

WebAssembly

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Who am I?



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- → Just started in the blended program
- → Software Engineering undergrad
- → 2+ years experience in web development

THE**parable**GROUP

Small, brand new codebase that blurred the lines between client and server side web development



Large legacy codebase for a heavy server side computation reliant site



What is WebAssembly (wasm)?



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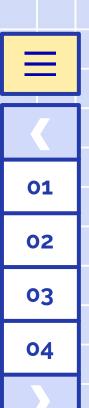


There is a need for client side computation

JavaScript is "finicky fast"

WebAssembly fills the gap

Example: <u>AutoCAD</u>



Is that all WebAssembly is?



No!

"Define a portable, size- and load-time-efficient binary format to serve as a compilation target which can be compiled to execute at native speed by taking advantage of common hardware capabilities available on a wide range of platforms, including mobile and IoT."

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What 'actually' is wasm?

```
use wasm_bindgen::prelude::*;

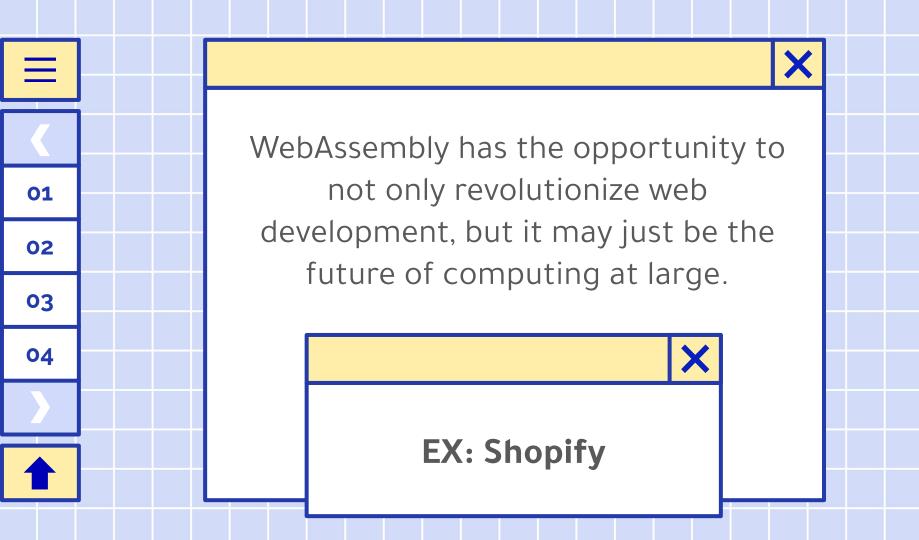
#[wasm bindgen]
extern {
    // This is a js defined function
    pub fn alert(s: &str);
}

#[wasm bindgen]
pub fn greet(name: &str) {
    alert(&format!("Hello, {}!", name));
}
```

```
<!DOCTYPE html>
<html>
 <head>
    <meta charset="utf-8">
    <title>hello-wasm example</title>
  </head>
  <body>
    <script type="module">
      import init, {greet} from
                "./pkg/hello wasm.js";
      init()
        . then(() => \{
          greet("WebAssembly")
        });
     </script>
  </body>
</html>
```



source





Shopify & wasm outside the browser



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Secure: Runs in a sandboxed stack-based environment

Fast: Near native performance

Flexible: Devs can utilize any language they are experienced in

Community: They like the spirit behind it

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Where are the other use cases?



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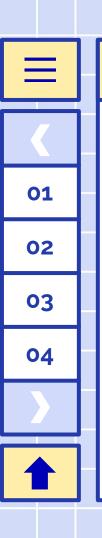


This is what I am interested in

Why are there such 'few' uses of wasm in practice?

Exploring the low adoption:

- → What is keeping people from using wasm?
- → What (if any) tooling do developers need?
- → What shortcomings need to be addressed?
- Is there a solution or is it just a waiting game?





This is where I am at now

I believe in the goals and team behind wasm but am wondering why other developers have not utilized this technology yet

I want to explore the current landscape and try to figure out what is missing that I could contribute

Wasm is in very early stages (taking mvp approach)

→ Documentation is either spec, source code or medium



Thesis approach ideas



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Leaves me with possibilities of:

- Survey of landscape
 - Weaknesses
 - **Promises**
 - Current standing
- Development of 'tool'
 - Very open ended
- Human experimentation





