

Web Application Development

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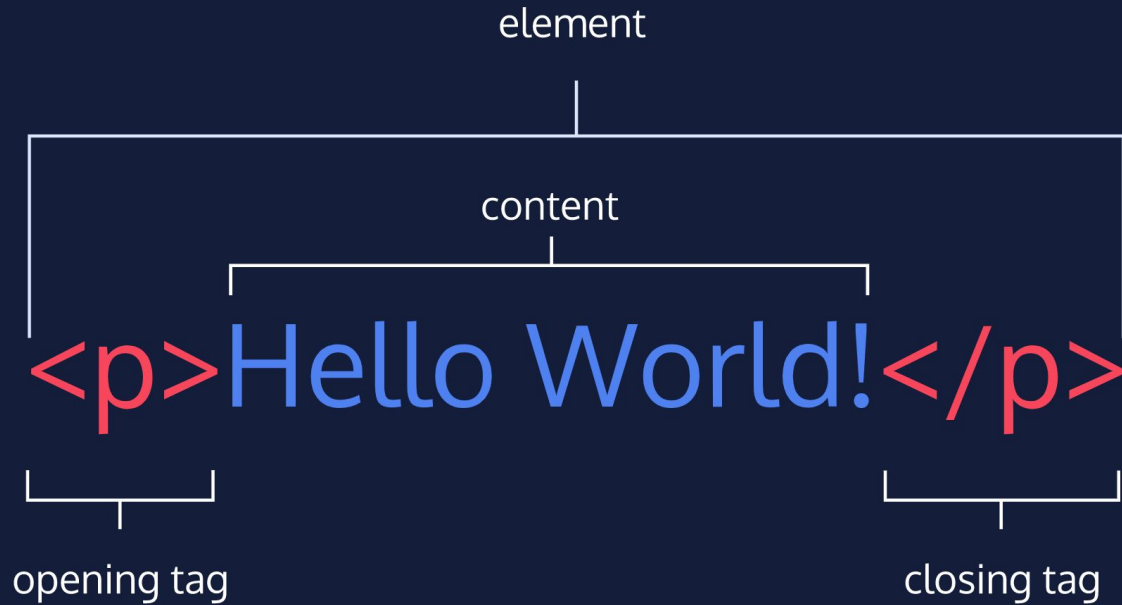
Frontend

HTML

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

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

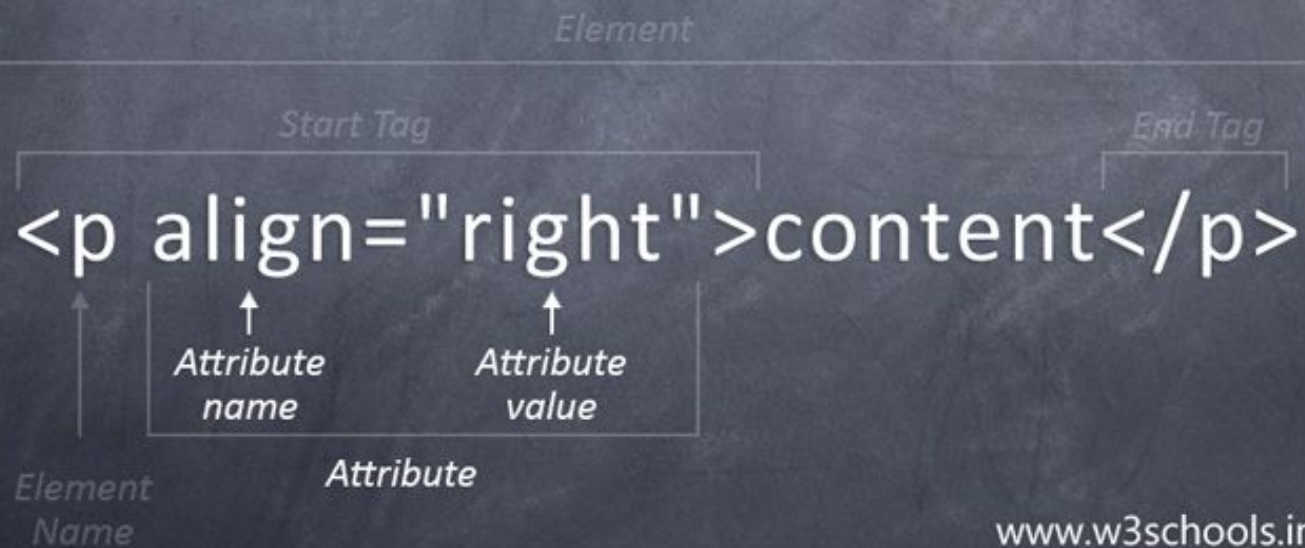
</body>
</html>
```



Attribute

<div class="main"> content </div>

name value
attribute attribute



HTML

```
<!DOCTYPE html>
<html>
  <head></head>
  <body>
    <h1>My First Page</h1>
    <p>This is my first page.</p>
    <a href="#faq">Click here to read the Frequently Asked Questions</a>
    <hr/>
    <h3 id="faq">Frequently asked questions</h3>
    <p>The first rule about fight club is that you do not talk about fight club.</p>
    <p>However, if you do have questions, please e-mail me at foo@bar.com</p>
  </body>
</html>
```

← https://www.w3schools.com/tags/tag_doctype.asp

Styles: style tag

Change color of a header

```
<!DOCTYPE html>
```

```
<html>
```

```
<head>
```

```
</head>
```

```
<body>
```

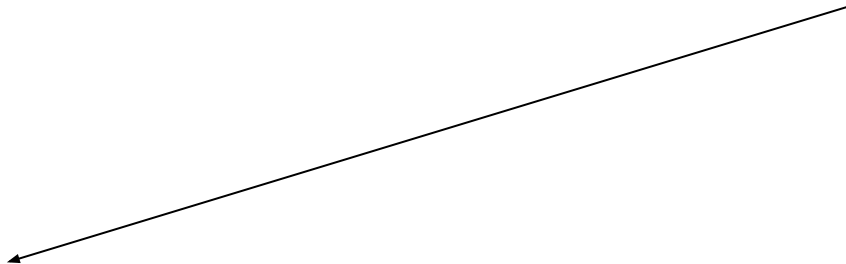
```
<h1 style="color: red">My First Page</h1>
```

```
<p>This is my first page.</p>
```

```
<a href="#faq">Click here to read the Frequently Asked Questions </a>
```

```
</body>
```

```
</html>
```



Styles: inline

```
<!DOCTYPE html>
```

```
<html>
```

```
  <head>
```

```
    <style>
```

```
      h1 {
```

```
        color: red;
```

```
      }
```

```
    </style>
```

```
  </head>
```

```
  <body>
```

```
    <h1>My First Page </h1>
```

```
    <p>This is my first page. </p>
```

```
    <a href="#faq">Click here to read the Frequently Asked Questions </a>
```

```
    <h1>My Second Page </h1>
```

```
  </body>
```

```
</html>
```

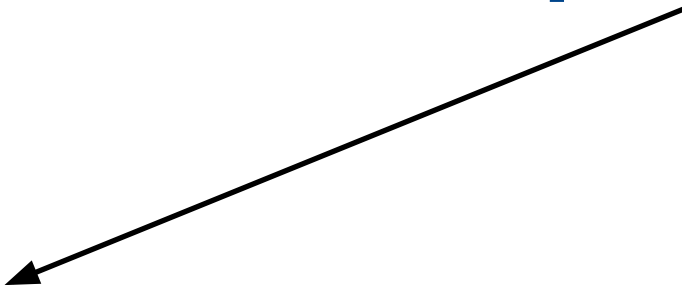
Change color of a header



Styles: file

```
<link rel="stylesheet" href="styles.css">
```

```
h1 {  
    color: red;  
}
```



Cascading Style Sheets

https://developer.mozilla.org/en-US/docs/Learn/CSS/First_steps/Getting_started

CSS

How it looks
like in browser?

```
<!DOCTYPE html>
<html>
<head>
<title>Page Title</title>
<style>
body {
  background-color: #77a;
  text-align: center;
  color: white;
  font-family: Arial, Helvetica, sans-serif;
}
</style>
</head>
<body>

<h1>This is a Heading</h1>
<p>This is a paragraph.</p>
<p>Edit the code in the window to the left, and click "Run" to view the
result.</p>


</body>
</html>
```

HTML

This is a Heading

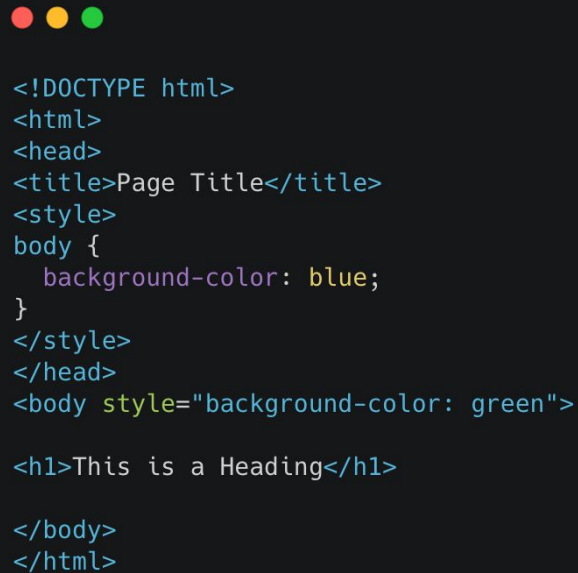
This is a paragraph.

Edit the code in the window to the left, and click "Run" to view the result.



https://www.w3schools.com/tryit/tryit.asp?filename=tryhtml_default

Guess the color



```
<!DOCTYPE html>
<html>
<head>
<title>Page Title</title>
<style>
body {
  background-color: blue;
}
</style>
</head>
<body style="background-color: green">

<h1>This is a Heading</h1>

</body>
</html>
```

Styles

- Inline
- Style tag
- Stylesheet file
- Programmatically (JS)

Styles

- Inline > Style tag > Stylesheet file

<pre>HTML ▼ 1 <!DOCTYPE html> 2 <html> 3 <head> 4 <title>Page Title</title> 5 <style> 6 <body { 7 background-color: blue; 8 } 9 </style> 10 </head> 11 <body style="background-color: green"> 12 13 <h1>This is a Heading</h1> 14 15 </body> 16 </html></pre>	<pre>CSS ▼ 1 <body { 2 background-color: red; 3 }</pre>
<pre>JavaScript + No-Library (pure JS) ▼ 1</pre>	<p>This is a Heading</p>

Layouts

- Table
- Div with fixed size
- Div + float
- Flex
- CSS Grid



Quiz time

<https://quizizz.com/join>

JavaScript (JS)

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

JavaScript (JS)

- `<script>alert()</script>`
- `<button onclick="document.write('Hello, world!')">Click me</button>`
- `<script type="text/javascript" src="path-to-javascript-file.js"></script>`

JavaScript (JS)



```
<!DOCTYPE html>
<html>
<body>

<button onclick="setInterval(myFunction, 1000);">Show timer</button>

<script>
function myFunction() {
  document.getElementById('timer').innerHTML = Date();
}
</script>

<div id="timer"></div>

</body>
</html>
```

JavaScript (JS)

```
<!doctype html>
<html>
<head>
  <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.0.0-beta3/dist/css/bootstrap.min.css" rel="stylesheet">
  <title>Hello, world!</title>

  <link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/3.4.1/css/bootstrap.min.css">
  <script src="https://ajax.googleapis.com/ajax/libs/jquery/3.5.1/jquery.min.js"></script>
  <script src="https://maxcdn.bootstrapcdn.com/bootstrap/3.4.1/js/bootstrap.min.js"></script>
</head>

<body>

<div class="container">

  <button type="button" class="btn btn-primary" data-toggle="modal" data-target="#myModal">Open Modal</button>

  <div class="modal fade" id="myModal" role="dialog">
    <div class="modal-dialog">
      <div class="modal-content">
        <div class="modal-header" style="display: block;">
          <button type="button" class="close" data-dismiss="modal">&times;</button>
          <h4 class="modal-title">Modal Header</h4>
        </div>
        <div class="modal-body">
          <p>Some text in the modal.</p>
        </div>
        <div class="modal-footer">
          <button type="button" class="btn btn-default" data-dismiss="modal">Close</button>
        </div>
      </div>
    </div>
  </div>

</div>

</body>
</html>
```

https://www.w3schools.com/bootstrap/bootstrap_examples.asp
<https://getbootstrap.com/docs/4.0>

JavaScript (JS)

- <https://www.learn-js.org/>
 - Hello, World!
 - Variables and Types
 - Arrays
 - Manipulating Arrays
- <https://javascript.info/>

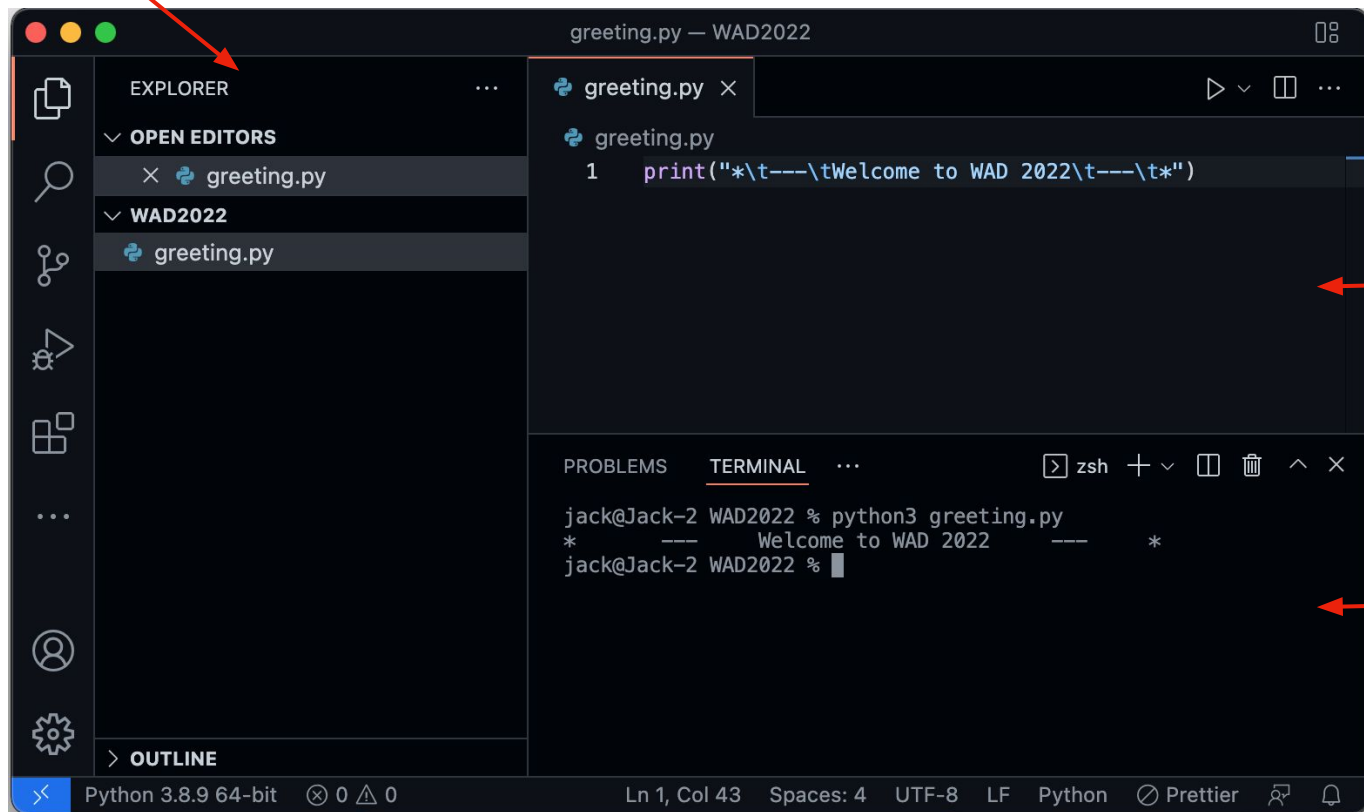
Literature

- HTML Basics:
https://developer.mozilla.org/en-US/docs/Learn/Getting_started_with_the_web/HTML_basics
- CSS Basics: https://developer.mozilla.org/en-US/docs/Learn/Getting_started_with_the_web/CSS_basics
- JavaScript course: <https://learnjavascript.online/app.html>
- HTML+CSS with examples: https://www.w3schools.com/html/html_css.asp
- CSS Grid examples: <https://gridbyexample.com/examples/>
- How to use Chrome Dev Tools: <https://developer.chrome.com/docs/devtools/>
- Many examples in the left menu:
https://www.w3schools.com/howto/howto_css_images_side_by_side.asp

File explorer

IDE

Visual Studio Code

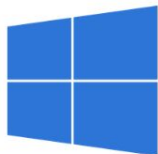


Code (text) editor

Terminal

Download Visual Studio Code

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



[↓ Windows](#)

Windows 7, 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](#)

[Download Visual Studio Code](#)

Visual Studio Code Extensions

The screenshot shows the Visual Studio Code interface with the Extensions view open. The left sidebar contains icons for Explorer, Search, Source Control, Run and Debug, Extensions, and Settings. The main area is divided into two panes. The left pane, titled 'EXTENSIONS: MAR...', shows a list of extensions with a search bar containing 'HTML'. The 'HTML CSS Support' extension by ecmel is selected and highlighted. The right pane, titled 'Extension: HTML CSS Support', shows the extension's details, including its logo, name, author, download count, and rating. It also features buttons to 'Disable', 'Uninstall', and 'Install' (which is disabled). Below the buttons, it states 'This extension is enabled globally.' At the bottom of the right pane, there are tabs for 'Details', 'Feature Contributions', 'Changelog', and 'Run'. The 'Details' tab is active, showing the extension's title 'Visual Studio Code CSS Intellisense for HTML' and a description: 'HTML id and class attribute completion for Visual'.

Extension: HTML CSS Support — WAD2022

EXTENSIONS: MAR...

HTML

HTML Snippets 7.1M ★ 4.5
Full HTML tags including HT...
Mohamed Abusaid [Install](#)

HTML CSS Support 31ms
CSS Intellisense for HTML
ecmel [Install](#)

IntelliSense fo... 4.3M ★ 3.5
CSS class name completion f...
Zignd [Install](#)

JS-CSS-HTML... 2.9M ★ 1.5
Format ,prettify and beautify ...
lonify [Install](#)

HTML Preview 1.6M ★ 3.5
Provides ability to preview HT...
Thomas Haakon Town... [Install](#)

HTML Boilerplate 1.3M ★ 5

HTML CSS Support
ecmel | 9,038,822 | ★
CSS Intellisense for HTML
[Disable](#) [Uninstall](#)
This extension is enabled globally.

[Details](#) [Feature Contributions](#) [Changelog](#) [Run](#)

Visual Studio Code CSS Intellisense for HTML
HTML id and class attribute completion for Visual

Python 3.8.9 64-bit 0 0 0

Version control system

- Tracking code changes
- Tracking who made changes
- Coding collaboration



git



Git

Git basic concepts

- Repository
- Staging
- Commit
- Push/Pull



git

<https://www.w3schools.com/git/default.asp?remote=github>

<https://www.w3schools.com/git/exercise.asp>

Commit messages



	COMMENT	DATE
○	CREATED MAIN LOOP & TIMING CONTROL	14 HOURS AGO
○	ENABLED CONFIG FILE PARSING	9 HOURS AGO
○	MISC BUGFIXES	5 HOURS AGO
○	CODE ADDITIONS/EDITS	4 HOURS AGO
○	MORE CODE	4 HOURS AGO
○	HERE HAVE CODE	4 HOURS AGO
○	AAAAAAAAA	3 HOURS AGO
○	ADKFJSLKDFJSDKLFJ	3 HOURS AGO
○	MY HANDS ARE TYPING WORDS	2 HOURS AGO
○	HAAAAAAAAAANDS	2 HOURS AGO

AS A PROJECT DRAGS ON, MY GIT COMMIT
MESSAGES GET LESS AND LESS INFORMATIVE.

The seven rules of a great Git commit message

© Chris Beams

1. Separate subject from body with a blank line
2. Limit the subject line to 50 characters
3. Capitalize the subject line
4. Do not end the subject line with a period
5. Use the imperative mood in the subject line
6. Wrap the body at 72 characters
7. Use the body to explain what and why instead of how

GitHub

- Git service
- Largest host of source code in the world
- Owned by Microsoft



Create your account

Username *

2rtUmSMsAH ✓

Email address *

github@mail.itmo.xyz ✓

Password *

..... ✓

Make sure it's **at least 15 characters** OR at least 8 characters including a number and a lowercase letter. [Learn more.](#)

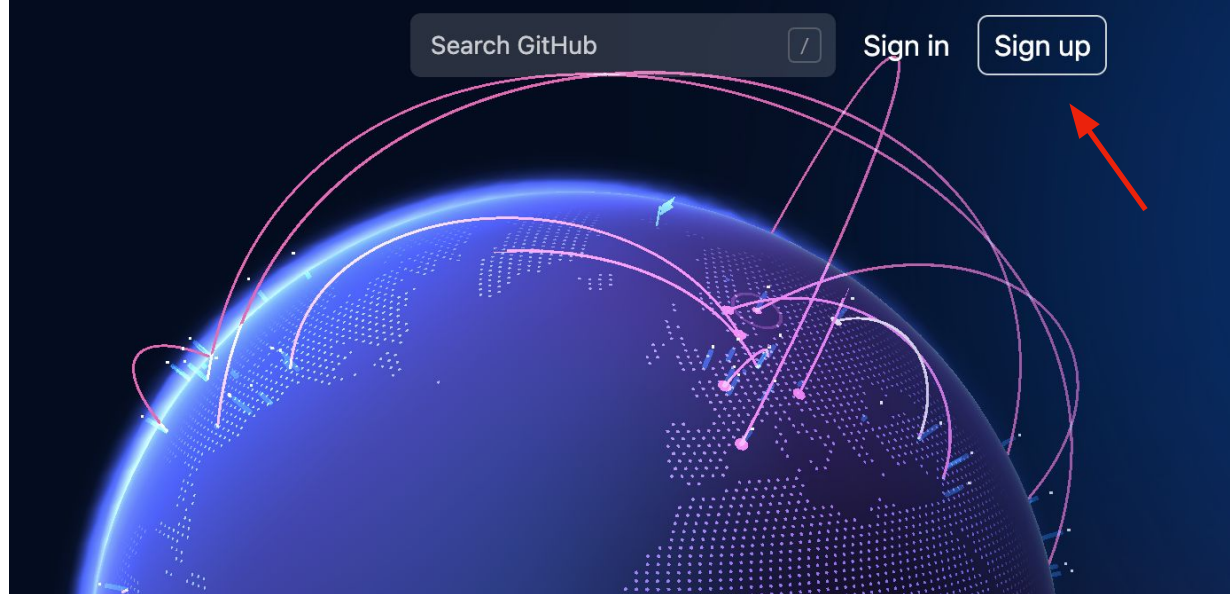
Email preferences

☐ Send me occasional product updates, announcements, and offers.

Verify your account



Create account



<https://github.com/>



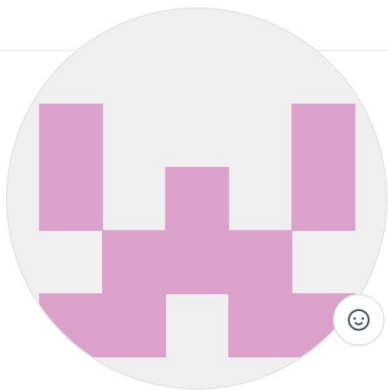
Almost done, @2rtUmSMsAH!

To complete your GitHub sign up, we just need to verify your email address:

github@mail.itmo.xyz.

Verify email address

Once verified, you can start using all of GitHub's features to explore, build, and share projects.

[Pull requests](#) [Issues](#) [Marketplace](#) [Explore](#)

2rtUmSMsAH

[Edit profile](#)

🕒 Joined 35 seconds ago

[Overview](#)[Repositories](#)[Projects](#)[Packages](#)

ProTip! Updating your profile with your name, location, and a profile picture helps other GitHub users get to know you.

[✎ Edit profile](#)

Popular repositories

You don't have any public repositories yet.

1 contribution in the last year

Contribution settings ▾



[Learn how we count contributions.](#)

Less More

This is your **contribution graph**. Your first square is for joining GitHub and you'll earn more as you make [additional contributions](#). More contributions means a darker green square for that day. Over time, your chart might start looking [something like this](#).

[Pull requests](#) [Issues](#) [Marketplace](#) [Explore](#)

jackhula ▾

Create your first project

Ready to start building? Create a repository for a new idea or bring over an existing repository to keep contributing to it.

[Create repository](#)[Import repository](#)

Recent activity

When you take actions across GitHub, we'll provide links to that activity here.

All activity

Introduce yourself

The easiest way to introduce yourself on GitHub is by creating a README in a repository about you! You can start here:

jackhula / README.md

```
1 - 🙋 Hi, I'm @jackhula
2 - 🐼 I'm interested in ...
3 - 🌱 I'm currently learning ...
4 - 💖 I'm looking to collaborate on ...
5 - 📫 How to reach me ...
6
```

[Dismiss this](#)[Continue](#)

Discover interesting projects and people to populate your personal news feed.

Your news feed helps you keep up with recent activity on repositories you [watch](#) or [star](#) and people you [follow](#).

Explore repositories

tikv/tikv

Distributed transactional key-value database, originally created to complement TiDB

Rust 10.8k

near/nearcore

Reference client for NEAR Protocol

Rust 1.4k

lowRISC/opentitan

OpenTitan: Open source silicon root of trust

SystemVerilog 1.3k

[Explore more](#) →

Create a new repository

A repository contains all project files, including the revision history. Already have a project repository elsewhere? [Import a repository](#).

Owner *

Repository name *



jackhula ▾



wad-itmo-2022



Great repository names are short and memorable. Need inspiration? How about **furry-octo-chainsaw**?

Description (optional)

WAD ITMO 2022 project



Public

Anyone on the internet can see this repository. You choose who can commit.



Private

You choose who can see and commit to this repository.

Initialize this repository with:

Skip this step if you're importing an existing repository.



Add a README file

This is where you can write a long description for your project. [Learn more](#).



Add .gitignore

Choose which files not to track from a list of templates. [Learn more](#).



Choose a license

A license tells others what they can and can't do with your code. [Learn more](#).

Create repository

Quick setup — if you've done this kind of thing before

Set up in Desktop or HTTPS SSH



Get started by [creating a new file](#) or [uploading an existing file](#). We recommend every repository include a [README](#), [LICENSE](#), and [.gitignore](#).

...or create a new repository on the command line

```
echo "# wad-itmo-2022" >> README.md
git init
git add README.md
git commit -m "first commit"
git branch -M main
git remote add origin https://github.com/jackhula/wad-itmo-2022.git
git push -u origin main
```



...or push an existing repository from the command line

```
git remote add origin https://github.com/jackhula/wad-itmo-2022.git
git branch -M main
git push -u origin main
```



Cloning to local

```
[jack@Jack-2 git_test % ls  
[jack@Jack-2 git_test % git clone https://github.com/jackhula/wad-itmo-2022.git  
Cloning into 'wad-itmo-2022'...  
warning: You appear to have cloned an empty repository.  
[jack@Jack-2 git_test % ls  
wad-itmo-2022  
[jack@Jack-2 git_test % cd wad-itmo-2022  
[jack@Jack-2 wad-itmo-2022 % ls -la  
total 0  
drwxr-xr-x  3 jack  staff   96 Mar  9 15:40 .  
drwxr-xr-x  3 jack  staff   96 Mar  9 15:40 ..  
drwxr-xr-x  9 jack  staff  288 Mar  9 15:40 .git  
jack@Jack-2 wad-itmo-2022 %
```

Cloning to local

Clone a Repository

GitHub.com

GitHub Enterprise

URL

wad-itmo-2022

Your Repositories

jackhula/wad-itmo-2022

Local Path

/Users/jack/Documents/GitHub/wad-itmo-2022

Choose...

Cancel

Clone

Clone a Repository

GitHub.com

GitHub Enterprise

URL

Repository URL or GitHub username and repository
(hubot/cool-repo)

https://github.com/jackhula/wad-itmo-2022.git

Local Path

/Users/jack/Documents/GitHub/wad-itmo-2022

Choose...

Cancel

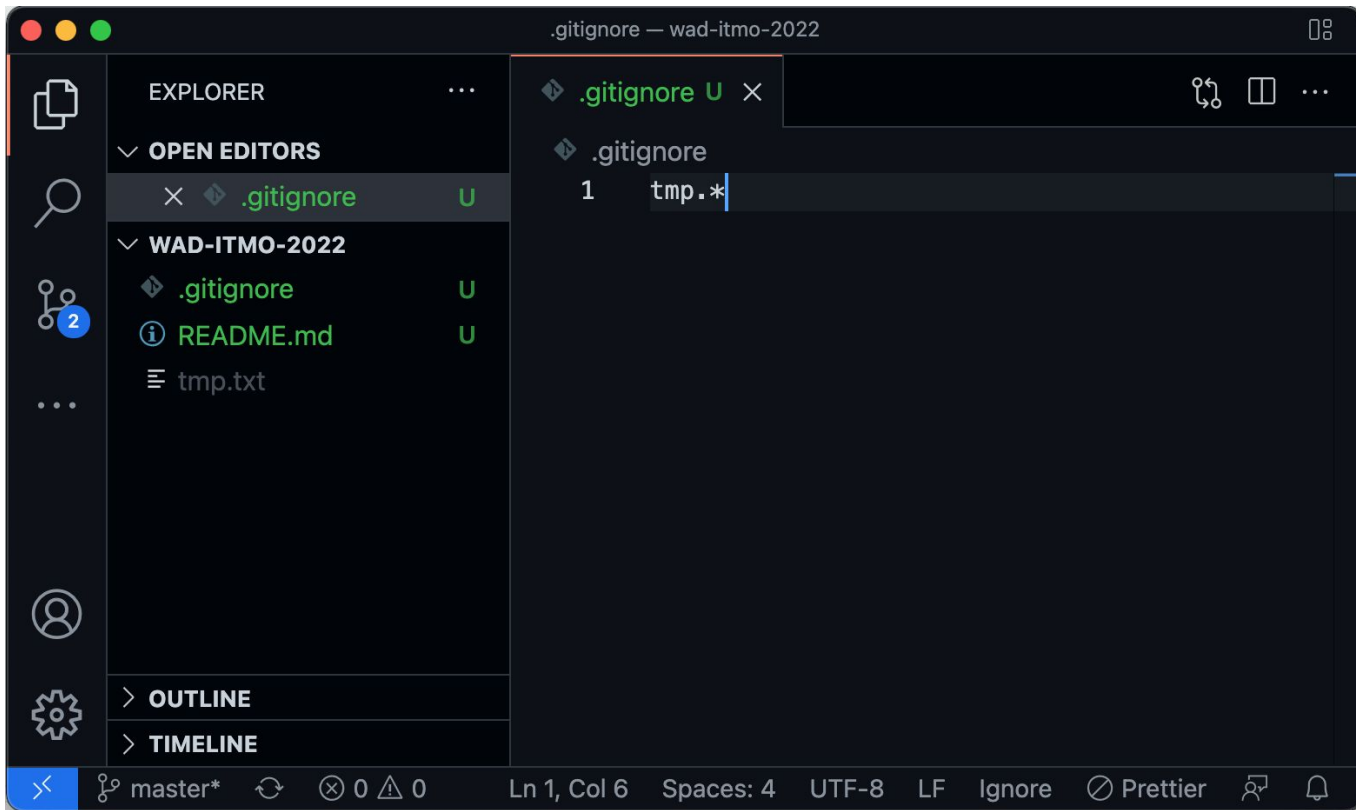
Clone

README.md



Markdown syntax

.gitignore



Literature

- How to write good commit messages:
<https://chris.beams.io/posts/git-commit/>
- Complete book about git: <https://git-scm.com/book/en/v2>
- GitHub flow guide: <https://guides.github.com/introduction/flow/>
- Git cheat sheet:
<https://github.github.com/training-kit/downloads/github-git-cheat-sheet/>
- Git simple examples: <https://rogerdudler.github.io/git-guide/>

GitHub Pages

GitHub Pages Demo

Docs: <https://pages.github.com/>

1. Create repository named your_username.github.io
2. `git clone https://github.com/username/username.github.io`
3. Create index.md file with content, commit and push: `git push -u origin master`
4. Your site is available at `https://your_username.github.io`

Questions?