

# Lecture 2

—

Web and dApp development

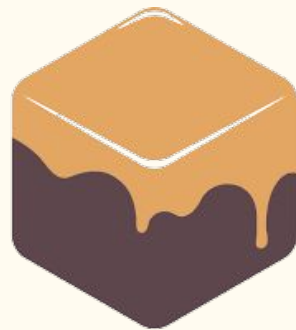
# Shaping Developer Experience

IDEs / Web Tools

# Integrated Development Environment



<https://remix.ethereum.org/>



Ganache



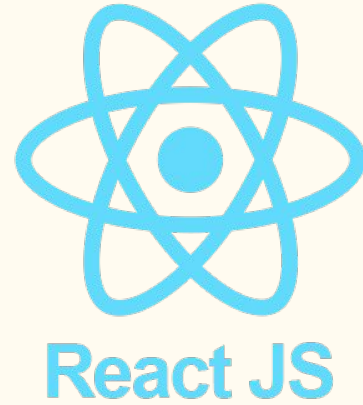
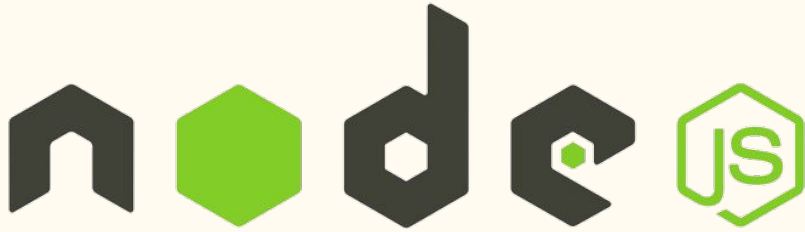
TRUFFLE

```
$ npx hardhat
888 888                888 888                888
888 888                888 888                888
888 888                888 888                888
8888888888 8888b. 888d888 .d88888 88888b. 8888b. 888888
888 888      "88b 888P" d88" 888 888 "88b  "88b 888
888 888 .d888888 888 888 888 888 .d888888 888
888 888 888 888 888 Y88b 888 888 888 888 Y88b.
888 888 "Y888888 888 "Y88888 888 888 "Y888888 "Y888

👤 Welcome to Hardhat v2.9.9 👤

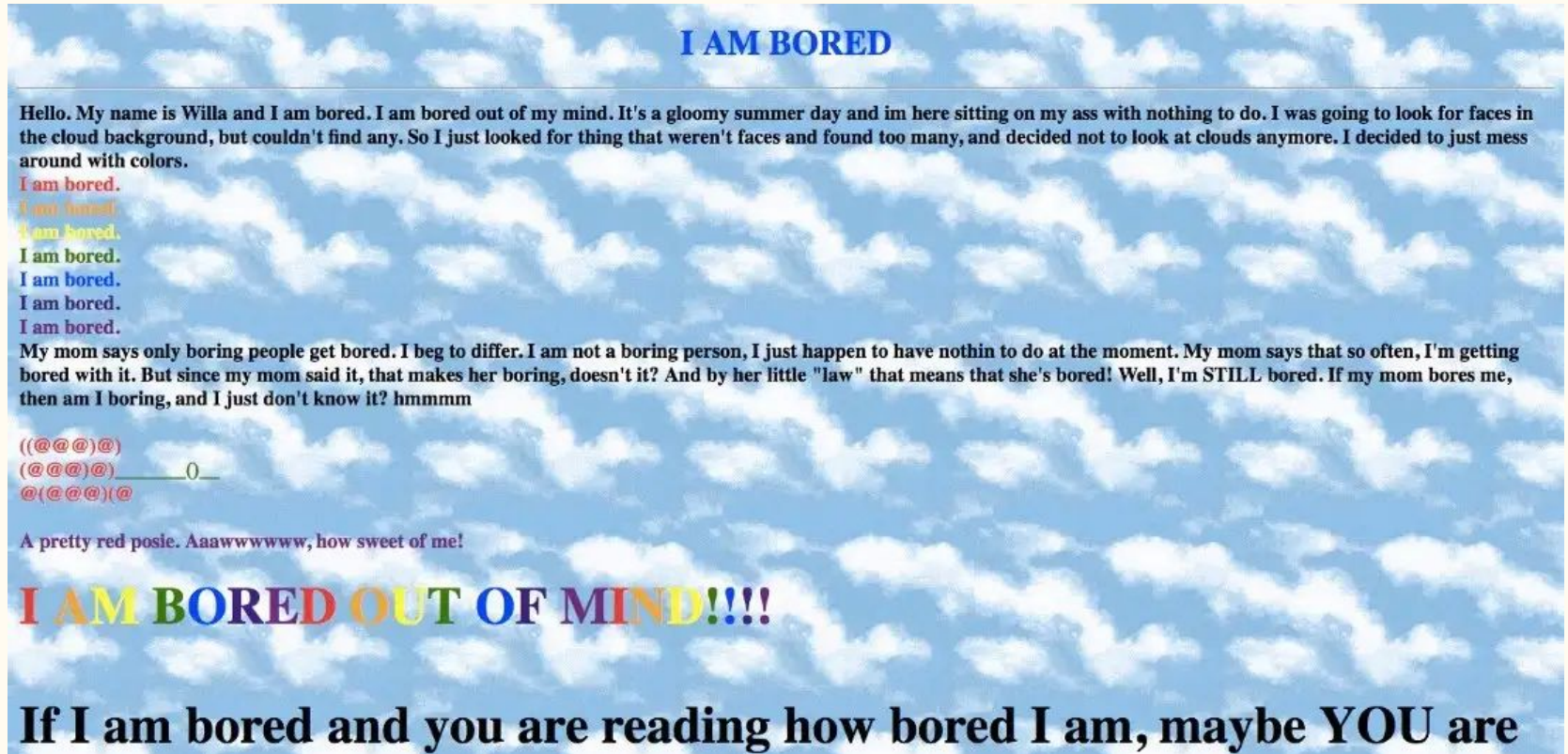
? What do you want to do? ...
  Create a JavaScript project
  Create a TypeScript project
> Create an empty hardhat.config.js
  Quit
```

# Web Tools



Become a Web Developer in 1.5 hours

# HTML - Define the objects



# HTML - Define the objects

I AM BORED

Hello. My name is Willa and I am bored. I am bored out of my mind. It's a gloomy summer day and im here sitting on my ass with nothing to do. I was going to look for faces in the cloud background, but couldn't find any. So I just looked for thing that weren't faces and found too many, and decided not to look at clouds anymore. I decided to just mess around with colors.

I am bored.

I am bored.

I am bored.

I am bored.

I am bored.

I am bored.

I am bored.

My mom says only boring people get bored. I beg to differ. I am not a boring person, I just happen to have nothin to do at the moment. My mom says that so often, I'm getting bored with it. But since my mom said it, that makes her boring, doesn't it? And by her little "law" that means that she's bored! Well, I'm STILL bored. If my mom bores me, then am I boring, and I just don't know it? hmmm

((@@@)@)

( @ @ @ ) @ \_ \_ \_ 0 \_ \_

@ ( @ @ @ ) ( @


A pretty red posie. Aaawwwwww, how sweet of me!

I AM BORED OUT OF MIND!!!!

If I am bored and you are reading how bored I am, maybe YOU are




# HTML - Define the objects




**RÉPUBLIQUE  
FRANÇAISE**  
*Liberté  
Égalité  
Fraternité*

**Service-Public.fr**  
Le site officiel de l'administration française





[Se connecter](#) | [Accéder au site pour les entreprises →](#)



 [Actualités](#) [Comment faire si ?](#) [Fiches pratiques par thème ▾](#) [Démarches et outils ▾](#) [Annuaire de l'administration](#) [Une question ?](#)

J'aide les services publics à s'améliorer : je **donne mon avis** avec services publics + →

[Accueil](#) > [Démarches et outils](#) > [Impôts : accéder à votre espace Particulier](#)

[Français ▾](#)

## Impôts : accéder à votre espace Particulier (Démarche en ligne)

Ministère chargé des finances

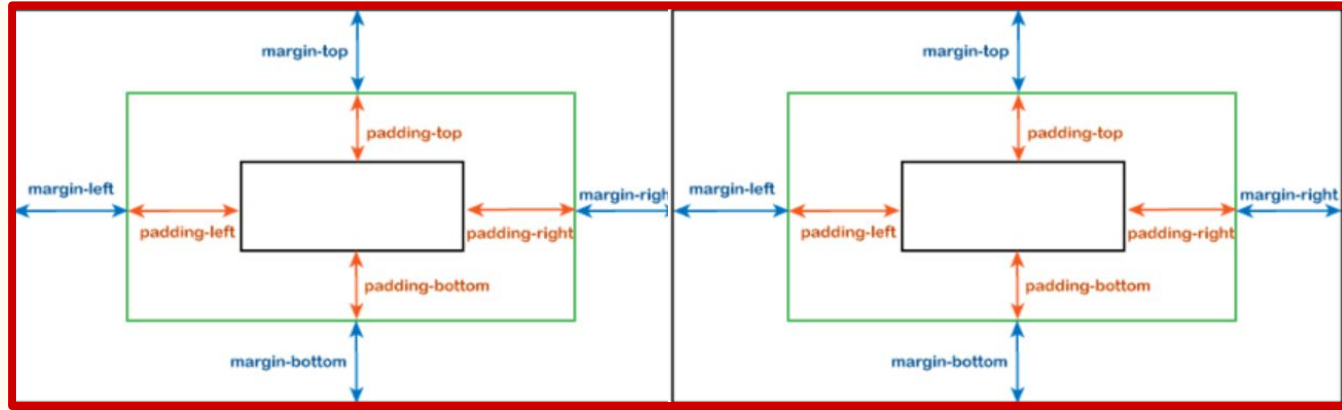


# HTML - Define the objects

```
1  <!DOCTYPE html>
2  <html>
3      <head>
4          <title>Tab Name</title>
5          <meta charset="utf-8" />
6          <link rel="stylesheet" href="https://cdn.jsdelivr.net/npm/
          bootstrap@4.3.1/dist/css/bootstrap.min.css" integrity="
          sha384-ggOyR0iXCbMQv3Xipma34MD+dH/1fQ784/j6cY/
          iJTQUOhcWr7x9JvoRxT2MZw1T" crossorigin="anonymous">
7          <!-- Use the head section for metadata, linking css/js -->
8      </head>
9      <body>
10         <h1>This is a heading</h1>
11         <p>This is a smaller paragraph</p>
12     </body>
13 </html>
```

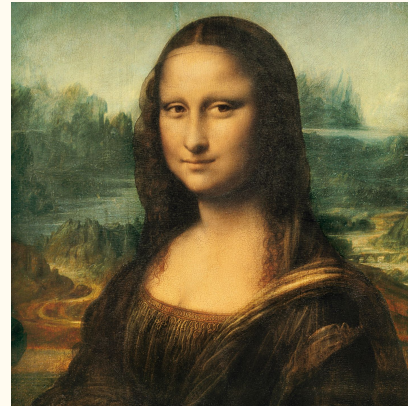
Learn the tags: <https://developer.mozilla.org/en-US/docs/Web/HTML/Element>

# CSS - Give objects appearance and layout



Fonts

Colour



# CSS - Selectors

```
p {  
  margin-bottom: 1.5em;  
}
```

```
.container > div {  
  flex: 1 0 auto;  
}
```

<p class="container"></p>

```
#leader::first-letter {  
  float: left;  
  font: italic bold 2em Operator, sans-serif;  
}
```

<p id="leader"></p>

# Javascript - things come to life

## Select HTML Element

```
document.getElementById("balanceBtn")
```



```
function DoSomething();
```



```
$("#balanceBtn")
```

```
// Handle fulfilled (resolved) promises  
promise.then((result) => { })
```

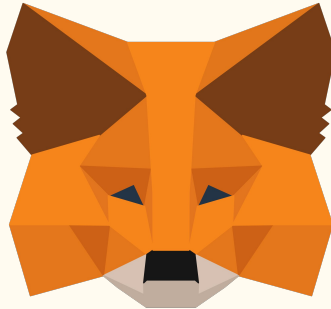
```
// Handle failed (rejected) promises  
promise.catch((error) => { })
```

```
async function getActivity() {  
  let response = await axiosRequest.get('https://www.boredapi.com/api/activity')  
  console.log('You could ${response.data.activity}')  
}
```

# Javascript - Web Providers



INFURA



# Javascript - web3js vs ethersjs



```
var Web3 = require('web3');

// "Web3.providers.givenProvider" will
var web3 = new Web3(Web3.givenProvider

> web3.eth
> web3.shh
> web3.bzz
> web3.utils
> web3.version
```

```
// A Web3Provider wraps a standard Web3 provider, which is
// what MetaMask injects as window.ethereum into each page
const provider = new ethers.providers.Web3Provider(window.ethereum)

// MetaMask requires requesting permission to connect users accounts
await provider.send("eth_requestAccounts", []);

// The MetaMask plugin also allows signing transactions to
// send ether and pay to change state within the blockchain.
// For this, you need the account signer...
const signer = provider.getSigner()
```

# Javascript - web3js example

```
const senderAddress = "0x4d10ae710Bd8D1C31bd7465c8CBC3add6F279E81"
const receiverAddress = "0x19dE91Af973F404EDF5B4c093983a7c6E3EC8ccE"
const web3 = new Web3("http://localhost:8545")
const getToken = new web3.eth.Contract(ERC20TransferABI, contractAddress)

getToken.methods.balanceOf(senderAddress).call(function (err, res) {
  if (err) {
    console.log("An error occurred", err)
    return
  }
  console.log("The balance is: ", res)
})
```



# Bonus - Smart Contract to ABI

