Welcome to M-Soma!

Founded in 2016 by scholars at the
University of California, Berkeley

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You are the reason we started this program

www.msoma.org

The M-Soma Team

- Monicah Wambugu
- Moses Surumen
- Fhadzhil Wamalwa
- Fanice Nyatigo
- Plus over 60 mentors!

Moses Surumen

- Electrical Engineering & Computer Science senior at UC Berkeley
- Tutor at the Computer Science department – Algorithms and Data Structures course
- Worked at Equity Bank (Pre-University program) from 2013-2014

Monicah Wambugu

- Information Technology Masters scholar at UC Berkeley
- Bachelors degree in Computer Science
- Worked as a Software Engineer at Mobile Surveys Inc. before grad school

Fhadzhil Wamalwa

- Electrical Engineering Masters scholar at the University of Pretoria, South Africa
- Bachelors degree in Electrical Engineering
- Worked as an engineer at Equity Bank

Fanice Nyatigo

- Junior studying Bioengineering at the University of California, Berkeley
- Working on bio-tech projects

Clinton Global Initiative ‘16

April 3rd 2016

Mentors

We have a diverse network of mentors you can talk to about:

College Apps
Career Advice
Collaborate
…

US	Canada	South Africa	Kenya
30+	10+	6+	20+
Berkeley	Toronto	Cape Town	UoN
MIT	McGill	Pretoria	Kenyatta
Princeton	UBC		JKUAT
Stanford			…
Yale			
Upenn			

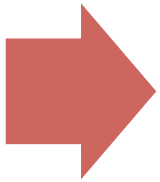
Schedule

Week 1

Web Development: Front-End

Schedule

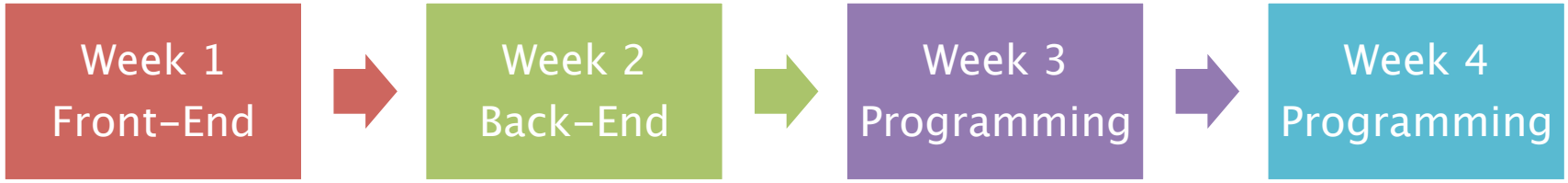
Week 1
Front-End



Week 2
Back-End

Schedule

Schedule


Week 1
Front-End
Week 2
Back-End
Week 3
Programming
Week 4
Programming

Courses

- Web Development
- Computer Programming (what is Programming?)
- Design Thinking
- Social Implications of Computing (discussion)

Week 1: Web Development

Learning Objectives:

- Learn how to make a website using HTML, CSS, and JavaScript
- Learn key principles that make a website “beautiful”
- Meet and share passion with other scholars interested in learning programming

Web Design

Course Logistics:

- One programming workshop daily: 9:00am–10:30am

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- One lab: 11:00am – 12:30pm

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- One Project per Week***

Web Design

Course Logistics:

- One programming workshop daily: 9:00am–10:30am
- One lab: 11:00am – 12:30pm
- One Project per Week***
- Mini-assignments everyday
- Fast paced

Need help on Projects?

- Ask questions (anytime):
  - Email (msurumen@berkeley.edu , monicah_wambugu@berkeley.edu)

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- Do NOT copy code from your friends
- Google
- Stack Overflow

Questions?

Tools you need!

GitHub account (Facebook for developers)

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Git : software that connects your computer to Github

Tools you need!

GitHub account (Facebook for developers)

Git

Command Line / Terminal / Shell / Command Prompt

Tools you need!

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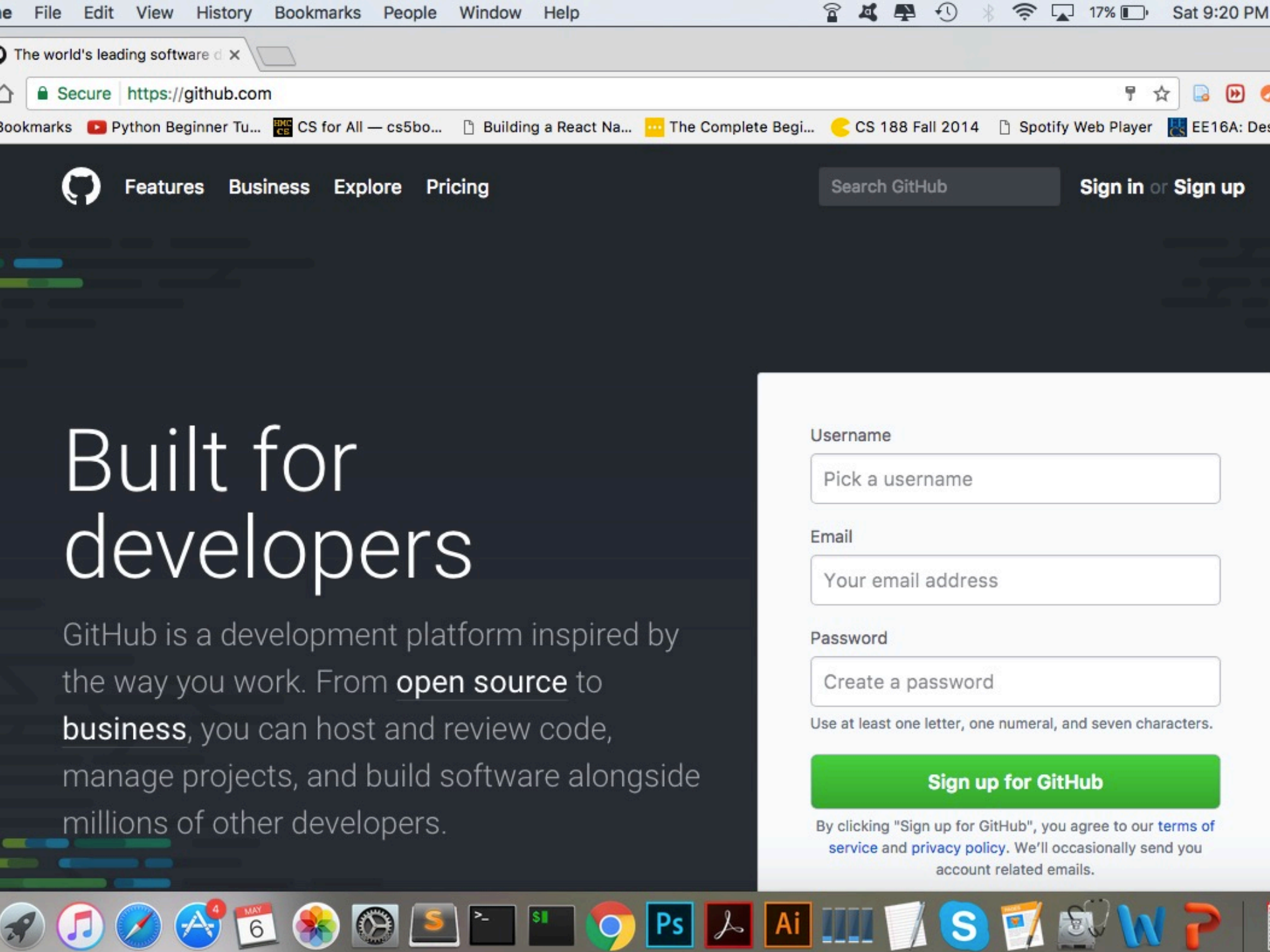
Command Line / Terminal / Shell / Command Prompt

Code Editor – Sublime Text

GITHUB

Go to www.github.com to create an Account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Search GitHub
Sign in or Sign up
Built for developers
GitHub is a development platform inspired by the way you work. From open source to business, you can host and review code, manage projects, and build software alongside millions of other developers.
Username
Pick a username
Email
Your email address
Password
Create a password
Use at least one letter, one numeral, and seven characters.
Sign up for GitHub
By clicking "Sign up for GitHub", you agree to our terms of service and privacy policy. We'll occasionally send you account related emails.

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Hub

Secure https://github.com

marks Python Beginner Tu... CS for All — cs5bo... Building a React Na... The Complete Begi... CS 188 Fall 2014 Spotify Web Player EE16A: Designir

Search GitHub Pull requests Issues Gist

moses-surumen

You've been added to the **cs61c-summer2016** organization!

Here are some quick tips for a first-time organization member.

- Use the switch context button in the upper left corner of this page to switch between your personal context (**moses-surumen**) and organizations you are a member of.

defunkt

- After you switch contexts you'll see an organization-focused dashboard that lists out organization repositories and activities.

TroyMa1990 starred moses-surumen/like-airbnb on Apr 5

ProTip! Edit your feed by updating the users you follow and repositories you watch.

Subscribe to **your** news feed

A sneak peek at Satellite sessions

GitHub Satellite is happening in London, May 22-23. See what speakers and sessions you'll find there.

View 40 new broadcasts

Repositories you contribute to 1

cs61c-summer.../cs61c-ey 0

Your repositories 38 New repository

Find a repository...

All Public Private Sources Forks

moses-surumen.github.io

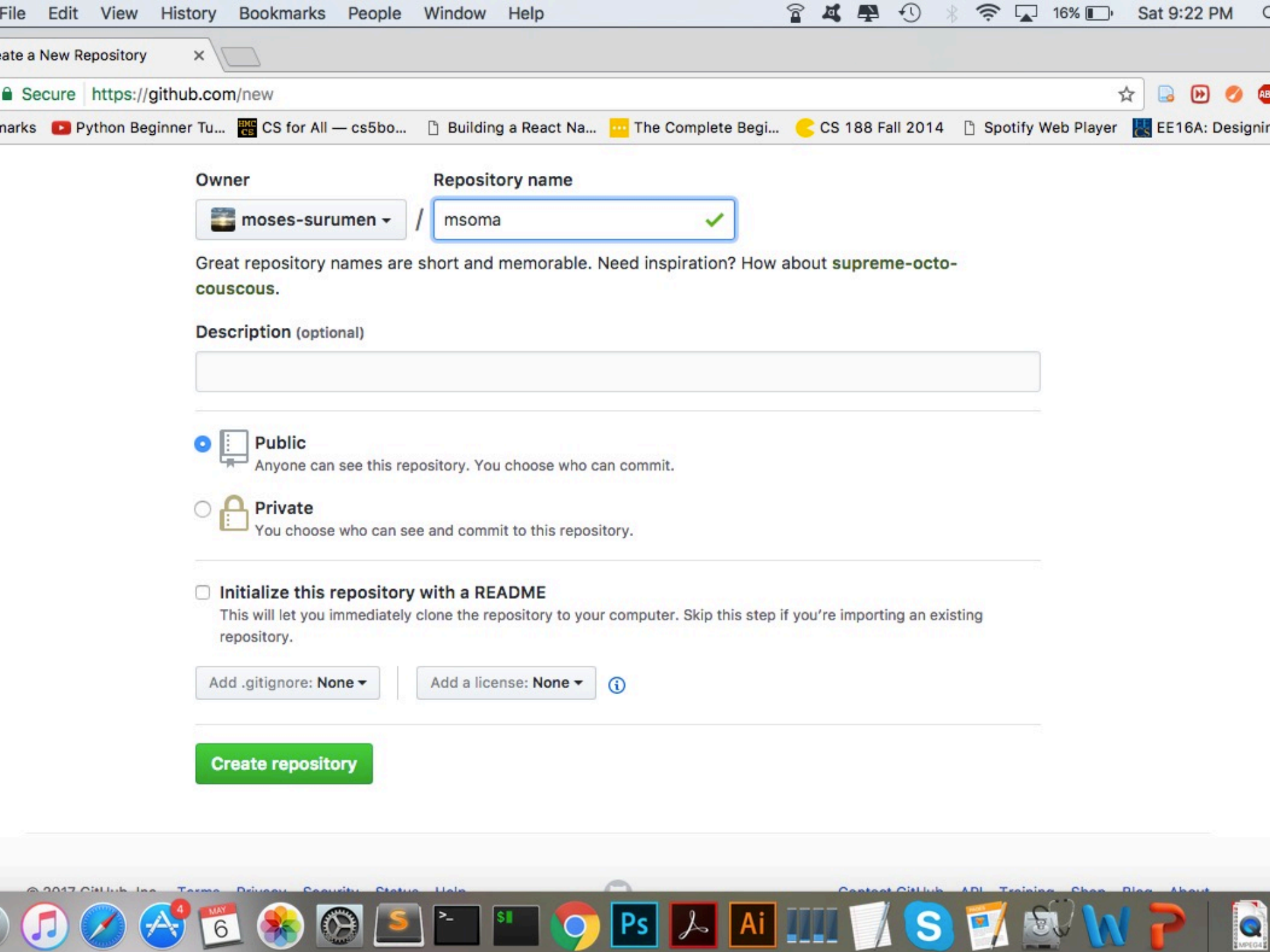
like-airbnb

react-native-airbnb

express.js

codestar

react-native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eate a New Repository
Secure https://github.com/new
narks Python Beginner Tu... CS for All — cs5bo... Building a React Na... The Complete Begi... CS 188 Fall 2014 Spotify Web Player EE16A: Designir
Owner
Repository name
moses-surumen
/
msoma
Great repository names are short and memorable. Need inspiration? How about supreme-octo-couscous.
Description (optional)
Public
Anyone can see this repository. You choose who can commit.
Private
You choose who can see and commit to this repository.
Initialize this repository with a README
This will let you immediately clone the repository to your computer. Skip this step if you're importing an existing repository.
Add .gitignore: None
Add a license: None
Create repository

moses-surumen / msoma

Unwatch 1 Star 0 Fork 0

Code Issues 0 Pull requests 0 Projects 0 Wiki Pulse Graphs Settings

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

Set up in Desktop or HTTPS SSH https://github.com/moses-surumen/msoma.git

We recommend every repository include a README, LICENSE, and .gitignore.

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

```
echo "# msoma" >> README.md
git init
git add README.md
git commit -m "first commit"
git remote add origin https://github.com/moses-surumen/msoma.git
git push -u origin master
```

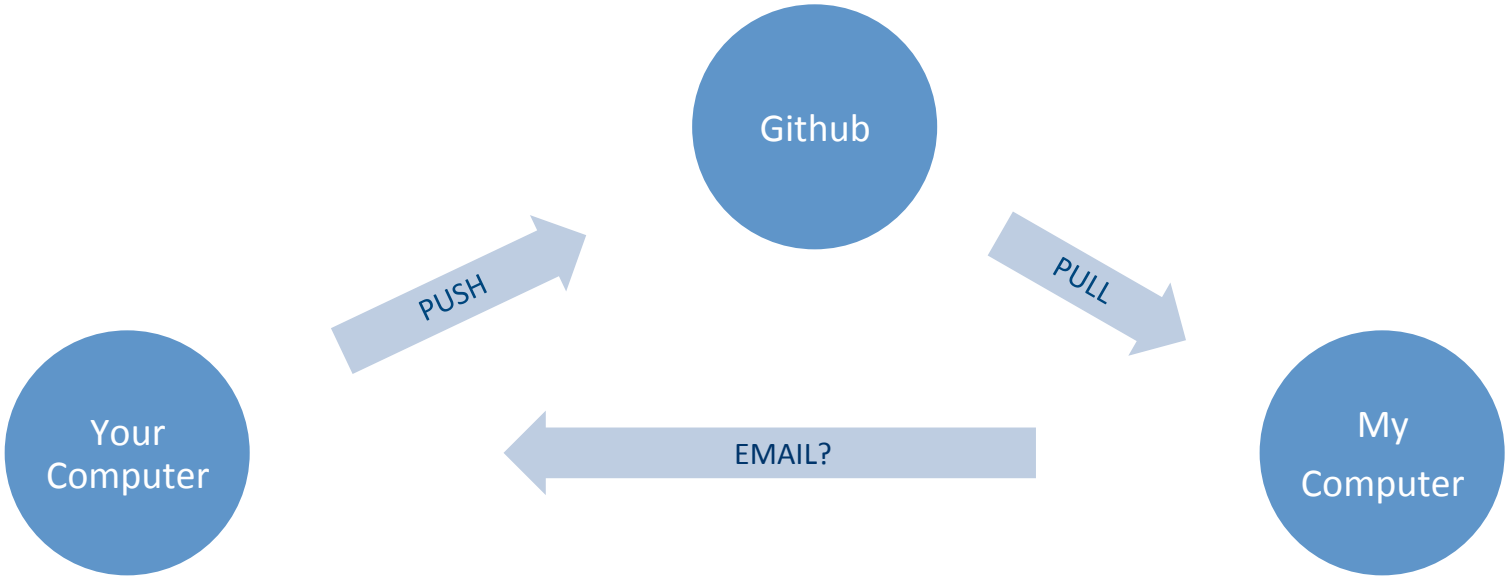
...or push an existing repository from the command line

```
git remote add origin https://github.com/moses-surumen/msoma.git
git push -u origin master
```

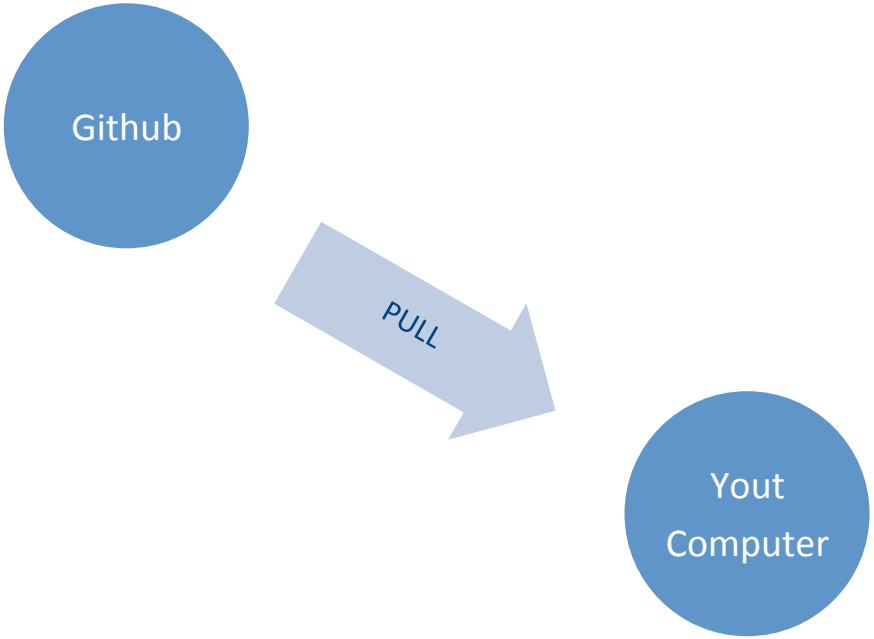
Git

A means to “transport” your files from your computer to Github

Git



Git



Downloading Git

Go to

https://git-for-windows.github.io/

Follow installation instructions

Command Prompt

Find on Applications / Utilities on your computer

(already installed)

Command Prompt

This is a program that executes commands!

Command Prompt

This is a program that executes commands!

You can use it to open, or delete files

Or create files and directories

Command Prompt

Change directory – cd directory_name

Command Prompt

Change directory – cd directory_name

Make directory – mkdir directory_name

Command Prompt

Change directory – cd directory_name
Make directory – mkdir directory_name
Create file – touch file_name.txt

Command Prompt

Change directory – cd directory_name
Make directory – mkdir directory_name
Create file – touch file_name.txt
Go back from directory – cd ..

Many other commands we will explore later

Exercise: Using Git and Github

1. Open your Command Prompt
2. Follow instructions on the Github page we stopped at
3. Initialize empty repository
4. Add remote (Remote is the online repository you created on Github)

Web Anatomy

What is a Website?

Web Anatomy

- Website: collection of pages called served from a single domain
  - About
  - Home

Web Anatomy

- Website: collection of pages called served from a single domain
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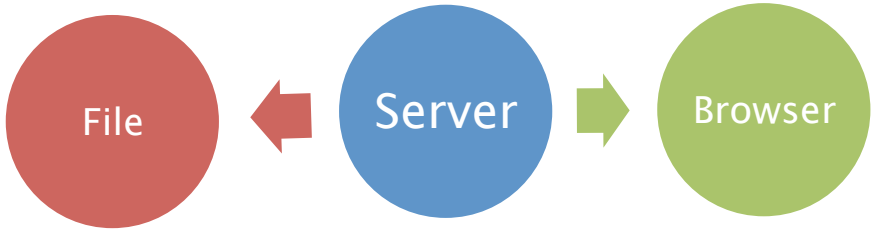
- Page: just files written in HTML
  - index.html
  - about.html

Web Anatomy

- Website: collection of pages called served from a single domain
  - About
  - Home
- Page: just files written in HTML
  - index.html
  - about.html
- Domain: an address that represents a server where the files are located (e.g. http://www.msoma.org)

How websites are shown

Example: http://www.msoma.org/



How websites are shown

- A user types in an address on their browser (Google Chrome, Firefox, Opera, Safari)

How websites are shown

- A user types in an address on their browser (Google Chrome, Firefox, Opera, Safari)
- The browser looks up the address which points to a server somewhere in the world (we use a WebFaction server located in Los Angeles, California)

How websites are shown

- A user types in an address on their browser (Google Chrome, Firefox, Opera, Safari)
- The browser looks up the address which points to a server somewhere in the world (we use a WebFaction server located in Los Angeles, California)
- The browser loads all the required files (HTML files plus more files sometimes)

Getting a server to host your pages

- Your computer can be a web server
- Free web hosting services:
  - Github (yay!)
  - Many others
- For this course you can just develop on your computer

What websites are made of

Front-end

- What users can "see"
- Ex. Buttons, Images, Text

Back-end

- What users can't "see"
- Ex. Algorithms behind Logins, Search, etc.

What websites are made of

HTML	CSS	Javascript
• Structure • = Skeleton	• Design • = Clothes	• Function • = Muscle

Introduction to HTML

A well writted HTML file should be understandable without styling (CSS)

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

<head>
    <title>M-Soma Institute</title>
    <link rel="stylesheet" href="assets/style.css">
    <script src="assets/script.js"></script>
</head>

<body>
    <nav>
        <div class="page_icon">
            <img src="assets/images/logo.png">
        </div>
        <div class="menu">
            <a href="index.html">Home</a>
            <a href="index.html">About</a>
            <a href="index.html">Contact</a>
        </div>
    </nav>
    <main>
        <!-- More things here -->
    </main>

</body>
</html>
```

How do I make a Website?

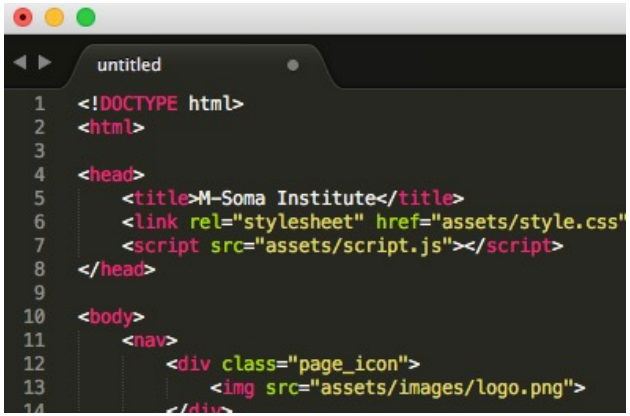
Web Browser	Code Editor	Image Editor (Optional)
• Chrome • Firefox • Safari	• Coda 2 • Sublime Text • Dreamweaver	• Adobe Photoshop

Editors and File Structure

A text editor is a program that edits plain text files

For us, we want one that is code-friendly and highlights code *beautifully*

Our pick: Sublime Text



Relative and Absolute Path

- **Relative Path**: path to a file relative to current file, e.g. Link to "*page.html*" or "*images/logo.png*"

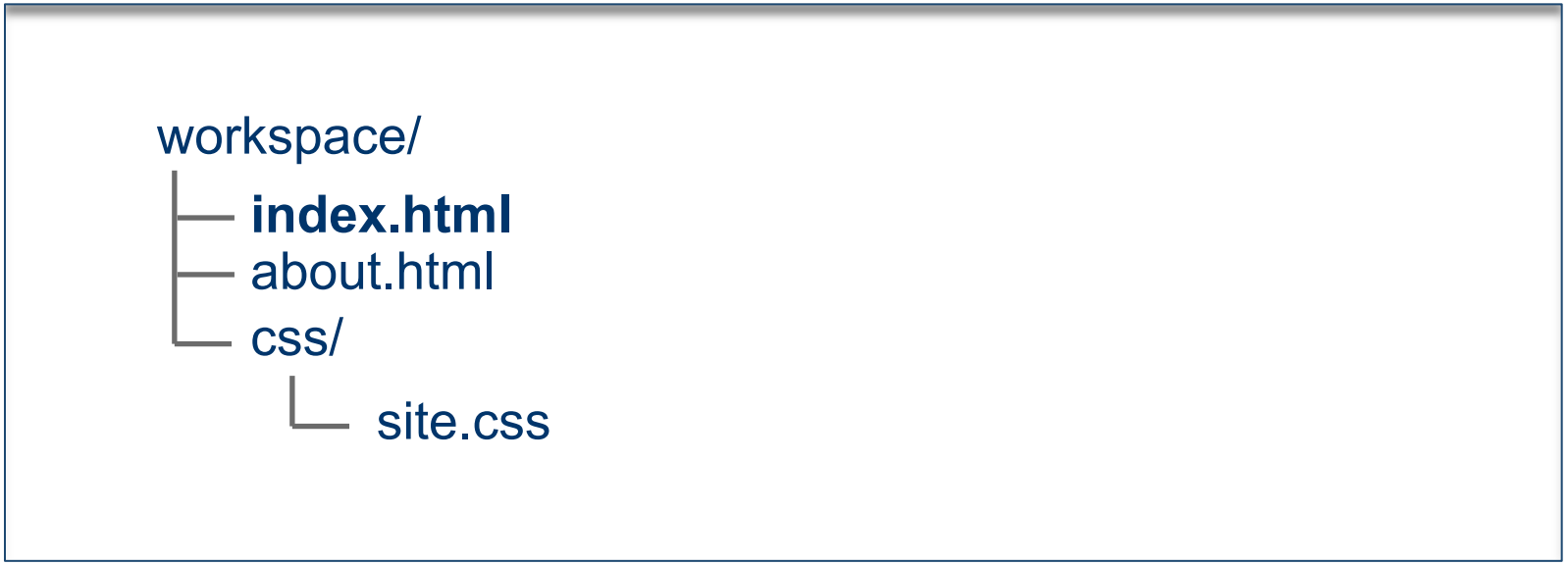
Relative and Absolute Path

- **Relative Path**: path to a file relative to current file, e.g. Link to "*page.html*" or "*images/logo.png*"

- **Absolute Path**: complete path to a file or web page, e.g. Link to "*C:/Users/Moses/Desktop/page.html*" or "*https://www.facebook.com*"

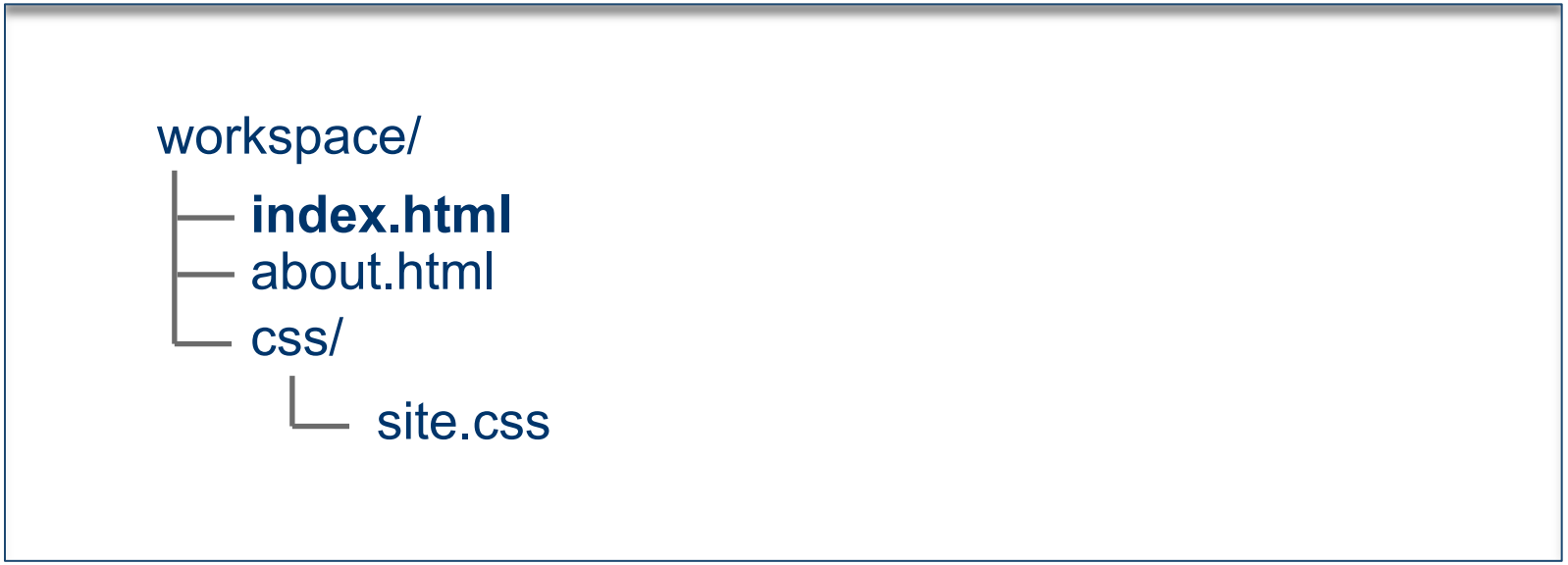
Relative and Absolute Path

Example: You're currently in index.html, how do you access site.css by **relative path**?



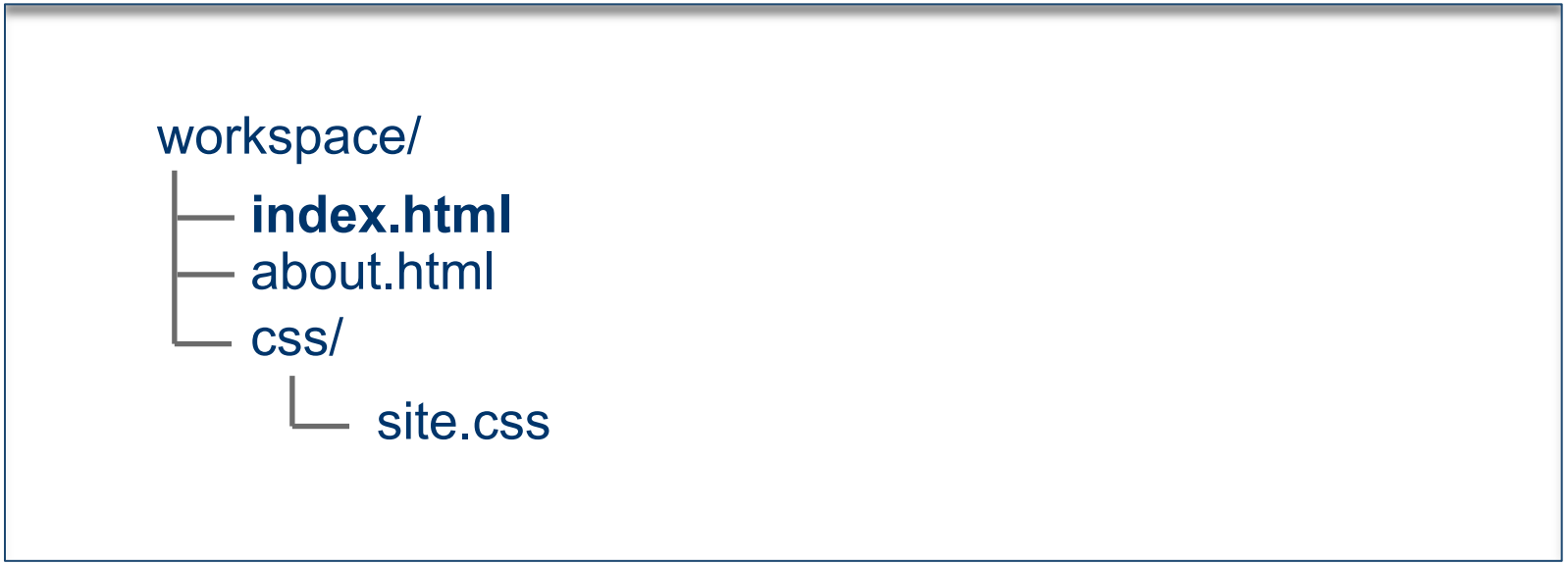
Relative and Absolute Path

Answer: "*css/site.css*"



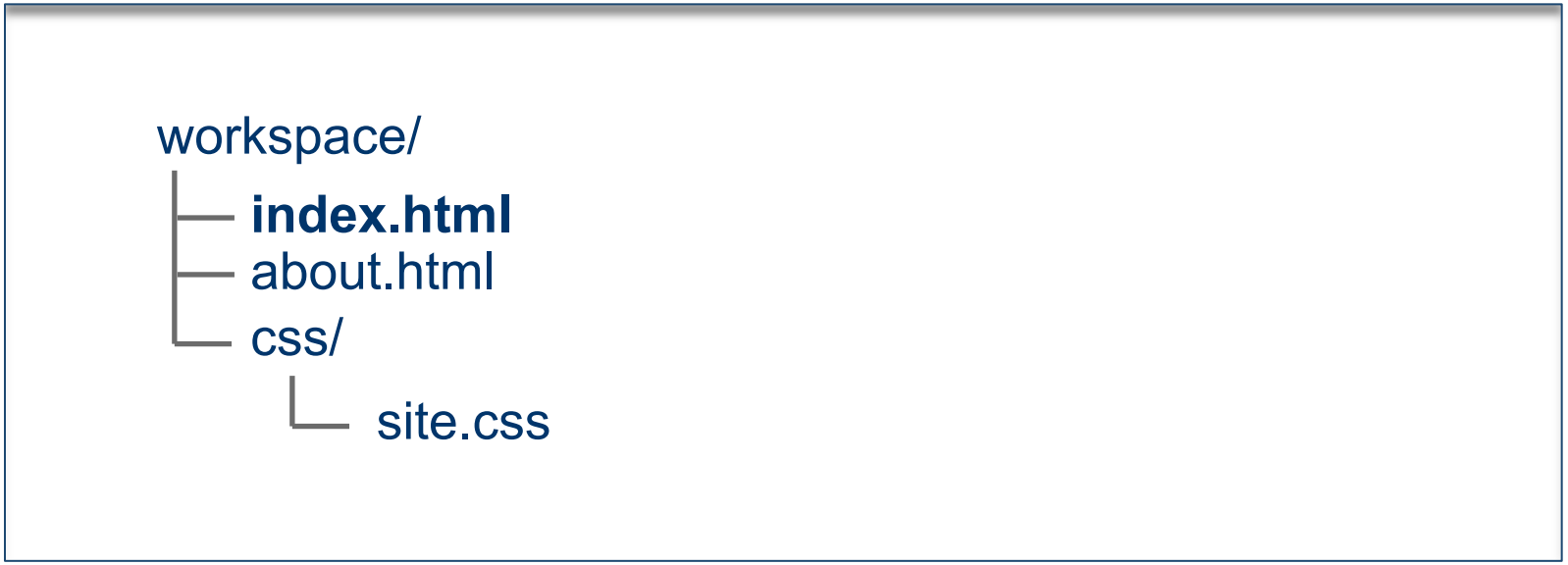
Relative and Absolute Path

Example: You're currently in index.html, how do you access site.css by **absolute path**?



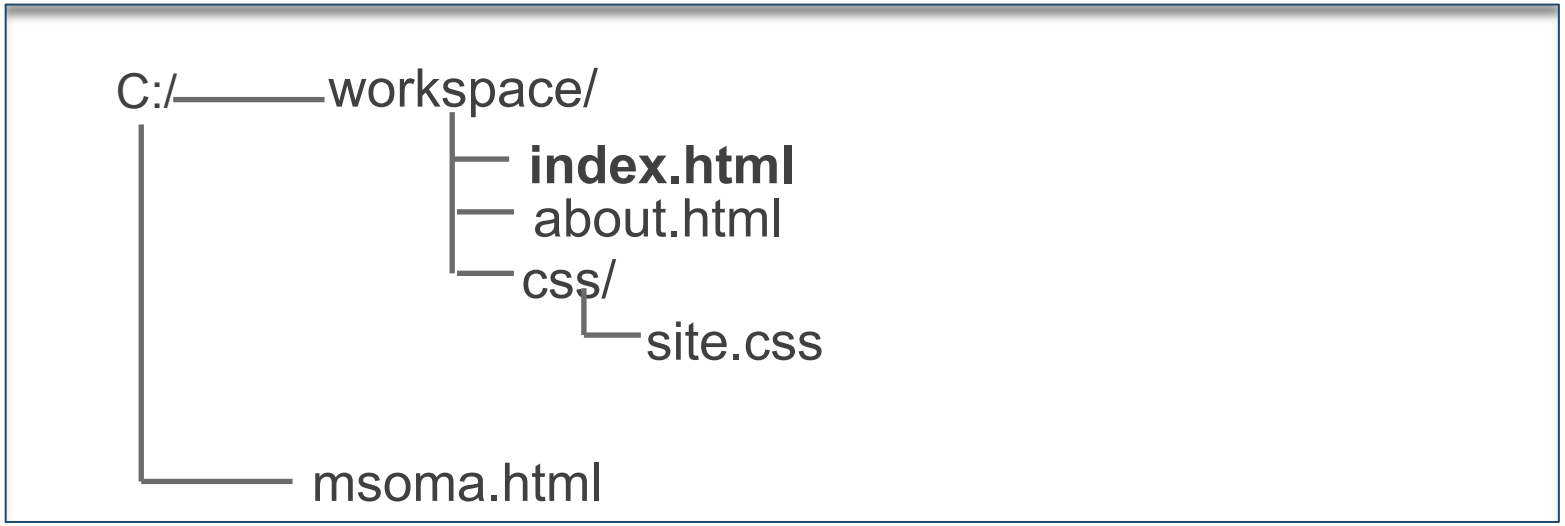
Relative and Absolute Path

Answer: "*C:/workspace/css/site.css*"



Relative and Absolute Path

To go up a folder (going back), use two dots and a slash (../)



How do you access msoma.html from index.html?

HTML Structure

Tags

- Tags start with a left bracket < and end with a right bracket >
- This is a paragraph tag:
- There are opening and closing tags. Closing tags start with </ instead:
  - Example:
- Together, a set of tags is called an element

Tags

- You can add content between an opening and a closing tag:
- Example, a paragraph element:

```
<p>Hello World!</p>
```

Tags

- Opening tags must have a closing tag
  - Not acceptable: Hello!
  - Acceptable: Hello!
- There are exceptions for special tags:
  - Example:
    - This is a line break tag
  - Also: <link rel="stylesheet" href="style.css">
    - This is a link tag to your css file (will discuss later)

Basic HTML Structure

All webpages have 3 core elements to them:

1. HTML tag
2. Head tag
3. Body tag

The head and body tags are within the HTML tags

Basic HTML Structure

Basic HTML Structure

All HTML pages must start with the **<html>** tag and end with the **</html>** tag

Inside the HTML tags, put the head tags (notice indent)

```
<html>
    <head>
    </head>
</html>
```

Basic HTML Structure - Header

What goes in <head></head>?

- Title of page, links to css and javascript files, website info, etc
- Everything not rendered on the page (content)

Title:

- **<title> </title>**
- Defines the title displayed on browser/window tabs

Basic HTML Structure - Header

```
<html>
    <head>
        <title>First Webpage</title>
    </head>
</html>
```

Basic HTML Structure - Body

What goes in <body></body>?

- Content for your page
- This is what the viewer sees

Heading tags:

- **<h1></h1>, <h2></h2>, <h3></h3>, …**

Paragraph tags:

- ** **

Basic HTML Structure - Body

Other Useful tags:

- **
** for line break (jumps to next line for text)
- **…** for bold text
- ***…*** for italicized text
- **<hr>** for horizontal line

Images and Links

Images and Links

Links

- **<a>..** tags. Also called **anchor tags**
- Example:

  You Tube
- Href is an example of an element attribute
  - Attributes are always followed by =
- Between <a> is the text displayed on the browser

Images and Links

Images

- <**img**> tag
- Image tags rely a lot on HTML attribute (like href)
- src attribute
  - Defines the image source (relative or absolute path)
  - Example: <img src="/path/to/file.png">
- Height and width attributes, e.g
  - <img src="/path/to/file.png" height="100" width="100">

Lists

- Unordered lists (bullets)

```
<ul>
    <li>Moses</li>
    <li>Monicah</li>
    <li>Fanice</li>
</ul>
```

- Moses
- Monicah
- Fanice

Lists

- Ordered lists (numbers)

```
<ol>
    <li>Moses</li>
    <li>Monicah</li>
    <li>Fanice</li>
</ol>
```

1. Moses
2. Monicah
3. Fanice

Structure of your Environment

Summary

Code Editor
Git
GitHub
Command Prompt/Terminal
HTML Basics

Next workshop is a handson lab: