

# **Module & No-Module bundlers**

Jonathan Yeong – March 12, 2021

# **What are we going to cover**

What are Module & No Module bundlers?

Why use them?

How do they work?



# PARCEL

Blazing fast, zero configuration web application bundler



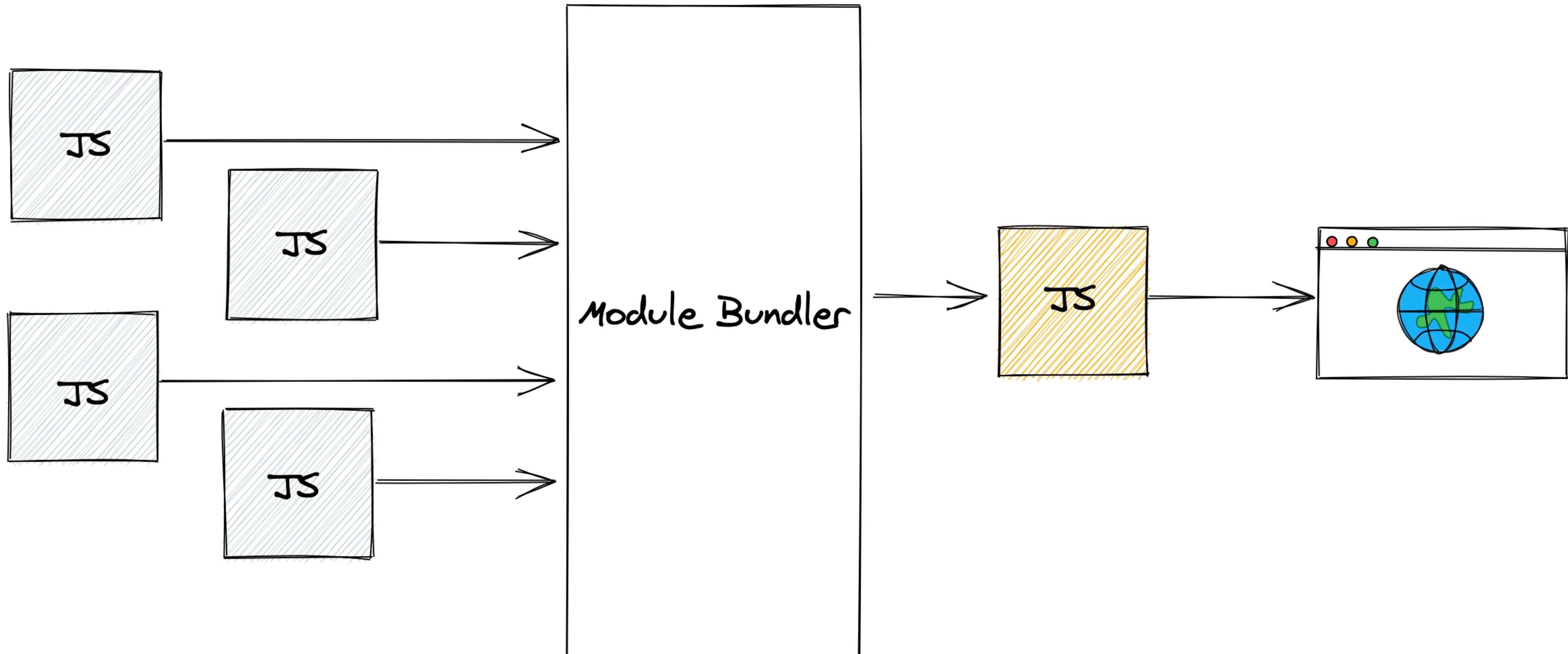
# Module bundlers



# esbuild

*An extremely fast JavaScript bundler*

What is a module bundler?



Many types of files!

CSS

Images

Fonts

JSON, XML, etc



CSS

```
import Icon from './icon.png';
```

Images



Fonts

```
import './App.css';
```

JSON, XML, etc

```
import data from './data.json'
```

Why would you want this?

```
// main.js  
let confettiSettings = { target: 'confettiGun' };  
let confetti = new ConfettiGenerator(confettiSettings);  
confetti.render();
```

```
<!DOCTYPE html>  
<html>  
  <head>  
    <meta charset="utf-8" />  
    <title>VC Brownbag</title>  
  </head>  
  <body>  
    <canvas id="confettiGun"></canvas>  
    <script src="node_modules/confetti-js/dist/index.min.js"></script>  
    <script src="main.js"></script>  
  </body>  
</html>
```

```
// index.js
import ConfettiGenerator from 'confetti-js';
let confettiSettings = { target: 'confettiGun' };
let confetti = new ConfettiGenerator(confettiSettings);
confetti.render();
```

```
<!DOCTYPE html>
<html>
  <head>
    <meta charset="utf-8" />
    <title>VC Brownbag</title>
  </head>
  <body>
    <canvas id="confettiGun"></canvas>
    <script src="main.js"></script>
  </body>
</html>
```

# Let's dig deeper



ORBO

What's going on behind the  
scenes?

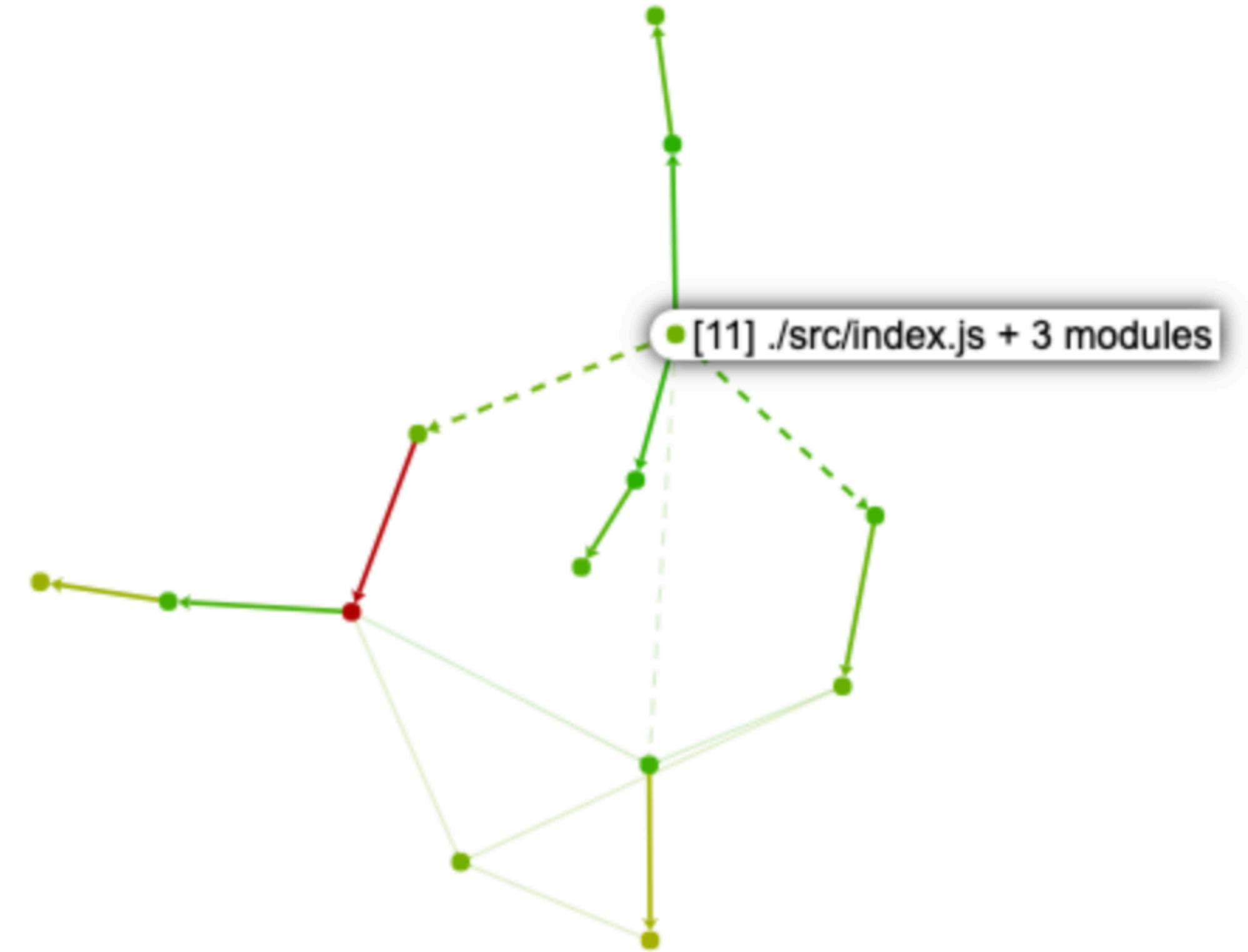
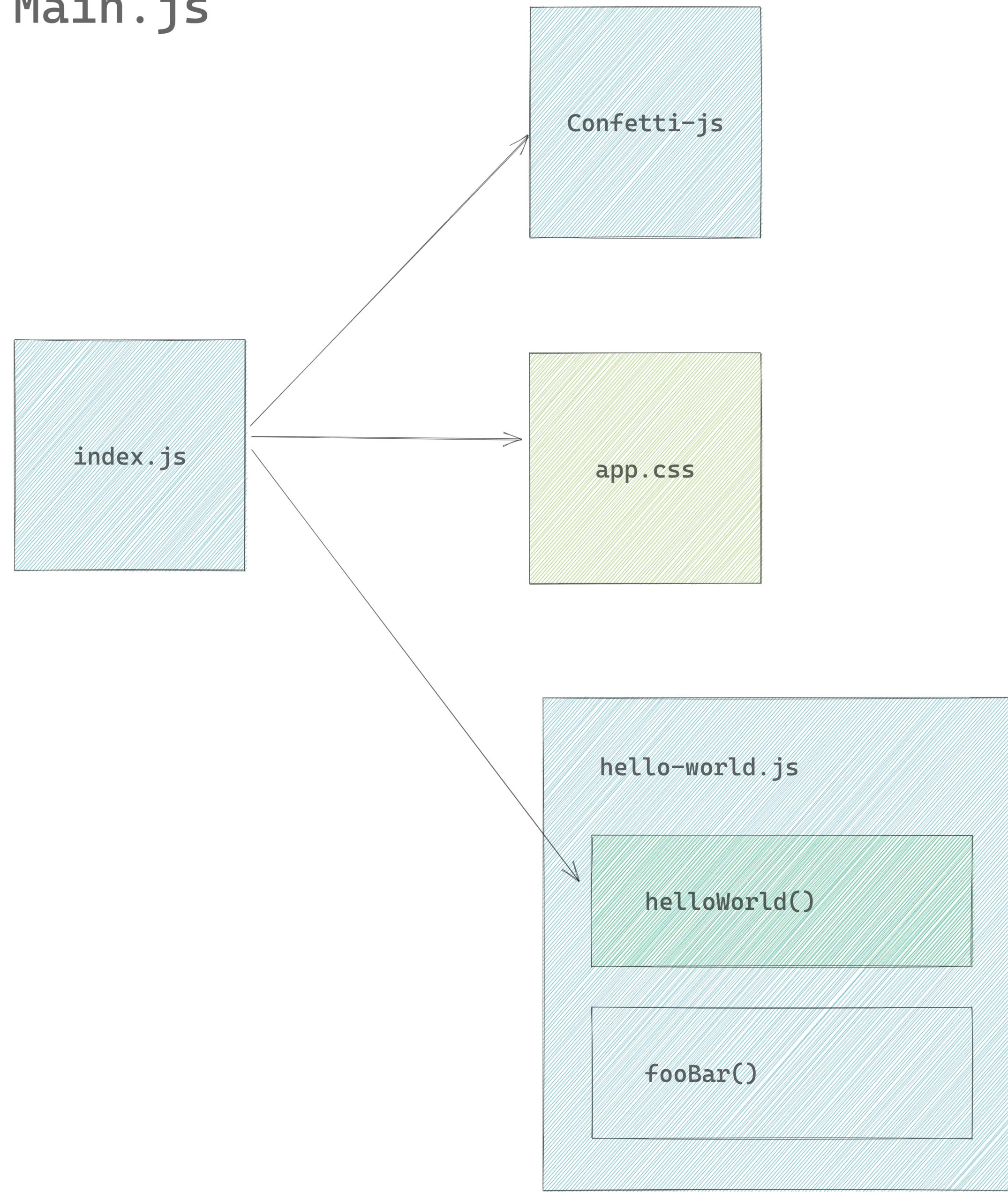
[Live Demo]

# Dependency Graph

Through import or require

# Create React App

Main.js



Source: <https://webpack.github.io/analyse/>

# Other optimizations

Minification

Cache-Busting

Tree Shaking

Code Splitting

# What is Tree Shaking



A way to remove unused code

```
export function helloworld() {  
  const element = document.createElement('div');  
  element.innerHTML = "Hello From Webpack";  
  element.classList.add("webpack-class");  
  return element;  
}
```

```
export function fooBar() {  
  const element = document.createElement('div');  
  element.innerHTML = "Hello From FOOBAR";  
  element.classList.add("webpack-class");  
  return element;  
}
```

```
/* harmony export */ __webpack_require__.d(__webpack_exports__, {
/* harmony export */   "helloworld": () => /* binding */ helloworld
/* harmony export */ });
/* unused harmony export fooBar */

function helloworld() {
  ...
}

function fooBar() {
  const element = document.createElement('div');
  element.innerHTML = "Hello From FOOBAR";
  element.classList.add("webpack-class");
  return element;
}
```

```
/* harmony export */ __webpack_require__.d(__webpack_exports__, {
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/* harmony export */ });
/* unused harmony export fooBar */
```

```
function helloworld() {
...
}
```

```
function fooBar() {
  const element = document.createElement('div');
  element.innerHTML = "Hello From FOOBAR";
  element.classList.add("webpack-class");
  return element;
}
```

# Summary

# All done!



We love to optimize

We can do better

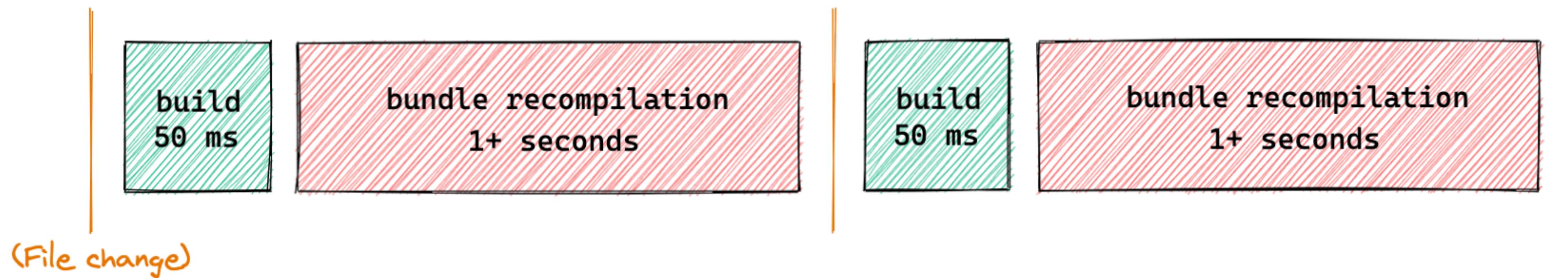


# No-Module Bundlers

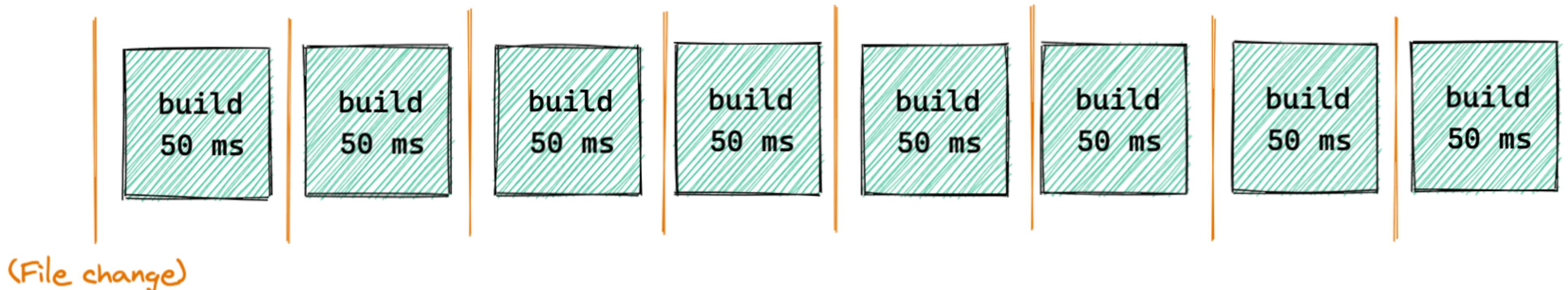


# Un-bundled development

## Bundled (ex: Webpack)



## Unbundled (Snowpack)



Source: [Snowpack - How Snowpack Works](#)

Same support - Faster builds

“Every file is built individually and  
cached indefinitely”

Source: [Snowpack - How Snowpack Works](#)

# Where's the magic?



# EcmaScript (Javascript) Modules

```
<script type="module" src="..."></script>
```

# Module type vs Script type

Strict mode

Executed once

No global scope

Deferred automatically

# How does Snowpack use it?

What does it look like?

[Live Demo]

What about production?

Use a module bundler!

For more Snowpack Templates

[Code](#)[Issues 35](#)[Pull requests 31](#)[Discussions](#)[Actions](#)[Security](#)[Insights](#)[main](#) ▾[snowpack / create-snowpack-app /](#)[Go to file](#)[Add file](#) ▾

...

 rmdort	Support verbose flag for template installation ( <a href="#">#2365</a> )	1	✓	81b495c	11 days ago	<a href="#">History</a>
..						
 app-scripts-lit-element	@snowpack/app-scripts-lit-element@2.0.0				2 months ago	
 app-scripts-preact	update prettier to use explicit formatting				2 months ago	
 app-scripts-react	fix: do not cache env in jest ( <a href="#">#2704</a> )				17 days ago	
 app-scripts-svelte	fix: do not cache env in jest ( <a href="#">#2704</a> )				17 days ago	
 app-scripts-vue	@snowpack/app-scripts-vue@2.0.0				2 months ago	
 app-template-11ty	Publish				2 months ago	
 app-template-blank-typescript	update prettier to use explicit formatting				2 months ago	
 app-template-blank	update prettier to use explicit formatting				2 months ago	
 app-template-lit-element-typescript	fix typo from React to app ( <a href="#">#2442</a> )				2 months ago	
 app-template-lit-element	fix typo from React to app ( <a href="#">#2442</a> )				2 months ago	
 app-template-minimal	Fix minor typo in react starter template ( <a href="#">#2341</a> )				2 months ago	
 app-template-preact-typescript	update prettier to use explicit formatting				2 months ago	
 app-template-preact	update prettier to use explicit formatting				2 months ago	

# Summary

My take on the future of tooling

Thank you!