

Front End Introduction

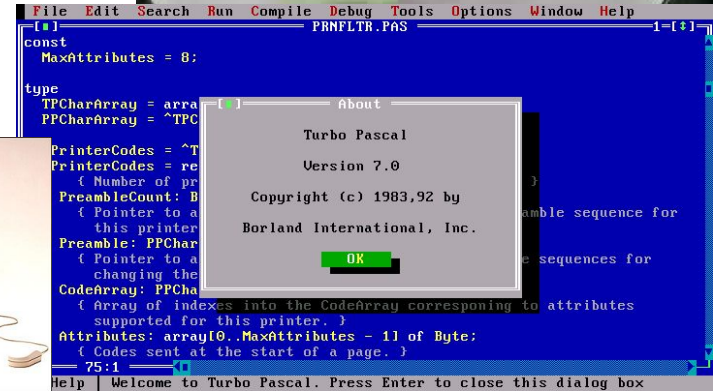


Mark MacCabe

<https://www.linkedin.com/in/mmaccabe/>

- BA in Information Systems, Minor Computer Science
- 15+ years of experience in IT
- Background in:
 - Many programming languages
 - Project/Account Management
 - AI/ML
 - Sales/ Pre-Sales Engineering
 - Robotics
- Currently working at ReTech Labs as a Director of Customer Success

First Programming Languages: Basic & Pascal





Jordan Herzig

- BA in Computer Information Technology
- 12 years of experience in IT
- Background in:
 - HTML, CSS, JavaScript, .NET, Angular, Python
 - Project Management
 - Customer Success
 - Robotics
 - Artificial Intelligence/Machine Learning
- Currently working at ReTech Labs as a Sr. Solution Manager



Meet the Class





Introductions

- Name
- Coding Experience
- What is your reason for taking this course?
- Hobby



Class Structure

Tuesday @ 5:30pm CST - 2 hours

- 50 minutes of lecture

- 10 minute break

- 60 applying what we learned to code

Thursday @ 5:30pm CST - 2 hours

- 2 hour coding assignment

Friday @ 4:00 / 5:30 Whatever pm CST - 1 hour

- 1 hour “open door” for anyone to join and ask questions

Need Help? Send Mark-M or Jordan-H a message on Slack to setup a time!



Passing the Class

- Attendance
- Final Project





What to expect from Front End Development Course

- Introduction to Programming
- Learn HTML development
- Learn CSS development
- Learn Javascript development
- How to connect to APIs
- Database structures
- How to build scalable web pages for a range of devices
- Design philosophies for user experience
- Deploying your website to the cloud





Class Syllabus and Main Site

<https://winter2024.uoadev.com/>



Goals for tonight

- Get setup in slack
- Overview of the coding “languages” we will be learning in the coming weeks
- Get setup to code
- Post your first webpage!



Slack Setup

<https://slack.com/downloads/>

Programming Intro



Birth of Programming!

- Programming is the process of writing text that the computer can interpret into commands
- Many agree the first programmer was English mathematician Ada Lovelace, who developed the first algorithm for a computational machine in 1843
- Today there are over 700 programming languages



Diagram for the computation by the Engine of the Numbers of Bernoulli. See Note G. (page 725 of sup.)

Number of Operations	Variable and sign	Variable receiving results	Definition of result in the value on any variable	Statement of Results	Bin.	Working Variables	Result Variables
1	$\times V_1 \times V_2$	V_3	$V_3 = V_1 \times V_2$	$\dots B = 1$	B		
2	$- V_1 - V_2$	V_4	$V_4 = V_1 - V_2$	$\dots B = 1$	B		
3	$\times V_1 \times V_2$	V_5	$V_5 = V_1 \times V_2$	$\dots B = 1$	B		
4	$- V_1 - V_2$	V_6	$V_6 = V_1 - V_2$	$\dots B = 1$	B		
5	$\times V_1 \times V_2$	V_7	$V_7 = V_1 \times V_2$	$\dots B = 1$	B		
6	$- V_1 - V_2$	V_8	$V_8 = V_1 - V_2$	$\dots B = 1$	B		
7	$\times V_1 \times V_2$	V_9	$V_9 = V_1 \times V_2$	$\dots B = 1$	B		
8	$- V_1 - V_2$	V_{10}	$V_{10} = V_1 - V_2$	$\dots B = 1$	B		
9	$\times V_1 \times V_2$	V_{11}	$V_{11} = V_1 \times V_2$	$\dots B = 1$	B		
10	$- V_1 - V_2$	V_{12}	$V_{12} = V_1 - V_2$	$\dots B = 1$	B		
11	$\times V_1 \times V_2$	V_{13}	$V_{13} = V_1 \times V_2$	$\dots B = 1$	B		
12	$- V_1 - V_2$	V_{14}	$V_{14} = V_1 - V_2$	$\dots B = 1$	B		
13	$\times V_1 \times V_2$	V_{15}	$V_{15} = V_1 \times V_2$	$\dots B = 1$	B		
14	$- V_1 - V_2$	V_{16}	$V_{16} = V_1 - V_2$	$\dots B = 1$	B		
15	$\times V_1 \times V_2$	V_{17}	$V_{17} = V_1 \times V_2$	$\dots B = 1$	B		
16	$- V_1 - V_2$	V_{18}	$V_{18} = V_1 - V_2$	$\dots B = 1$	B		
17	$\times V_1 \times V_2$	V_{19}	$V_{19} = V_1 \times V_2$	$\dots B = 1$	B		
18	$- V_1 - V_2$	V_{20}	$V_{20} = V_1 - V_2$	$\dots B = 1$	B		
19	$\times V_1 \times V_2$	V_{21}	$V_{21} = V_1 \times V_2$	$\dots B = 1$	B		
20	$- V_1 - V_2$	V_{22}	$V_{22} = V_1 - V_2$	$\dots B = 1$	B		
21	$\times V_1 \times V_2$	V_{23}	$V_{23} = V_1 \times V_2$	$\dots B = 1$	B		
22	$- V_1 - V_2$	V_{24}	$V_{24} = V_1 - V_2$	$\dots B = 1$	B		
23	$\times V_1 \times V_2$	V_{25}	$V_{25} = V_1 \times V_2$	$\dots B = 1$	B		
24	$- V_1 - V_2$	V_{26}	$V_{26} = V_1 - V_2$	$\dots B = 1$	B		
25	$\times V_1 \times V_2$	V_{27}	$V_{27} = V_1 \times V_2$	$\dots B = 1$	B		
26	$- V_1 - V_2$	V_{28}	$V_{28} = V_1 - V_2$	$\dots B = 1$	B		
27	$\times V_1 \times V_2$	V_{29}	$V_{29} = V_1 \times V_2$	$\dots B = 1$	B		
28	$- V_1 - V_2$	V_{30}	$V_{30} = V_1 - V_2$	$\dots B = 1$	B		
29	$\times V_1 \times V_2$	V_{31}	$V_{31} = V_1 \times V_2$	$\dots B = 1$	B		
30	$- V_1 - V_2$	V_{32}	$V_{32} = V_1 - V_2$	$\dots B = 1$	B		
31	$\times V_1 \times V_2$	V_{33}	$V_{33} = V_1 \times V_2$	$\dots B = 1$	B		
32	$- V_1 - V_2$	V_{34}	$V_{34} = V_1 - V_2$	$\dots B = 1$	B		
33	$\times V_1 \times V_2$	V_{35}	$V_{35} = V_1 \times V_2$	$\dots B = 1$	B		
34	$- V_1 - V_2$	V_{36}	$V_{36} = V_1 - V_2$	$\dots B = 1$	B		
35	$\times V_1 \times V_2$	V_{37}	$V_{37} = V_1 \times V_2$	$\dots B = 1$	B		
36	$- V_1 - V_2$	V_{38}	$V_{38} = V_1 - V_2$	$\dots B = 1$	B		
37	$\times V_1 \times V_2$	V_{39}	$V_{39} = V_1 \times V_2$	$\dots B = 1$	B		
38	$- V_1 - V_2$	V_{40}	$V_{40} = V_1 - V_2$	$\dots B = 1$	B		
39	$\times V_1 \times V_2$	V_{41}	$V_{41} = V_1 \times V_2$	$\dots B = 1$	B		
40	$- V_1 - V_2$	V_{42}	$V_{42} = V_1 - V_2$	$\dots B = 1$	B		
41	$\times V_1 \times V_2$	V_{43}	$V_{43} = V_1 \times V_2$	$\dots B = 1$	B		
42	$- V_1 - V_2$	V_{44}	$V_{44} = V_1 - V_2$	$\dots B = 1$	B		
43	$\times V_1 \times V_2$	V_{45}	$V_{45} = V_1 \times V_2$	$\dots B = 1$	B		
44	$- V_1 - V_2$	V_{46}	$V_{46} = V_1 - V_2$	$\dots B = 1$	B		
45	$\times V_1 \times V_2$	V_{47}	$V_{47} = V_1 \times V_2$	$\dots B = 1$	B		
46	$- V_1 - V_2$	V_{48}	$V_{48} = V_1 - V_2$	$\dots B = 1$	B		
47	$\times V_1 \times V_2$	V_{49}	$V_{49} = V_1 \times V_2$	$\dots B = 1$	B		
48	$- V_1 - V_2$	V_{50}	$V_{50} = V_1 - V_2$	$\dots B = 1$	B		
49	$\times V_1 \times V_2$	V_{51}	$V_{51} = V_1 \times V_2$	$\dots B = 1$	B		
50	$- V_1 - V_2$	V_{52}	$V_{52} = V_1 - V_2$	$\dots B = 1$	B		
51	$\times V_1 \times V_2$	V_{53}	$V_{53} = V_1 \times V_2$	$\dots B = 1$	B		
52	$- V_1 - V_2$	V_{54}	$V_{54} = V_1 - V_2$	$\dots B = 1$	B		
53	$\times V_1 \times V_2$	V_{55}	$V_{55} = V_1 \times V_2$	$\dots B = 1$	B		
54	$- V_1 - V_2$	V_{56}	$V_{56} = V_1 - V_2$	$\dots B = 1$	B		
55	$\times V_1 \times V_2$	V_{57}	$V_{57} = V_1 \times V_2$	$\dots B = 1$	B		
56	$- V_1 - V_2$	V_{58}	$V_{58} = V_1 - V_2$	$\dots B = 1$	B		
57	$\times V_1 \times V_2$	V_{59}	$V_{59} = V_1 \times V_2$	$\dots B = 1$	B		
58	$- V_1 - V_2$	V_{60}	$V_{60} = V_1 - V_2$	$\dots B = 1$	B		
59	$\times V_1 \times V_2$	V_{61}	$V_{61} = V_1 \times V_2$	$\dots B = 1$	B		
60	$- V_1 - V_2$	V_{62}	$V_{62} = V_1 - V_2$	$\dots B = 1$	B		
61	$\times V_1 \times V_2$	V_{63}	$V_{63} = V_1 \times V_2$	$\dots B = 1$	B		
62	$- V_1 - V_2$	V_{64}	$V_{64} = V_1 - V_2$	$\dots B = 1$	B		
63	$\times V_1 \times V_2$	V_{65}	$V_{65} = V_1 \times V_2$	$\dots B = 1$	B		
64	$- V_1 - V_2$	V_{66}	$V_{66} = V_1 - V_2$	$\dots B = 1$	B		
65	$\times V_1 \times V_2$	V_{67}	$V_{67} = V_1 \times V_2$	$\dots B = 1$	B		
66	$- V_1 - V_2$	V_{68}	$V_{68} = V_1 - V_2$	$\dots B = 1$	B		
67	$\times V_1 \times V_2$	V_{69}	$V_{69} = V_1 \times V_2$	$\dots B = 1$	B		
68	$- V_1 - V_2$	V_{70}	$V_{70} = V_1 - V_2$	$\dots B = 1$	B		
69	$\times V_1 \times V_2$	V_{71}	$V_{71} = V_1 \times V_2$	$\dots B = 1$	B		
70	$- V_1 - V_2$	V_{72}	$V_{72} = V_1 - V_2$	$\dots B = 1$	B		
71	$\times V_1 \times V_2$	V_{73}	$V_{73} = V_1 \times V_2$	$\dots B = 1$	B		
72	$- V_1 - V_2$	V_{74}	$V_{74} = V_1 - V_2$	$\dots B = 1$	B		
73	$\times V_1 \times V_2$	V_{75}	$V_{75} = V_1 \times V_2$	$\dots B = 1$	B		
74	$- V_1 - V_2$	V_{76}	$V_{76} = V_1 - V_2$	$\dots B = 1$	B		
75	$\times V_1 \times V_2$	V_{77}	$V_{77} = V_1 \times V_2$	$\dots B = 1$	B		
76	$- V_1 - V_2$	V_{78}	$V_{78} = V_1 - V_2$	$\dots B = 1$	B		
77	$\times V_1 \times V_2$	V_{79}	$V_{79} = V_1 \times V_2$	$\dots B = 1$	B		
78	$- V_1 - V_2$	V_{80}	$V_{80} = V_1 - V_2$	$\dots B = 1$	B		
79	$\times V_1 \times V_2$	V_{81}	$V_{81} = V_1 \times V_2$	$\dots B = 1$	B		
80	$- V_1 - V_2$	V_{82}	$V_{82} = V_1 - V_2$	$\dots B = 1$	B		
81	$\times V_1 \times V_2$	V_{83}	$V_{83} = V_1 \times V_2$	$\dots B = 1$	B		
82	$- V_1 - V_2$	V_{84}	$V_{84} = V_1 - V_2$	$\dots B = 1$	B		
83	$\times V_1 \times V_2$	V_{85}	$V_{85} = V_1 \times V_2$	$\dots B = 1$	B		
84	$- V_1 - V_2$	V_{86}	$V_{86} = V_1 - V_2$	$\dots B = 1$	B		
85	$\times V_1 \times V_2$	V_{87}	$V_{87} = V_1 \times V_2$	$\dots B = 1$	B		
86	$- V_1 - V_2$	V_{88}	$V_{88} = V_1 - V_2$	$\dots B = 1$	B		
87	$\times V_1 \times V_2$	V_{89}	$V_{89} = V_1 \times V_2$	$\dots B = 1$	B		
88	$- V_1 - V_2$	V_{90}	$V_{90} = V_1 - V_2$	$\dots B = 1$	B		
89	$\times V_1 \times V_2$	V_{91}	$V_{91} = V_1 \times V_2$	$\dots B = 1$	B		
90	$- V_1 - V_2$	V_{92}	$V_{92} = V_1 - V_2$	$\dots B = 1$	B		
91	$\times V_1 \times V_2$	V_{93}	$V_{93} = V_1 \times V_2$	$\dots B = 1$	B		
92	$- V_1 - V_2$	V_{94}	$V_{94} = V_1 - V_2$	$\dots B = 1$	B		
93	$\times V_1 \times V_2$	V_{95}	$V_{95} = V_1 \times V_2$	$\dots B = 1$	B		
94	$- V_1 - V_2$	V_{96}	$V_{96} = V_1 - V_2$	$\dots B = 1$	B		
95	$\times V_1 \times V_2$	V_{97}	$V_{97} = V_1 \times V_2$	$\dots B = 1$	B		
96	$- V_1 - V_2$	V_{98}	$V_{98} = V_1 - V_2$	$\dots B = 1$	B		
97	$\times V_1 \times V_2$	V_{99}	$V_{99} = V_1 \times V_2$	$\dots B = 1$	B		
98	$- V_1 - V_2$	V_{100}	$V_{100} = V_1 - V_2$	$\dots B = 1$	B		
99	$\times V_1 \times V_2$	V_{101}	$V_{101} = V_1 \times V_2$	$\dots B = 1$	B		
100	$- V_1 - V_2$	V_{102}	$V_{102} = V_1 - V_2$	$\dots B = 1$	B		

How follows a repetition of operations down to twenty-four.



HTML

- HTML stands for Hyper Text Markup Language
- HTML is the standard language used for web pages
- HTML is made up of elements
- HTML tells a browser (chrome, firefox, edge, safari) how to display content
- HTML elements label pieces of content (example: paragraphs, headings, links, etc)

```
<!DOCTYPE html>
<html>
<head>
<title>Page Title</title>
</head>
<body>

<h1>This is a Heading</h1>
<p>This is a paragraph.</p>

</body>
</html>
```



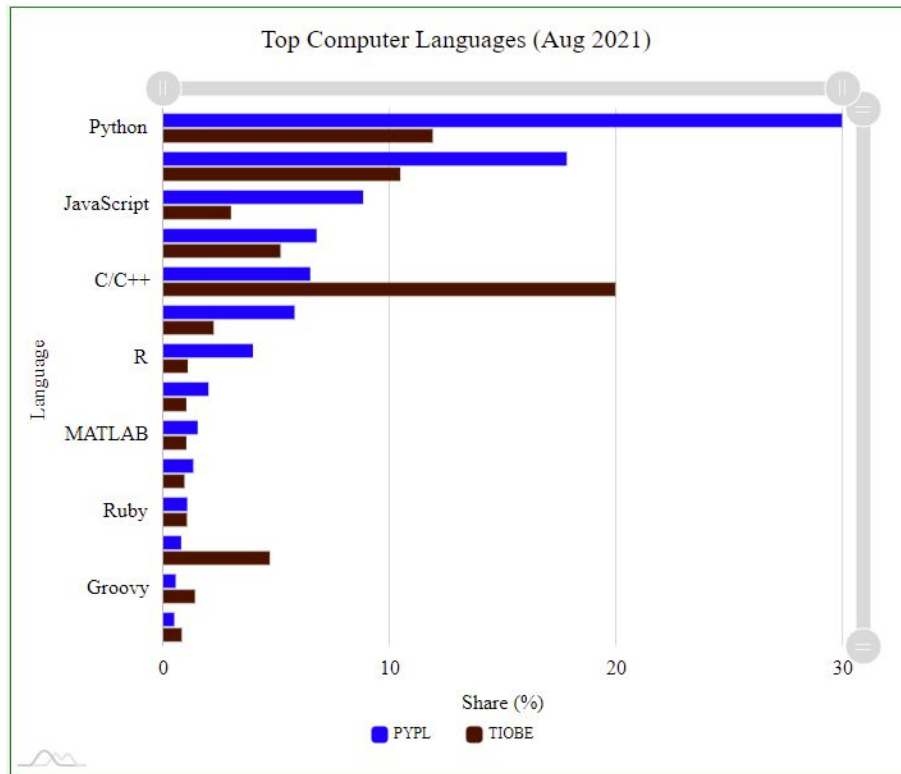
CSS

- CSS stands for Cascading Style Sheets
- CSS tells pieces of HTML code how to be displayed on a webpage
- CSS can control multiple web pages at once

```
body {  
    background-color: blue;  
}  
  
h1 {  
    color: red;  
}  
  
p {  
    font-size: 15px;  
}
```

Javascript

- Javascript was invented in 1995 by Brendan Eich
- It is currently the 2nd most popular coding language used today
- Javascript is used to manipulate features on a web page
 - Show/Hide content based on permissions
 - Capture user input
 - Run animations
 - Basically it does all the work!



Getting Setup to Code





What is an IDE?

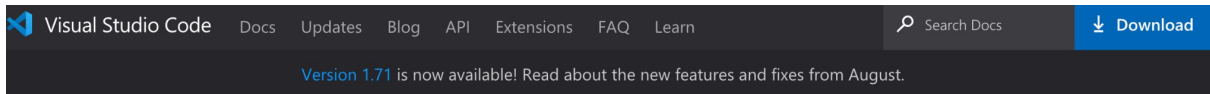
- IDE stands for integrated development environment
- It is a program or software you use to write code
- Some popular IDEs are:
 - Visual Studio Code
 - Visual Studio
 - Eclipse
 - NetBeans
 - Xcode
- The IDE you chose typically is related to the coding language you are using
- For this class we will use Visual Studio Code

Let's get it installed!



Visual Studio Code setup

<https://code.visualstudio.com/>



Download Visual Studio Code

Free and built on open source. Integrated Git, debugging and extensions.



↓ Windows

Windows 8, 10, 11

User Installer [64 bit](#) [32 bit](#) [ARM](#)
System Installer [64 bit](#) [32 bit](#) [ARM](#)
.zip [64 bit](#) [32 bit](#) [ARM](#)



↓ .deb

Debian, Ubuntu

↓ .rpm

Red Hat, Fedora, SUSE

.deb [64 bit](#) [ARM](#) [ARM 64](#)
.rpm [64 bit](#) [ARM](#) [ARM 64](#)
.tar.gz [64 bit](#) [ARM](#) [ARM 64](#)
[Snap Store](#)



↓ Mac

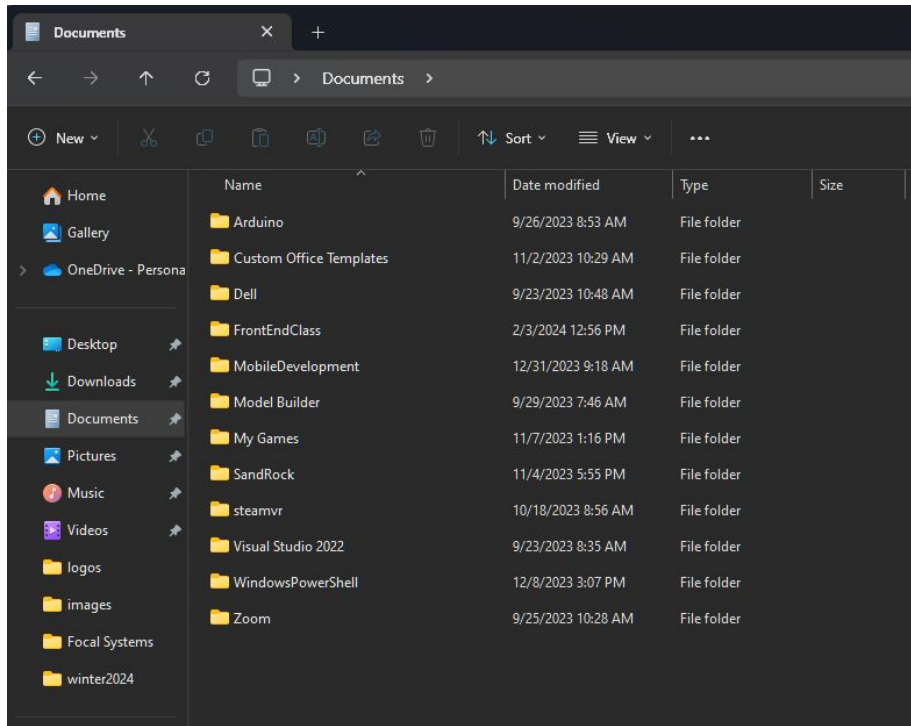
macOS 10.11+

.zip [Universal](#) [Intel Chip](#) [Apple Silicon](#)



Creating a project space

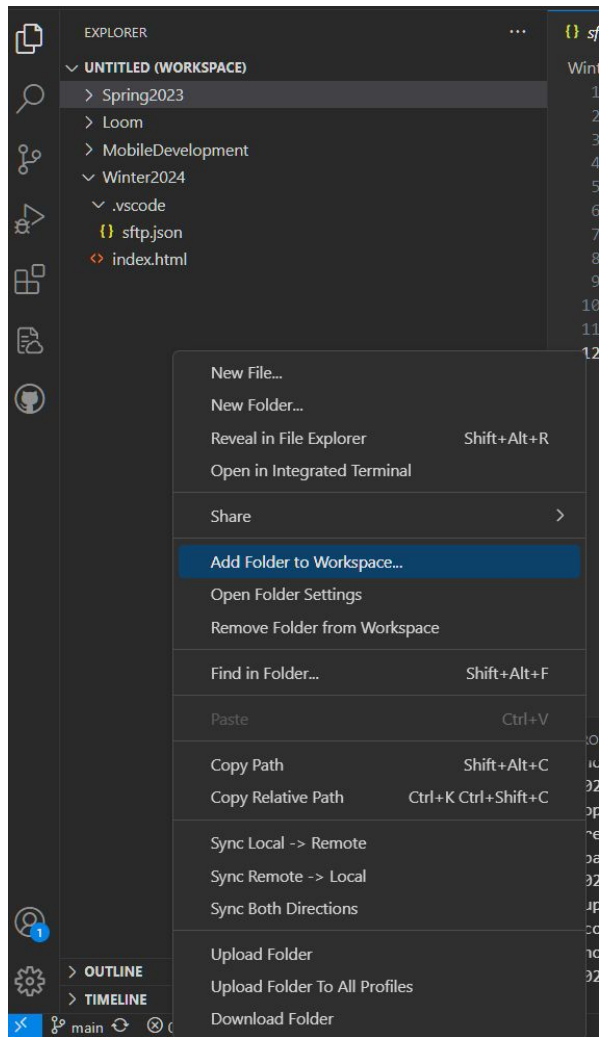
Open File Explorer and create a new folder in your documents called FrontEndClass (ALL one word no spaces!!)





Add folder to workspace

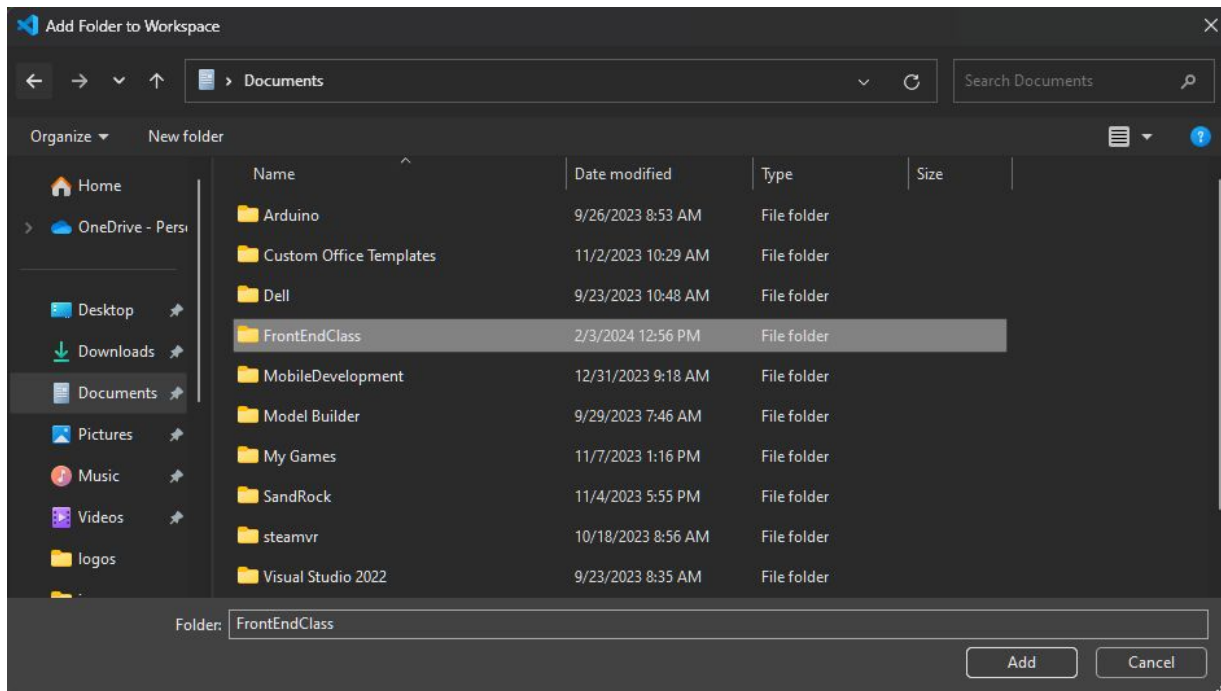
Right click in the empty space in visual studio code and select “Add Folder to Workspace”





Add folder

Navigate to where you made your folder and select Add



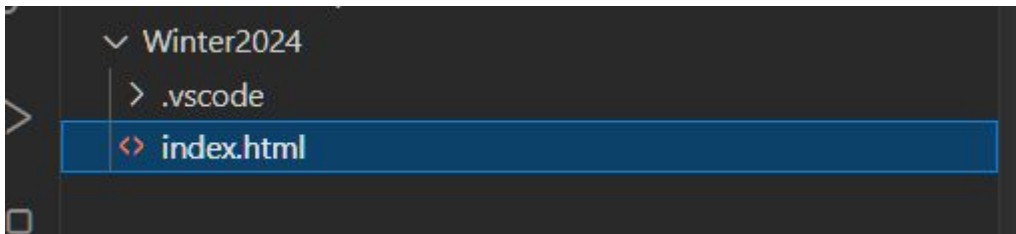
**Make your first
webpage!**





Create first file

Right click under the folder and select new file. Name it index.html





Your first HTML File

```
<!DOCTYPE html>

<html>

  <body>

    <p>This will appear on the page</p>

  </body>

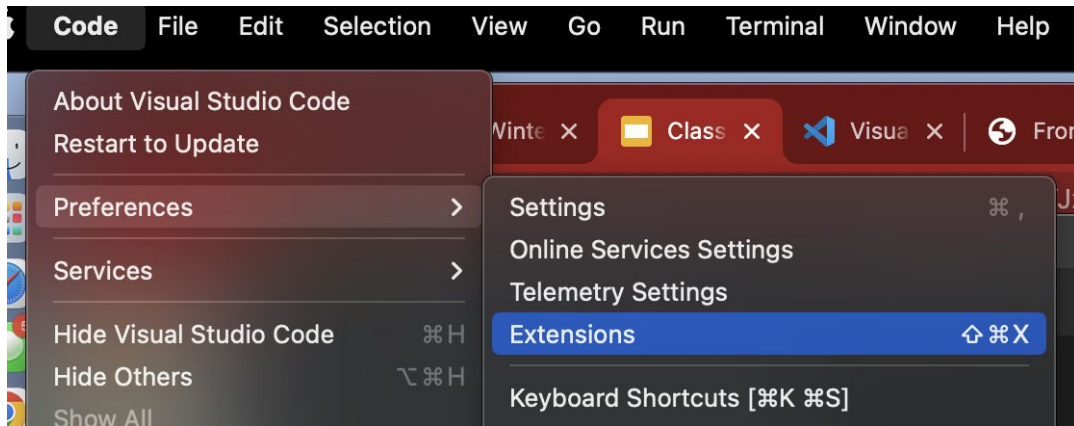
</html>
```



Prepare to Publish!

FTP - File Transfer Protocol

1. Navigate to Extensions in VS Code

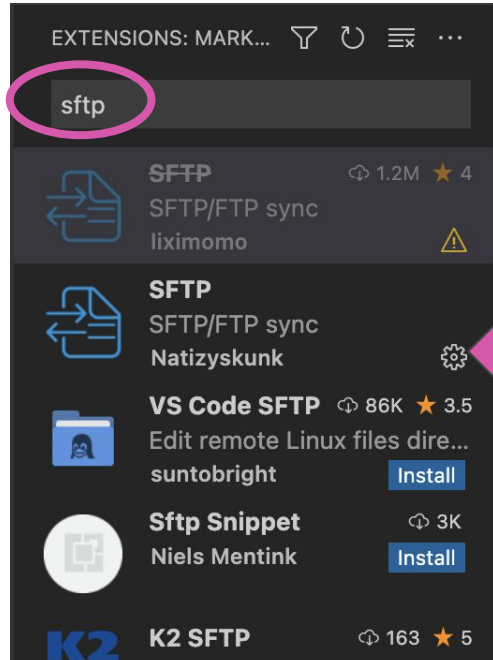




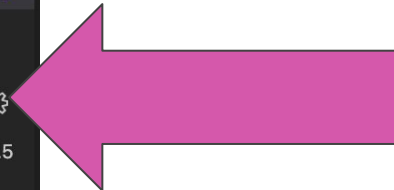
Prepare to Publish!

2. Search for FTP in the extensions sidebar

3. Search for “sftp” in the extensions sidebar.



4. Click blue “Install” button on the version by Natizyskunk

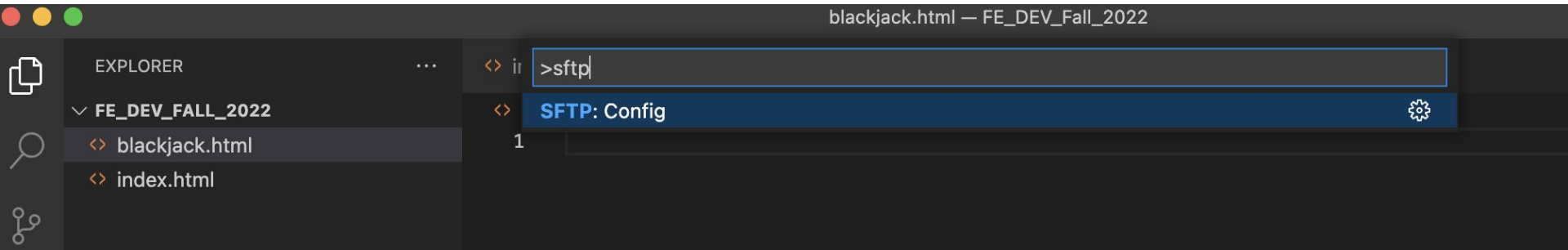




Prepare to Publish!

5. Once installed, hit cmd+shift+p (pc: ctrl+shift+p)

6. Type in SFTP, and select the SFTP:Config option





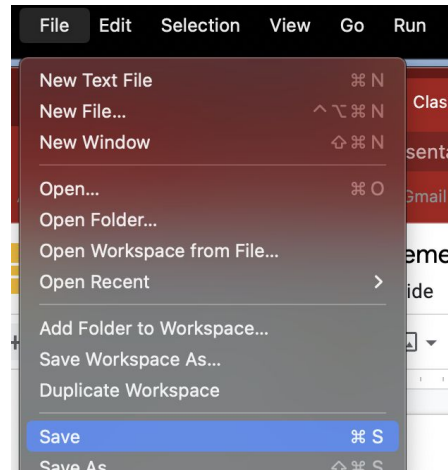
Prepare to Publish!

7. Configure your connection to the server

8. SAVE!

```
{
  "name": "uoadev.com",
  "host": "winter2024.uoadev.com",
  "protocol": "sftp",
  "port": 22,
  "secure": true,
  "username": "FrontEndClass",
  "remotePath": "/winter2024/pages/jordan-h",
  "password": "PeanutButter23",
  "uploadOnSave": true,
  "secureOptions": { "rejectUnauthorized": false}
}
```

8. Save!!!!!!



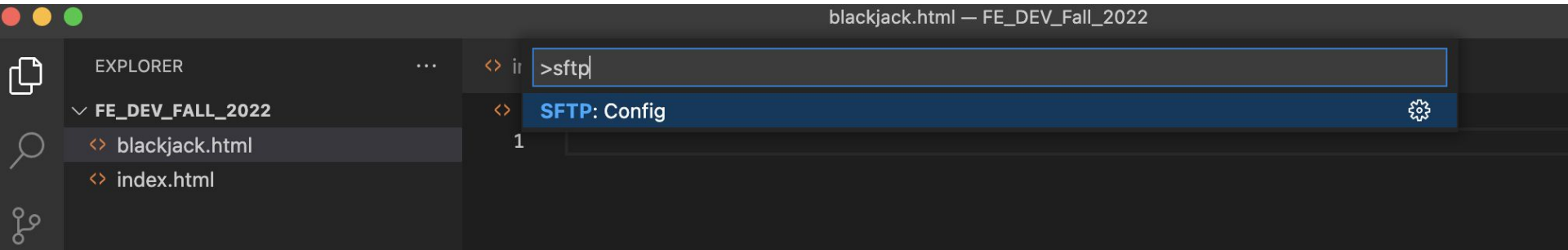
Change to yourFirstName-lastInitial



Prepare to Publish!

5. Once installed, hit cmd+shift+p (pc: ctrl+shift+p)

6. Type in SFTP, and select the SFTP:Config option



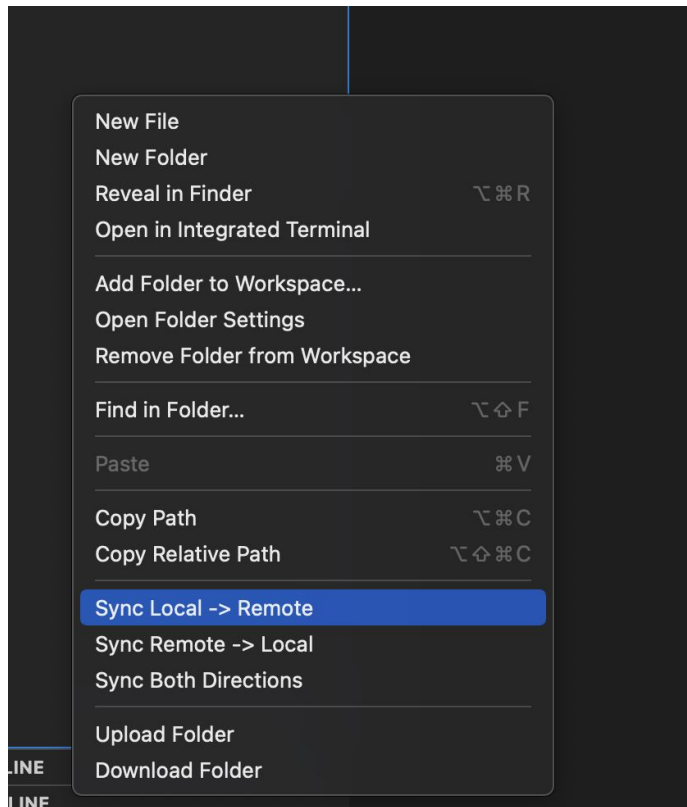


Local

Vs.

Remote

Publish your Website!





Did it Work?

Check the console in VS Code

The screenshot shows the Visual Studio Code interface with the OUTPUT panel active. The tab is labeled 'sftp'. The log output shows the following sequence of events:

```
"interactiveAuth":false,"secure":true,"remoteTimeOffsetInHours":0,"name":"somewhatchicken.com","host":"somewhatchicken.com",
"port":21,"username":"*****","password":"*****","secureOptions":{"rejectUnauthorized":false}}
[09-21 17:53:14] [info] config at /Users/mark/Documents/FE_DEV_Fall_2022 {"remotePath":"/pages/mark-m","uploadOnSave":true,
"useTempFile":false,"openSsh":false,"downloadOnOpen":false,"ignore":[],"concurrency":4,"protocol":"ftp","connectTimeout":10000,
"interactiveAuth":false,"secure":true,"remoteTimeOffsetInHours":0,"name":"somewhatchicken.com","host":"somewhatchicken.com",
"port":21,"username":"*****","password":"*****","secureOptions":{"rejectUnauthorized":false}}
[09-21 17:53:29] [info] folder transferred.
[09-21 17:54:04] [info] [file-save] /Users/mark/Documents/FE_DEV_Fall_2022/index.html
[09-21 17:54:06] [info] [file-save] /Users/mark/Documents/FE_DEV_Fall_2022/blackjack.html
[09-21 17:54:07] [info] local → remote /Users/mark/Documents/FE_DEV_Fall_2022/index.html
[09-21 17:54:07] [info] local → remote /Users/mark/Documents/FE_DEV_Fall_2022/blackjack.html
```

The status bar at the bottom indicates the connection is 'SFTP' and the cursor is at 'Ln 1, Col 1'.

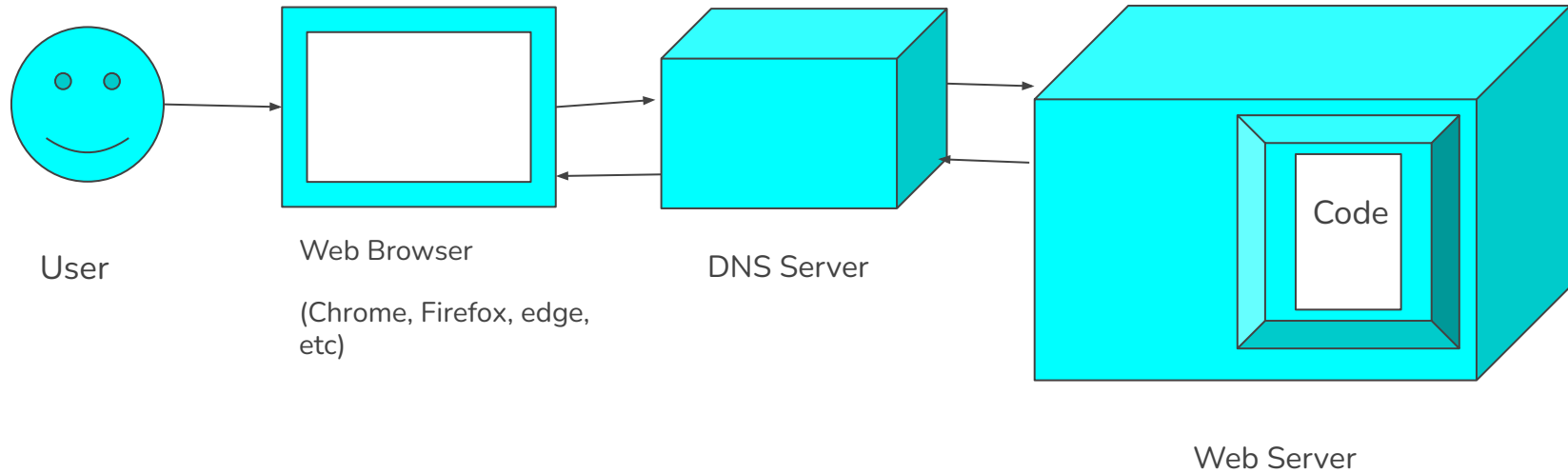
Validate at <https://winter2024.uoadev.com/YOURNAME/>

What did we just do?

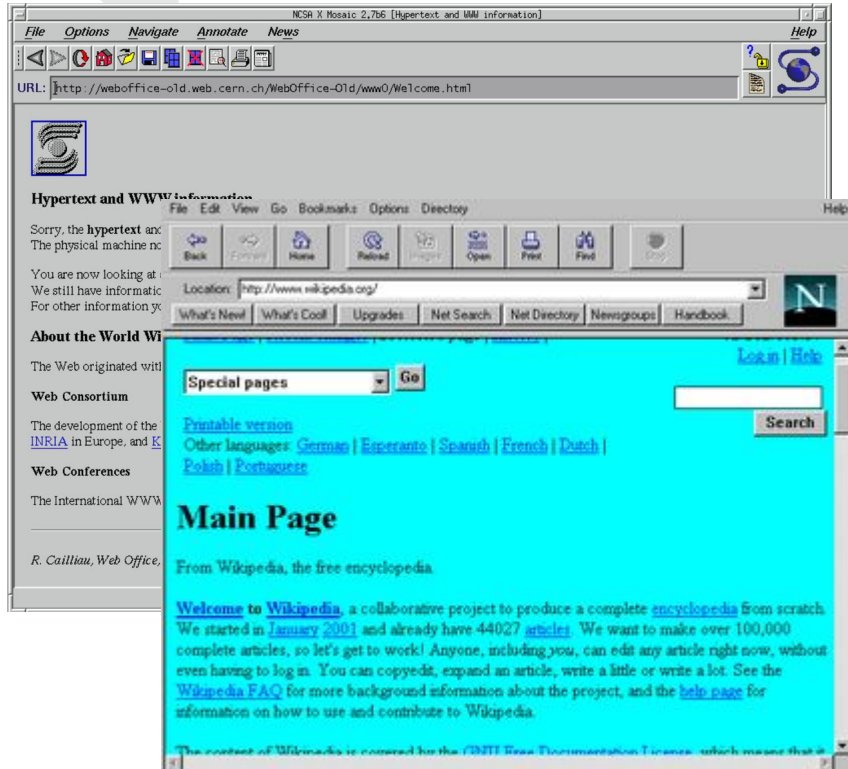




How does a website work?



Role of Browser





File structure of a website

Every site **MUST** have an `index.html`

When someone navigates to your web page it will direct to `index.html`

Other web pages are created by making `.html` files

Documents can either be in the root directory or in folders

Let's create a few sub pages!



What is `<!DOCTYPE>`?

`<!DOCTYPE>` tells the browser the document type, and helps to properly display the web page

`<!DOCTYPE>` can only be at the top of the page and must only appear once

Unlike other elements it does not need a closing tag

`<!DOCTYPE>` is not case sensitive



HTML Basic Structure

```
<!DOCTYPE html>

<html>

  <body>

    <p>This will appear on the page</p>

  </body>

</html>
```



HTML Elements

An HTML element is all the content that is contained between the start tag to the end tag:

`<tagID>`Content goes here...`</tagID>`

Example: `<p>`This is a paragraph`</p>`



Body

The body of a webpage is the main content of the webpage

The body's content is typically unique to a single webpage

Questions?

