Why Overcomplicate When HTML Will Do?

Jonathan Knapp
Coffee and Code

July 26-28

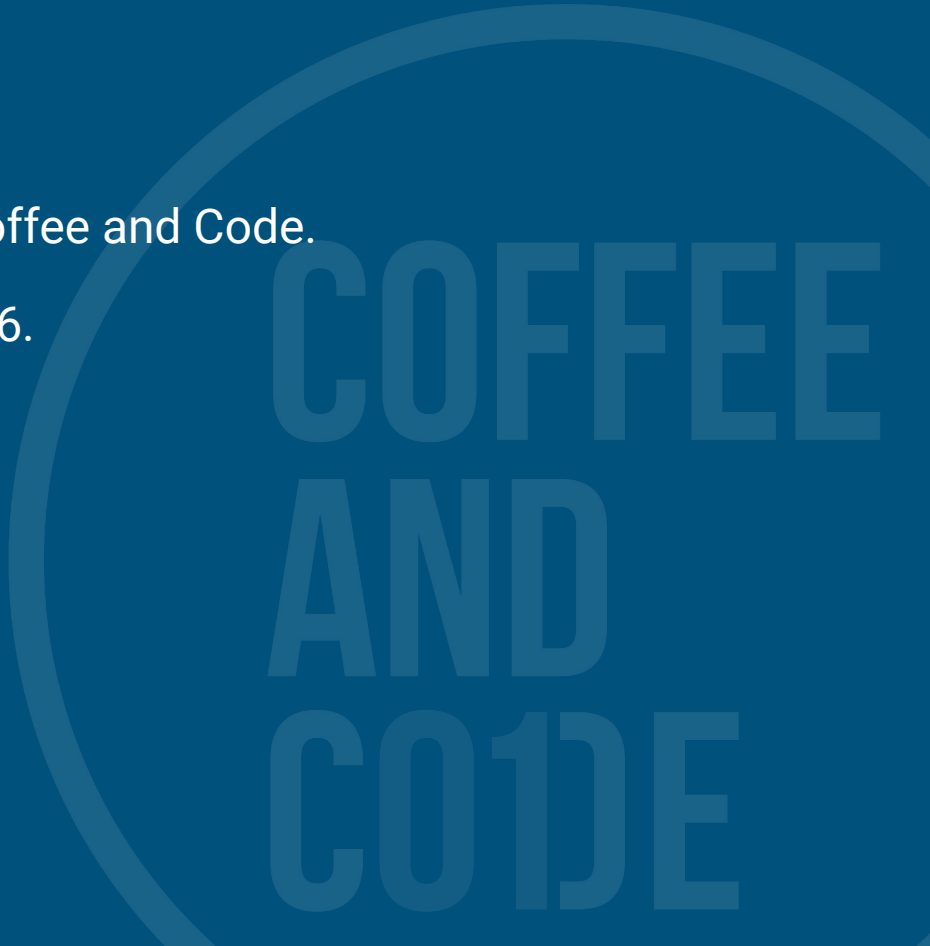
at Hyland
Westlake, Ohio

clevelandgivecamp.org

Me

Independent consultant + contractor at Coffee and Code.

Working on web-based projects since 2006.



My Work Goals

Constantly provide value in the short term.

Make the long term reasonably painless.

When possible, reduce the amount of code needed to run an application.

Complexity Budget

Hosting

Caching

Infrastructure

Code quality

User experience

Design and functionality

Ever-changing business requirements

We have made our jobs harder than necessary.

Allure of the Unknown

We crave knowledge.

We want to iterate and evolve.

We constantly seek greener pastures.

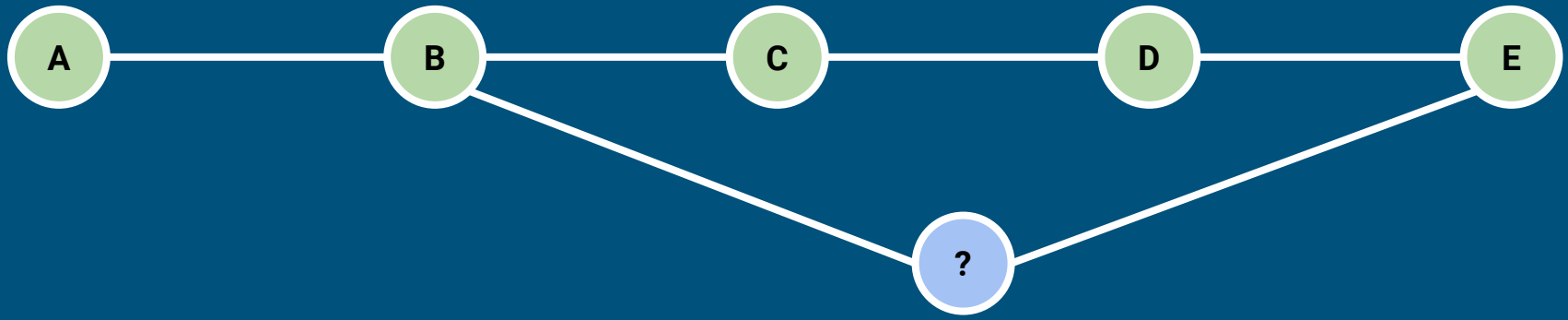
New is “Cool”

Newer *has to* mean better.

We want to stay relevant.

Developer advocate is a job title.

Technological Advancement



People are scared to ask “Is this too complex?” because it sounds an awful lot like “I’m not smart enough to understand this.”

- Carson Gross, Adam Stepinski, Deniz Akşimşek in Hypermedia Systems

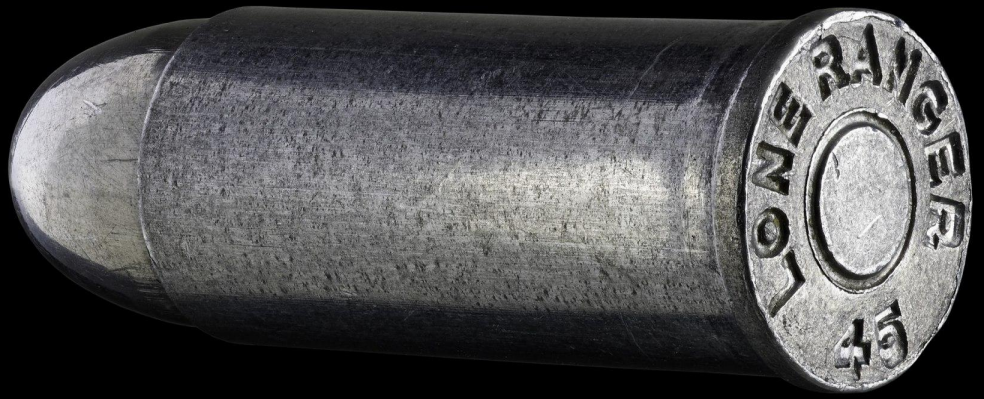
My Presentation Goals

Rethink how we can build modern web applications.

Reduce number of dependencies and technical knowledge needed.

Help development and release functionality faster.

Understand that *code is a liability*.



“the effectiveness of real silver bullets compared to lead ones is not entirely known.”

- https://en.wikipedia.org/wiki/Silver_bullet

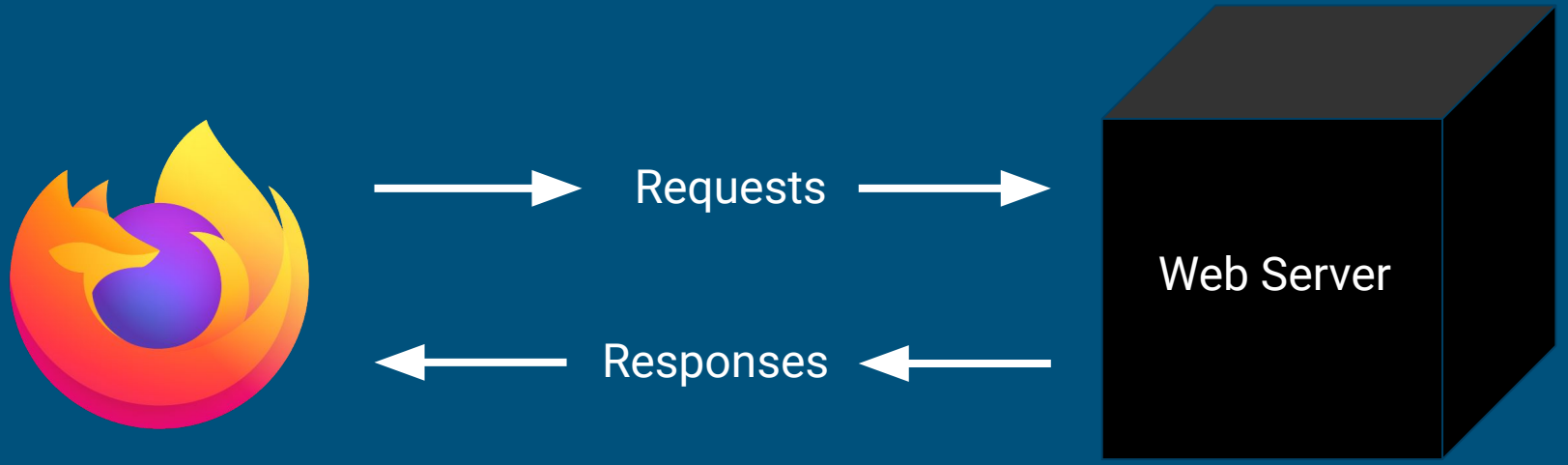
How do we do better?

How do we do better?

1. Shared knowledge
2. Start simple
3. Use technologies that support our goals

1. Shared Knowledge

Black Box



Zero configuration

DataTables has most features enabled by default, so all you need to do to use it with your own tables is to call the construction function: `new DataTable('#myTable')` for plain Javascript or `$('#myTable').DataTable();` when using jQuery.

Searching, ordering and paging goodness will be immediately added to the table, as shown in this example.

10 entries per page

Search:

Name	Position	Office	Age	Start date	Salary
Airi Satou	Accountant	Tokyo	33	2008-11-28	$162,700
Angelica Ramos	Chief Executive Officer (CEO)	London	47	2009-10-09	$1,200,000
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Showing 1 to 10 of 57 entries

« ‹ 1 2 3 4 5 6 › »

Javascript | HTML | CSS | Comments (0)

The Javascript shown below is used to initialise the table shown in this example:

Javascript

```javascript
new DataTable('#example', {
    layout: {
        bottomEnd: {
            paging: {
                boundaryNumbers: false
            }
        }
    }
});
```

In addition to the above code, the following Javascript library files are loaded for use in this example:

Standards!

HTTP
HTML
CSS
JavaScript standard library

HTML

Living Standard — Last Updated 19 April 2024

One-Page Version html.spec.whatwg.org | Multipage Version /multipage | Version for Web Devs /dev | PDF Version /print.pdf | Translations 日本語・简体中文

FAQ on GitHub | Chat on Matrix | Contribute on GitHub whatwg/html repository | Commits on GitHub | Snapshot as of this commit | Twitter Updates @htmlstandard

Open Issues filed on GitHub | Open an Issue whatwg.org/newbug | Tests web-platform-tests html/ | Issues for Tests ongoing work

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2 Common infrastructure
3 Semantics, structure, and APIs of HTML documents
4 The elements of HTML
5 Microdata
6 User interaction
7 Loading web pages
8 Web application APIs
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Intellectual property rights

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1 Introduction
1.1 Where does this specification fit?
1.2 Is this HTML5?
1.3 Background

Standards

Provide a common understanding.

Assist in migrating between languages and libraries.

Provide additional functionality for free.

<a />

HTML Tag

How do you link to another page?

<table>...</table>

HTML Tag

How do you render tabular data?

2xx or 3xx

Status Code

How do you know if an HTTP request succeeded?

4xx or 5xx

Status Code

How do you know if an HTTP request failed?

Accept: mime/format

HTTP Header

How do you ask for a response in a specific format?

Content-Type: mime/format

HTTP Header

How do you know what format a response is in?

GET

HTTP Method

How do you signify you want to view a url?

(hint: it’s an HTTP method)

POST

HTTP Method

How do you signify you want to send data to the server to process?

Well Actually

<dialog />

HTML Tag

How do you create a modal?

<div popover />

HTML Attribute

How do you create a tooltip?

Shared Knowledge

Familiar environment (ex: HTTP)

Lots of documentation

Utilize existing standards

Try to keep up to date

2. Seek Simplicity

HTML

What’s simple?

Progressive Enhancement

A software design philosophy that aims to provide as much essential content and functionality to as many users as possible, while delivering a better experience to users with more advanced web browsers.

HATEOAS (Hypertext As The Engine Of Application State)

```
<div>
  <h1>Your Account Balance</h1>
  <h2>$100.00</h2>
  <a href="/account/12345/deposit">Deposit</a>
  <a href="/account/12345/withdraw">Withdraw</a>
  <a href="/account/12345/transfer">Transfer</a>
  <form action="/account/12345" method="delete">
    <input type="submit" value="Delete" />
  </form>
</div>
```

HATEOAS (Hypertext As The Engine Of Application State)

```
<div>
  <h1>Your Account Balance</h1>
  <h2>-$10.00</h2>
  <a href="/account/12345/deposit">Deposit</a>
</div>
```

Server Rendering

What’s simple?

Multi-Page Application (MPA)

GET /widgets -> listing of items

GET /widgets/12412 -> show specific item

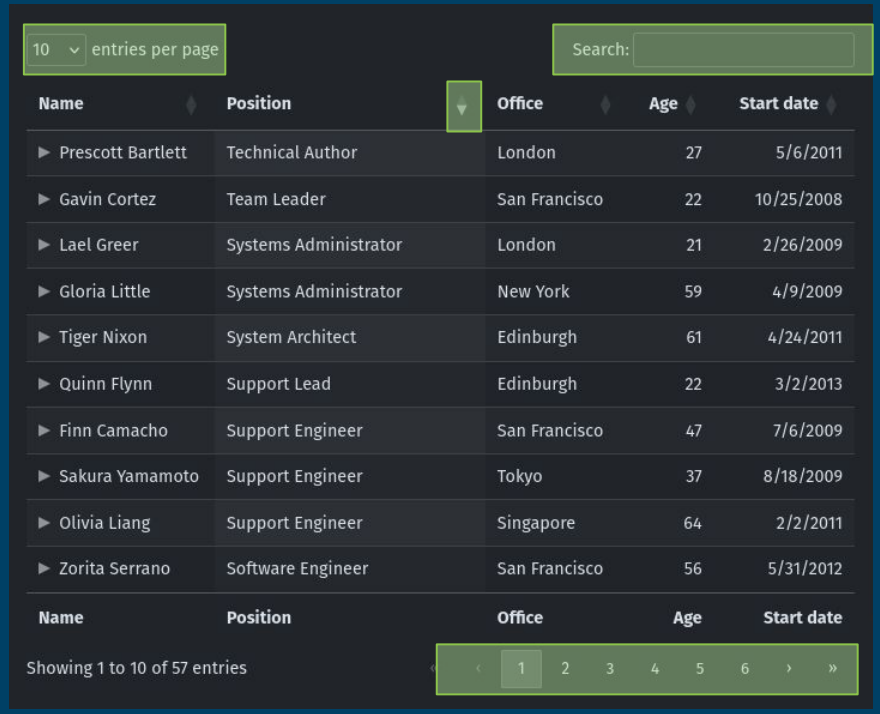
GET /widgets/12412/edit -> edit form for a specific item

POST /widgets -> create an item

PATCH/PUT /widgets/12412 -> update an item

DELETE /widgets/12412 -> delete an item

DataTables


10 entries per page
Search:
Name
Position
Office
Age
Start date
Prescott Bartlett
Technical Author
London
27
5/6/2011
Gavin Cortez
Team Leader
San Francisco
22
10/25/2008
Lael Greer
Systems Administrator
London
21
2/26/2009
Gloria Little
Systems Administrator
New York
59
4/9/2009
Tiger Nixon
System Architect
Edinburgh
61
4/24/2011
Quinn Flynn
Support Lead
Edinburgh
22
3/2/2013
Finn Camacho
Support Engineer
San Francisco
47
7/6/2009
Sakura Yamamoto
Support Engineer
Tokyo
37
8/18/2009
Olivia Liang
Support Engineer
Singapore
64
2/2/2011
Zorita Serrano
Software Engineer
San Francisco
56
5/31/2012
Name
Position
Office
Age
Start date
Showing 1 to 10 of 57 entries
1
2
3
4
5
6

Single Page Application (SPA)

More interactive applications.

Reduce complexity.

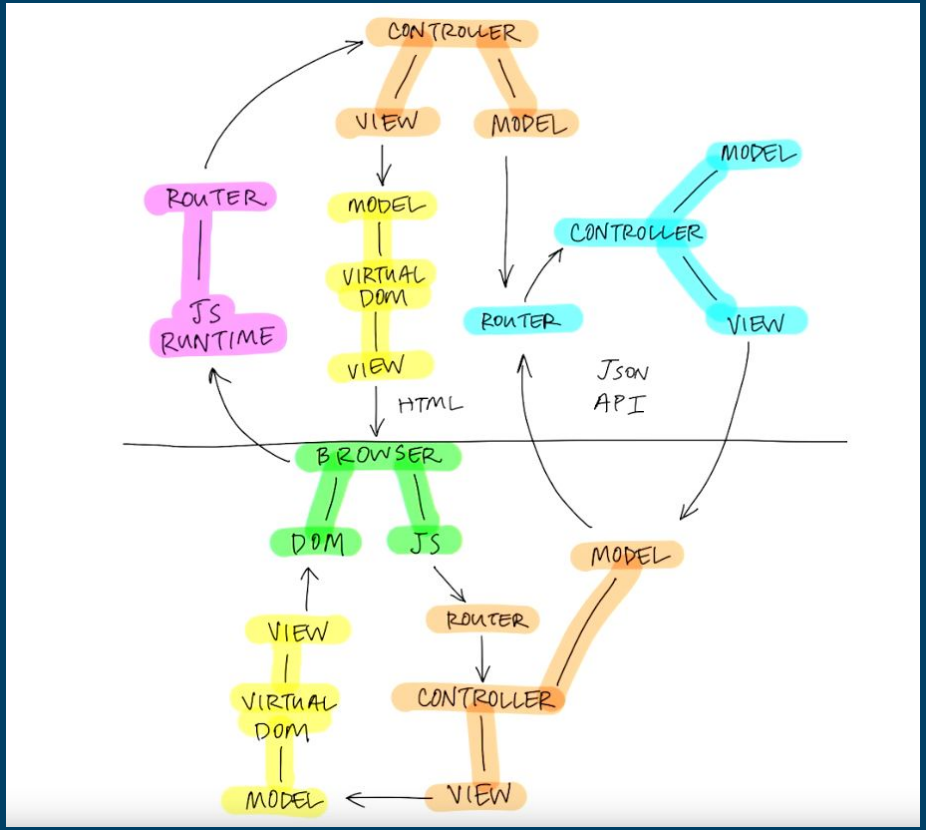
Increase scalability.

Safe Space

This space intentionally left blank.

wat

I Can’t Believe It’s Not Native!
by Sam Stephenson



Rendering HTML on the server?

Or server-side… rendering?

Who routes the router?

Model View Controller++

I can’t ctrl+click? FFS!!!

Single Page Application (SPA)

Duplicated business logic.

Complex toolchains.

Customized implementations.

Seek Simplicity

Starts with you.

You are not FaceBook & Google.

Always start simple. You will *always* want to rewrite it.

3. Supportive Technology

htmx
high power tools for HTML

HOTWIRE
HTML OVER THE WIRE

UNPOLY

2013

Party like it’s Rails 4

Controller

app/controllers/users_controller.js

```
@user = User.find_by(params[:id])

respond_to do |format|
  format.html
  format.js
end
```

View

app/views/users/create.js.erb

```
$("<%= escape_javascript(render @user) %>").appendTo("#users");
```

2020

Party like it’s Rails 7 and HTMX 1.0

HTML Over the Wire

Background page fetching

Partial page updates

Lazy loading content

RESTful requests with multiple response types

Web socket support

2024

Party like it’s Rails v8

Back to Simple

Supports DOM morphing to simplify responses

Web sockets trigger page loads instead of sending HTML

Zero configuration

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Using DataTables

Examples

- Basic initialisation
- Advanced initialisation
- Styling
- Data sources
- API
- Ajax
- Server-side
- Plug-ins

Manual

Reference

Extensions

Plug-ins

More Help

Blog

Forums

Support

FAQs

Get DataTables

Download

Purchase

10 entries per page

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```

Background Page Loads

Works on links and form submissions

Makes requests with AJAX instead of browser default

Swaps <body> content; may update <head>; may morph dom instead of swap

Immediate back navigation using cached html

Hotwire

How to Use

```
<script type="module">
  import hotwiredTurbo from
'https://cdn.skypack.dev/@hotwired/turbo';
</script>
```

HTMX

How to Use

```
<script src="https://unpkg.com/htmx.org@1.9.12"
integrity="sha384-ujb1lZYygJmzgSwoxRggbCHcj
c0rB2XoQrxeTUQyRjrOnlCoYta87iKBWq3EsdM2"
crossorigin="anonymous"></script>

<body hx-boost="true">
```

Partial HTML Updates

Requests to existing HTML pages can have parts of content swapped in

Special headers and responses can be used to trim size of response

Hotwire

How to Use

```
<turbo-frame id=”widgets”>
  <a href=”/widgets/new”>New Widget</a>
  <a href=”/some/link” data-turbo=”false”>Contact Us</a>
</turbo-frame>
```

Hotwire

How to Use

```
<turbo-stream action="append" target="messages">
  <template>
    <div id="message_10">
      I show up after #message_10
    </div>
  </template>
</turbo-stream>

<turbo-stream action="prepend" target="messages">
  <template>
    <div id="message_1">
      I show up before #message_1
    </div>
  </template>
</turbo-stream>
```

HTMX

How to Use

```
<input type="text" name="q"
  hx-get="/trigger_delay"
  hx-select="#search-results"
  hx-trigger="keyup delay:500ms changed"
  hx-target="#search-results"
  placeholder="Search..."
>

<div id="search-results"></div>
```

Immediate Page Loads

Ability to preload content so that you can instantly switch to it.

Improved further by doing normal HTML stuff like caching responses.

Hotwire

How to Use

HTMX

How to Use

```
<script
src="https://unpkg.com/htmx.org@1.9.12/dist/ext/preload.js"></script>

<body hx-ext="preload">
  <a href="/server/1" preload="mousedown">
</body>
```

DOM Morphing

Virtual DOM diffing and merging of new content.

Hotwire

How to Use

```
# model
class Conversation < ApplicationRecord
  broadcasts_refreshes
end

# view
<%= turbo_stream_from @conversation %>

# layout
<%= turbo_refresh_method_tag :morph %>
<%= turbo_refresh_scroll_tag :preserve %>
```

HTMX

How to Use

```
<script
src="https://unpkg.com/idiomorph/dist/idiomorph-ext.min.js"></script>
<div hx-ext="morph">
  <button hx-get="/example"
hx-swap="morph:innerHTML">
    Morph My Inner HTML
  </button>

  <button hx-get="/example"
hx-swap="morph:outerHTML">
    Morph My Outer HTML
  </button>

  <button hx-get="/example" hx-swap="morph">
    Morph My Outer HTML
  </button>
</div>
```

Image by Freepik

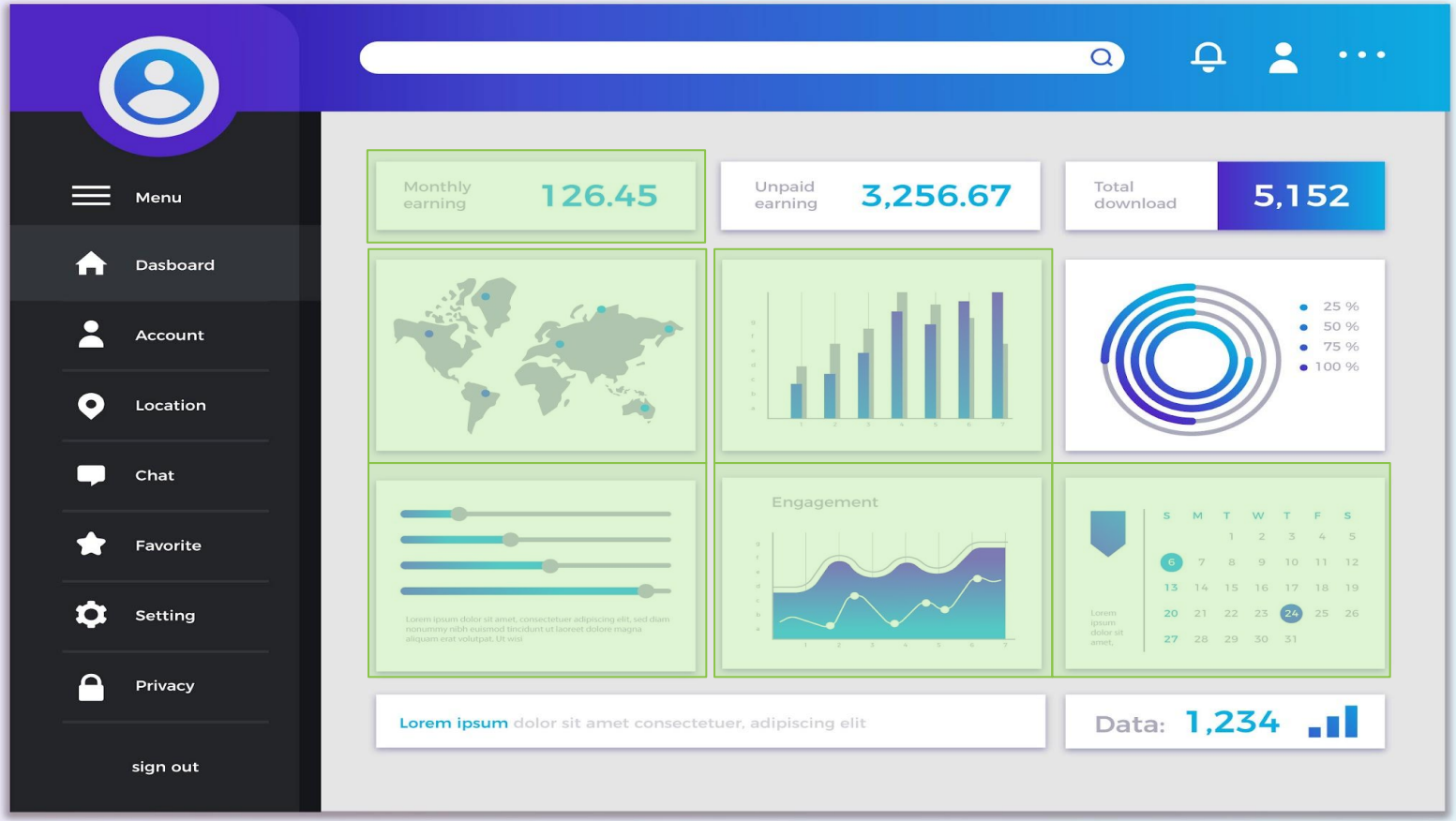

Image by Freepik

How do we do better?

1. Shared knowledge
2. Start simple
3. Use technologies that support our goals

Bonus Complexities!

Replace sass with css.

Replace webpacker/esbuild/bun with JS modules, unpkg, and/or import maps.

Don’t choose a UI library that requires a specific JS framework.

Thanks!

Jonathan Knapp
jon@coffeeandcode.com

Check out Cleveland GiveCamp for an amazing volunteering opportunity to help local nonprofits.

July 26th-28th at Hyland in Westlake, Ohio.

Resources

https://html.spec.whatwg.org

https://http.cat

https://hypermedia.systems

https://restcookbook.com

https://v1.htmx.org/migration-guide-hotwire-turbo/

https://www.youtube.com/watch?v=SWEts0rlezA