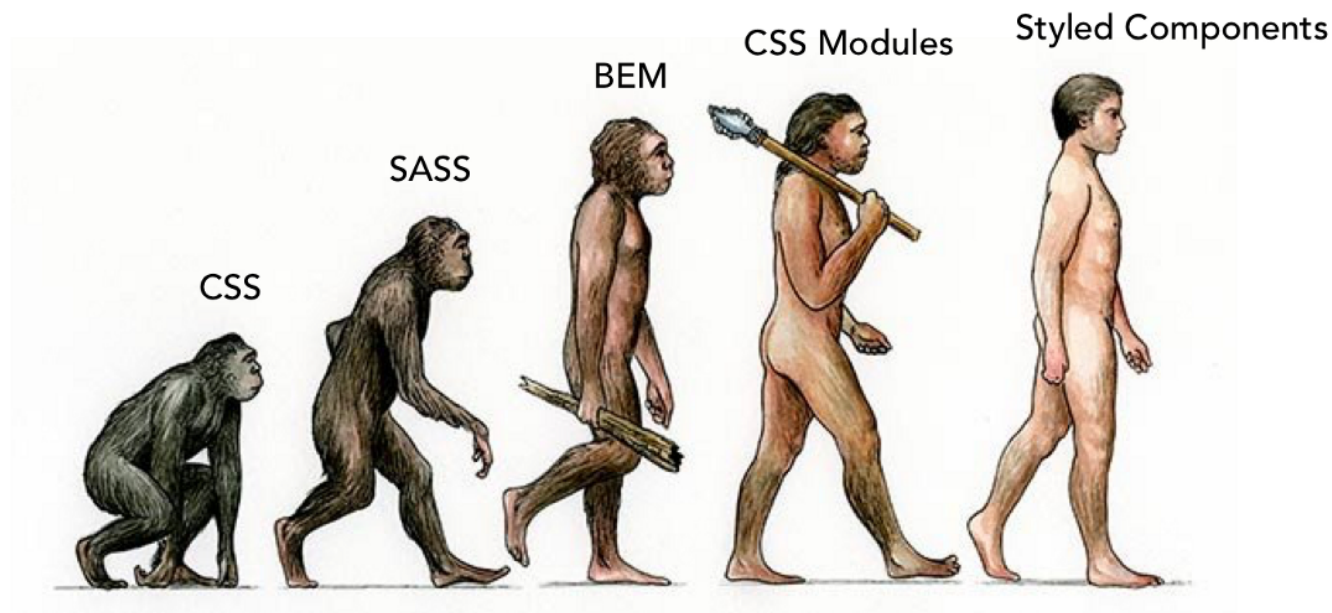
- Creates a single js file from all the JavaScript files.
- Enables a dev server with hot module reloading - https://webpack.github.io/docs/hot-module-replacement-with-webpack.html.
- Dynamic bundle splitting - https://webpack.js.org/guides/code-splitting-async.
- Tree-shaking capabilities - https://webpack.js.org/guides/tree-shaking

What does Babel do for us?

Converts ES2015 syntax to ES5 so my browser will be able to render the JavaScript. Things like import, let, require, arrow function, and also converts jsx to JavaScript.

CSS in Javascript

- https://github.com/css-modules/css-modules
- https://m.alphasights.com/css-evolution-from-css-sass-bem-css-modules-to-styled-components-d4c1da3a659b

CSS Modules

- https://medium.com/@gajus/stop-using-css-in-javascript-for-web-development-fa32fb873dcc

Preact CLI

```
npm i -g preact-cli
```

```
preact create app
cd app
preact watch
```

Preact - Baked in PRPL

- **Precache:** The service worker is configured for offline use.

- **Render initial route:** use a tool called prerender.

- **HTTP2/Push Server:** `preact serve` creates a simple HTTP2 server.

- **Lazy-Load:** Automatic code-splitting for routes and shared "chunks" are optimized for reuse. Navigating from `/about` to `/contact` will dynamically (or "lazily") load the "contact" bundle and any associated chunks. This is all thanks to webpack.

Lighthouse

91	99	100	100
Progressive Web App	Performance	Accessibility	Best Practices

Progressive Web App

91

These audits validate the aspects of a Progressive Web App, as specified by the baseline [PWA Checklist](#).

✖ Contains some content when JavaScript is not available

⚠ The page body should render some content if its scripts are not available.

▶ View 10 passed items

▶ Manual checks to verify

19

Resources

- How Twitter light was built: https://blog.twitter.com/official/en_us/topics/product/2017/introducing-twitter-lite.html

- How M.UBER was built: https://eng.uber.com/m-uber

- Financial times PWA: https://app.ft.com

- AliExpress PWA: https://m.aliexpress.com

- Preact: https://preactjs.com

- Preact-cli: https://github.com/developit/preact-cli