

Coding workshop

April 2017, London

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#publisherswhocode

Get these slides

<https://goo.gl/UTw3GW>

or

<https://github.com/EmmaB/coding-workshop>

1. Intro

Tools of the trade

HTML

CSS

Ruby

Javascript

jQuery

Cloud9

Book Findr

Book Findr Find books using the [Google Books API](#).

 **Maps**
Aleksandra Mizielinska, Daniel Mizielinski
[Show info](#)

 **The Map Book**
Peter Barber
[Show info](#)

 **Using Google Maps and Google Earth, Enhanced Edition**
Michael Miller
[Show info](#)

 **Graphs, Maps, Trees**
Franco Moretti
[Show info](#)

Open Source Book

2. Set up your Cloud9 account

Click the link in your email

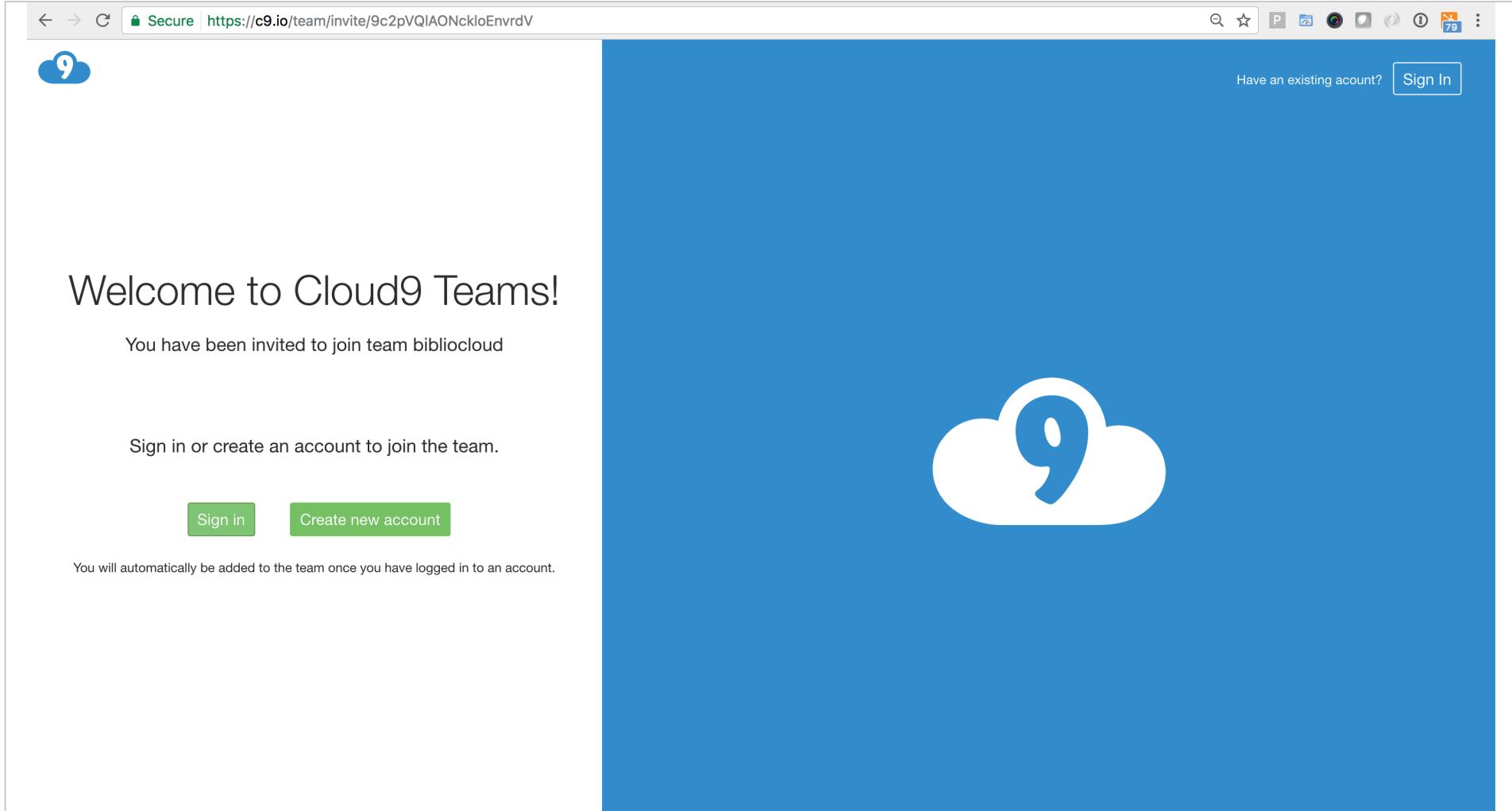
The screenshot shows a web-based email interface with a circuit board background. The top navigation bar includes 'Mail' (with a dropdown), a back arrow, a trash icon, a folder icon, a search bar, and a 'More' button. Below the bar are 'COMPOSE' and 'Inbox' buttons.

The main area displays an incoming email from 'support@c9.io via amazoneses.com' to 'emma+setup'. The email subject is 'Team bibliocloud has invited you to join their team on Cloud9'. The timestamp is '8:53 PM (0 minutes ago)'. The message body starts with 'Welcome!' followed by 'You've been invited to develop software with bibliocloud on Cloud9. Click the following link to accept the invitation: <https://c9.io/team/invite/9c2pVQIAONckloEnvrdV>'. It ends with 'Happy coding!' and a note about Cloud9 being a full-featured IDE.

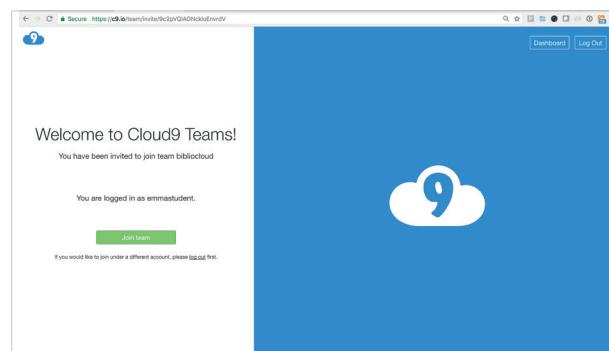
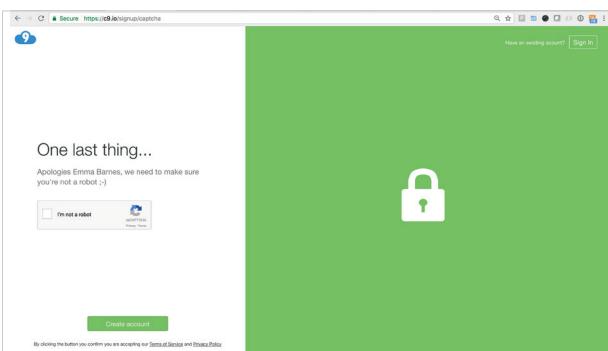
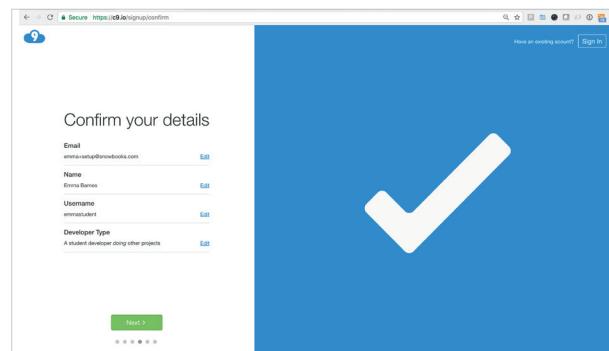
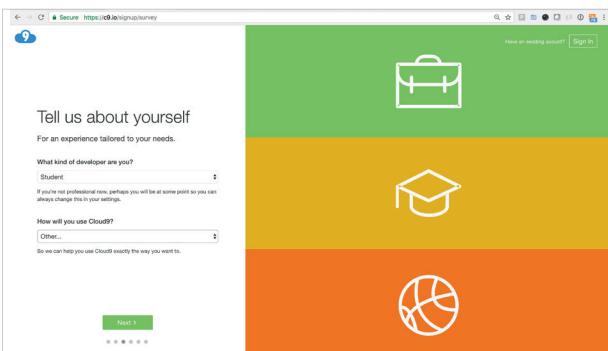
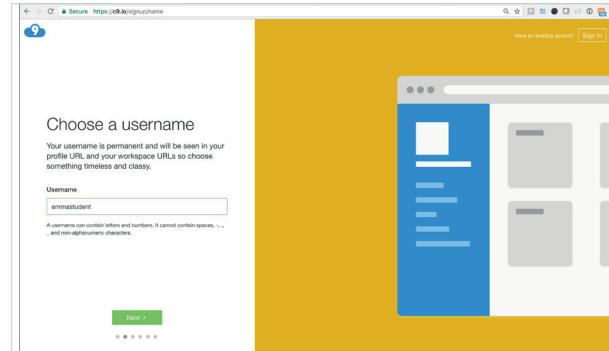
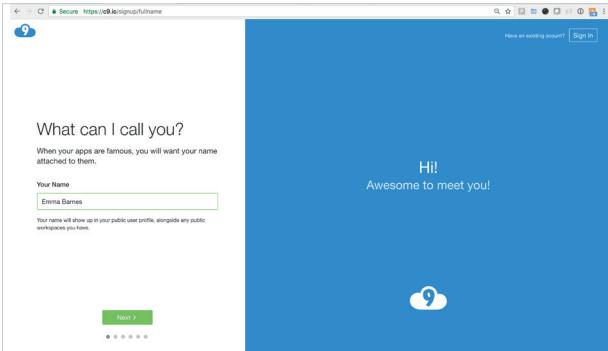
On the left sidebar, there is a navigation menu with the following items:

- Inbox
- Starred
- Important
- Sent Mail
- Drafts (40)**
- Follow up
- kika billing
- Misc
- Priority
- staff
- More ▾

Click “Create new account”



Click through the account set up



Click “Create a new workspace”

The screenshot shows the Cloud9 IDE interface. At the top, the URL https://c9.io/emmastudent?welcome is displayed in a browser bar. The main area is titled "Welcome Emma Barnes!" with a message: "Start coding now by creating a workspace below. Please don't forget to [set your password](#) from the email we sent to emma+setup@snowbooks.com, to prevent losing access to your account!" Below this, there's a "Workspaces" section with a large button labeled "Create a new workspace". On the left sidebar, under "Emma Barnes", there are links for "Workspaces", "Shared With Me", and "Repositories". Below these, sections for "YOUR TEAM SUBSCRIPTIONS" and "YOUR INDIVIDUAL SUBSCRIPTIONS" are shown, both with a "Free" status and an "Upgrade" button.

Secure | https://c9.io/emmastudent?welcome

Emma Barnes

Welcome Emma Barnes!

Start coding now by creating a workspace below. Please don't forget to [set your password](#) from the email we sent to emma+setup@snowbooks.com, to prevent losing access to your account!

Workspaces

Create a new workspace

Workspaces

Emma Barnes

Workspaces

Shared With Me

Repositories

YOUR TEAM SUBSCRIPTIONS

Bibliocloud Coding Course

YOUR INDIVIDUAL SUBSCRIPTIONS

Free

Upgrade

© 2017 Cloud9 IDE Inc.

Blog Community Documentation Pricing Support Security Status

Complete the form as shown

Anything you like

Create a new workspace

Workspace name: coding-workshop-2017-03-29-test2

Description: Make a short description of your workspace

Team: Don't set a team for this workspace

Hosted workspace

Private: This is a workspace for your eyes only

Public: This will create a workspace for everybody to see

Clone from Git or Mercurial URL (optional): https://github.com/EmmaB/coding-workshop.git

Choose a template:

- HTML5
- Node.js
- PHP, Apache ...
- Python
- Django
- Rails
- C++
- Wordpress
- Rails Tutorial
- Blank
- Harvard's CS50

Create workspace

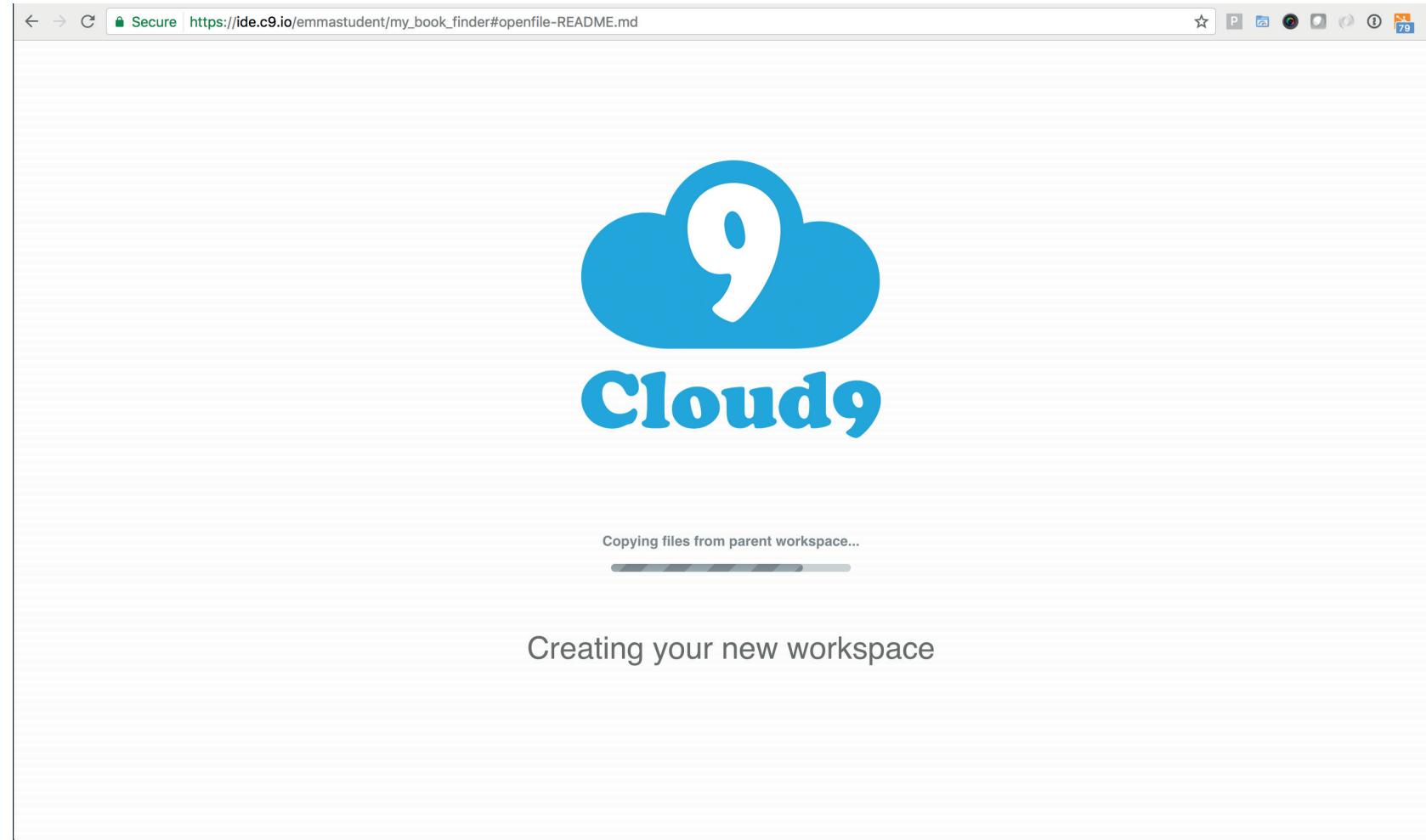
Copy and paste this url:

<https://github.com/EmmaB/coding-workshop.git>

Set to "don't set a team"

Select Ruby

Wait



Confirm your password

Important
Sent Mail
Drafts (40)
Follow up
kika billing
Misc
Priority
staff
More ▾

 support@c9.io via amazonses.com 9:05 PM (9 n)
to Emma ▾

Hi emmastudent,

Now that you've created a Cloud9 account, you can choose a password.

Once you've set it then you can also connect Github or Bitbucket and sign in with those but first thing's first...
Set Your Password:
<https://c9.io/auth/password/9cODrAd5Km0J0Wr7cUp3>

Happy coding!

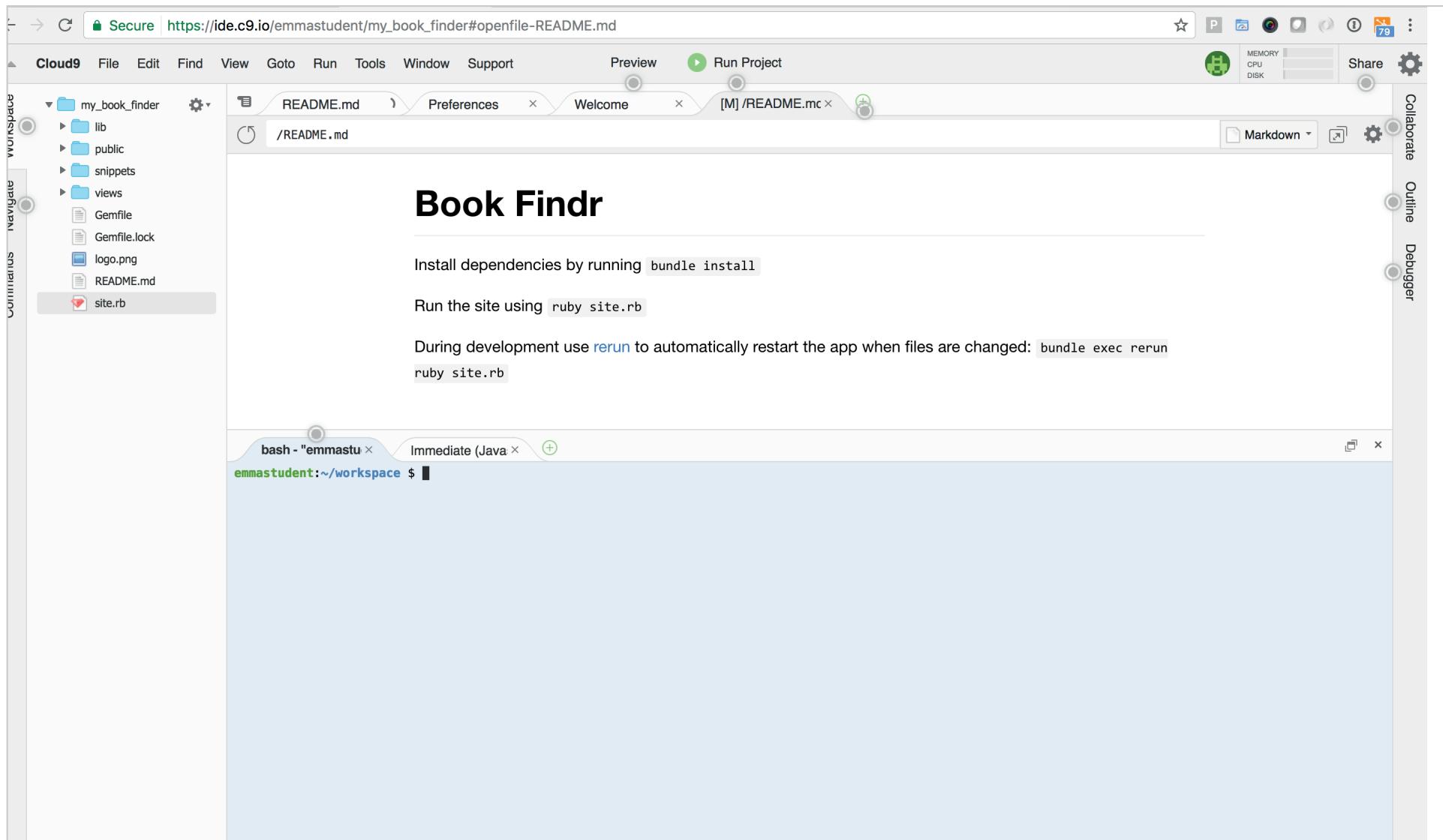
Brady Dowling
Customer Happiness Engineer, Cloud9

You are invisible.
Go visible

P.S. For future reference: your username is emmastudent

You will be able to access your workspace
for free after the course

Look at your new workspace



Bundle install

The screenshot shows a terminal window within a development environment. On the left, there's a sidebar titled "Command" listing files: Gemfile, Gemfile.lock, logo.png, README.md, and site.rb. The main area contains instructions and a terminal session.

Instructions:

- Install dependencies by running `bundle install`
- Run the site using `ruby site.rb`
- During development use `rerun` to automatically restart the app when files are changed: `bundle exec rerun ruby site.rb`

Terminal Session:

```
bash - "emmastu" ✘ Immediate (Java: ✘ +)
emmastudent:~/workspace $ bundle install
Using ffi 1.9.14
Using multi_xml 0.5.5
Using mini_portile2 2.1.0
Using pkg-config 1.1.7
Using nori 2.6.0
Using rb-fsevent 0.9.7
Using ruby_dep 1.4.0
Using rack 1.6.4
Using tilt 2.0.5
Using bundler 1.14.4
Using rb-inotify 0.9.7
Using httparty 0.14.0
Using nokogiri 1.6.8
Using rack-protection 1.5.3
Using listen 3.1.5
Using lisbn 0.2.2
Using sinatra 1.4.7
Using rerun 0.11.0
Bundle complete! 4 Gemfile dependencies, 18 gems now installed.
Use `bundle show [gemname]` to see where a bundled gem is installed.
emmastudent:~/workspace $
```

site.rb > Run

The screenshot shows a development interface with a sidebar and a main workspace.

Sidebar:

- Commands**: A vertical list of items:
 - Navigate
 - site.rb
 - Open
 - Download
 - Run** (highlighted)
 - Preview
 - Refresh
 - Rename
 - Delete
 - Cut

Main Workspace:

Book Findr

Install dependencies by running `bundle install`

Run the site using `ruby site.rb`

During development use `rerun` to automatically restart the app when files change. Run `ruby site.rb`

Terminal:

```
mastu ✘ Immediate (Java) ✘ +  
/workspace $ bundle install  
.14  
ml 0.5.5  
rtile2 2.1.0  
fig 1.1.7  
6.0
```

Congrats!

The screenshot shows a Cloud9 IDE interface at the top and a web browser window below it.

Cloud9 IDE Terminal:

- Terminal tab: bash - "emmastu"
- Runner tab: Immediate
- Current tab: site.rb - Running (green icon)
- Buttons: Stop, Run (blue), Command: site.rb, Runner: Ruby (default), CWD, ENV
- Output:
 - Your code is running at <https://my-book-finder-emmastudent.c9users.io>.
 - Important: use ENV[PORT] as the port and ENV[IP] as the host in your scripts!
 - RubyDep: WARNING: Your Ruby is outdated/buggy.
 - RubyDep: WARNING: Your Ruby is: 2.3.0 (buggy). Recommendation: upgrade to 2.3.1.
 - RubyDep: WARNING: (To disable warnings, see: http://github.com/e2/ruby_dep/wiki/Disabling-warnings)
 - [2017-04-01 09:04:58] INFO WEBrick 1.3.1
 - [2017-04-01 09:04:58] INFO ruby 2.3.0 (2015-12-25) [x86_64-linux]
 - == Sinatra (v1.4.7) has taken the stage on 8080 for development with backup from WEBrick
 - [2017-04-01 09:04:58] INFO WEBrick::HTTPServer#start: pid=15895 port=8080

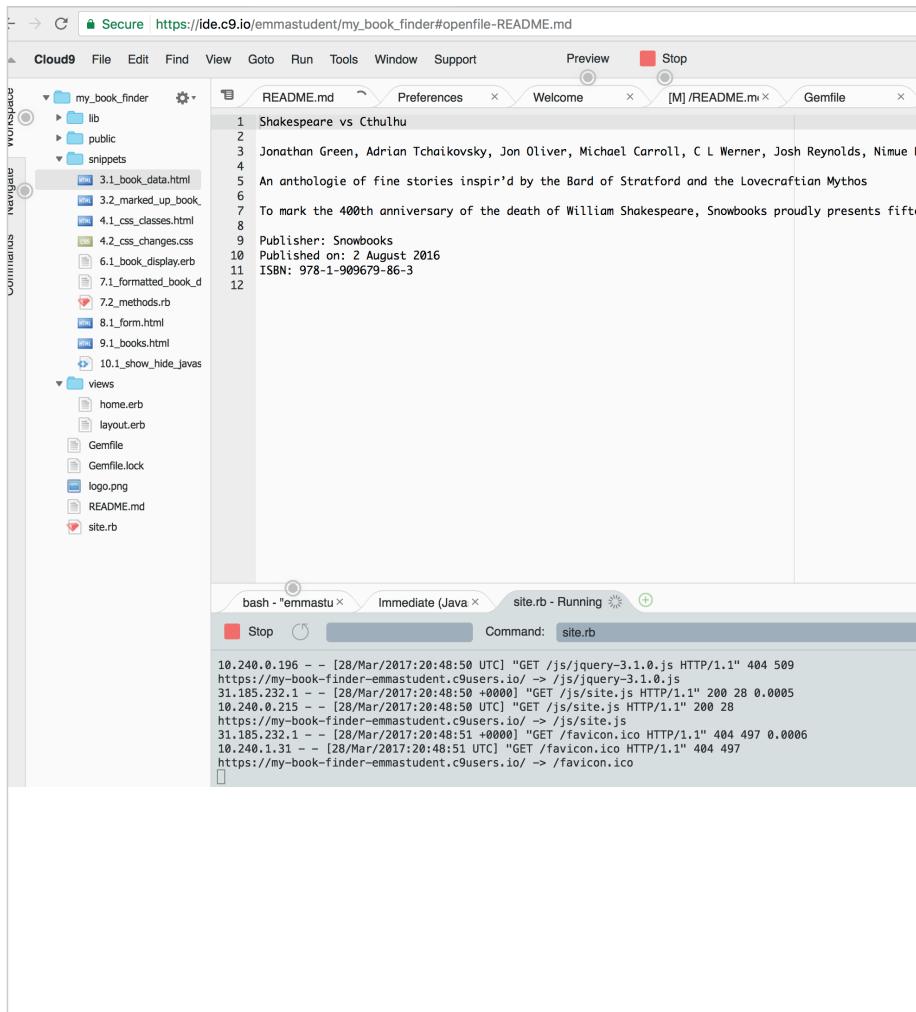
Browser Window:

- Address bar: Secure | <https://my-book-finder-emmastudent.c9users.io>
- Content:
 - Book Findr** Find books using the [Google Books API](#).
 - Coming soon...

3. HTML

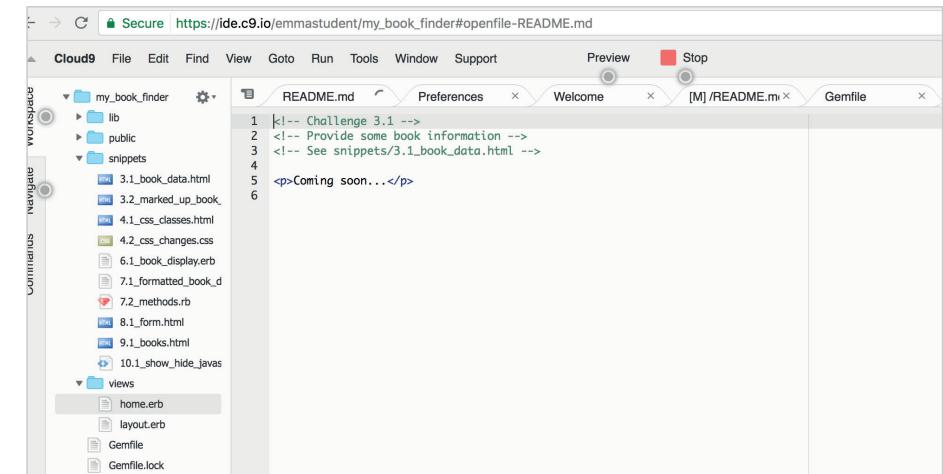
Challenge 3.1: Add some content

`snippets/3.1_book_data.html`

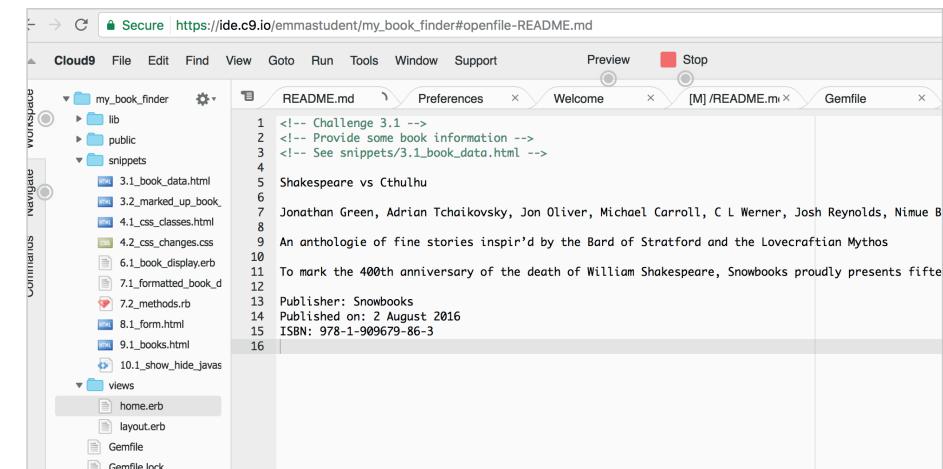


```
1 Shakespeare vs Cthulhu
2
3 Jonathan Green, Adrian Tchaikovsky, Jon Oliver, Michael Carroll, C L Werner, Josh Reynolds, Niume B
4
5 An anthologie of fine stories inspir'd by the Bard of Stratford and the Lovecraftian Mythos
6
7 To mark the 400th anniversary of the death of William Shakespeare, Snowbooks proudly presents fifte
8
9 Publisher: Snowbooks
10 Published on: 2 August 2016
11 ISBN: 978-1-909679-86-3
12
```

`views/home.erb`



```
1 <!-- Challenge 3.1 -->
2 <!-- Provide some book information -->
3 <!-- See snippets/3.1_book_data.html -->
4
5 <p>Coming soon...</p>
6
```



```
1 <!-- Challenge 3.1 -->
2 <!-- Provide some book information -->
3 <!-- See snippets/3.1_book_data.html -->
4
5 Shakespeare vs Cthulhu
6
7 Jonathan Green, Adrian Tchaikovsky, Jon Oliver, Michael Carroll, C L Werner, Josh Reynolds, Niume B
8
9 An anthologie of fine stories inspir'd by the Bard of Stratford and the Lovecraftian Mythos
10
11 To mark the 400th anniversary of the death of William Shakespeare, Snowbooks proudly presents fifte
12
13 Publisher: Snowbooks
14 Published on: 2 August 2016
15 ISBN: 978-1-909679-86-3
16
```

Results

A screenshot of a web browser window displaying a search result. The URL in the address bar is <https://my-book-finder-emmastudent.c9users.io>. The page content is as follows:

Book Findr Find books using the [Google Books API](#).

Shakespeare vs Cthulhu Jonathan Green, Adrian Tchaikovsky, Jon Oliver, Michael Carroll, C L Werner, Josh Reynolds, Nimue Brown, Danie Ware, Graham McNeill et al An anthologie of fine stories inspir'd by the Bard of Stratford and the Lovecraftian Mythos To mark the 400th anniversary of the death of William Shakespeare, Snowbooks proudly presents fifteen stories of eldritch horror that blend the Bard's most famous plays with Lovecraft's most terrifying creations. But before you dip into this curséd tome, be warned – that way madness lies... Publisher: Snowbooks Published on: 2 August 2016 ISBN: 978-1-909679-86-3

The browser interface includes standard navigation buttons (back, forward, search), a secure connection indicator, and a toolbar with various icons.

HTML tags

This HTML tag indicates a paragraph is about to start



< p > Friends, Romans, Countrymen, lend me your ears. </ p >



This HTML tag indicates that the paragraph has finished

HTML tags

Paragraph

```
<p>...</p>
```

e.g.

```
<p>An anthologie of fine stories inspir'd  
by the Bard of Stratford and the  
Lovecraftian Mythos</p>
```

Strong

```
<strong> ...</strong>
```

e.g.

```
<p>An anthologie of fine stories inspir'd  
by the <strong>Bard of Stratford</  
strong> and the Lovecraftian Mythos</p>
```

Headings

```
<h1> ...</h1>
```

```
<h2> ...</h2>
```

e.g.

```
<h2>Shakespeare vs Cthulhu</h2>
```

List

```
<ul>  
    <li>....</li>  
</ul>
```

Usually interpreted as a bulleted list e.g.

```
<ul>  
    <li>Publisher: Snowbooks</li>  
    <li>Published on: 2 August  
2016</li>  
    <li>ISBN: 978-1-909679-86-3</li>  
</ul>
```

Division

```
<div>  
    ...  
</div>
```

A division or section of the page e.g.

```
<div>  
    <p>Stories inspir'd by the  
<strong>Bard of Stratford</  
strong> and the Lovecraftian  
Mythos</p>  
</div>
```

Image

```
<img src=' ' alt=' ' >
```

Code which points to a file location of an image to display. **src** means source -- the file location. **alt** means alternative text -- vital for accessibility.

```
<img src='images/jacket.jpg'  
alt='Shakespeare vs Cthulhu  
cover image'>
```

Challenge 3.2: Apply HTML tags

Use HTML tag syntax to mark up text in **home.erb**.

Have a go at typing in some HTML tags from the list above into the text you copied into **home.erb**.

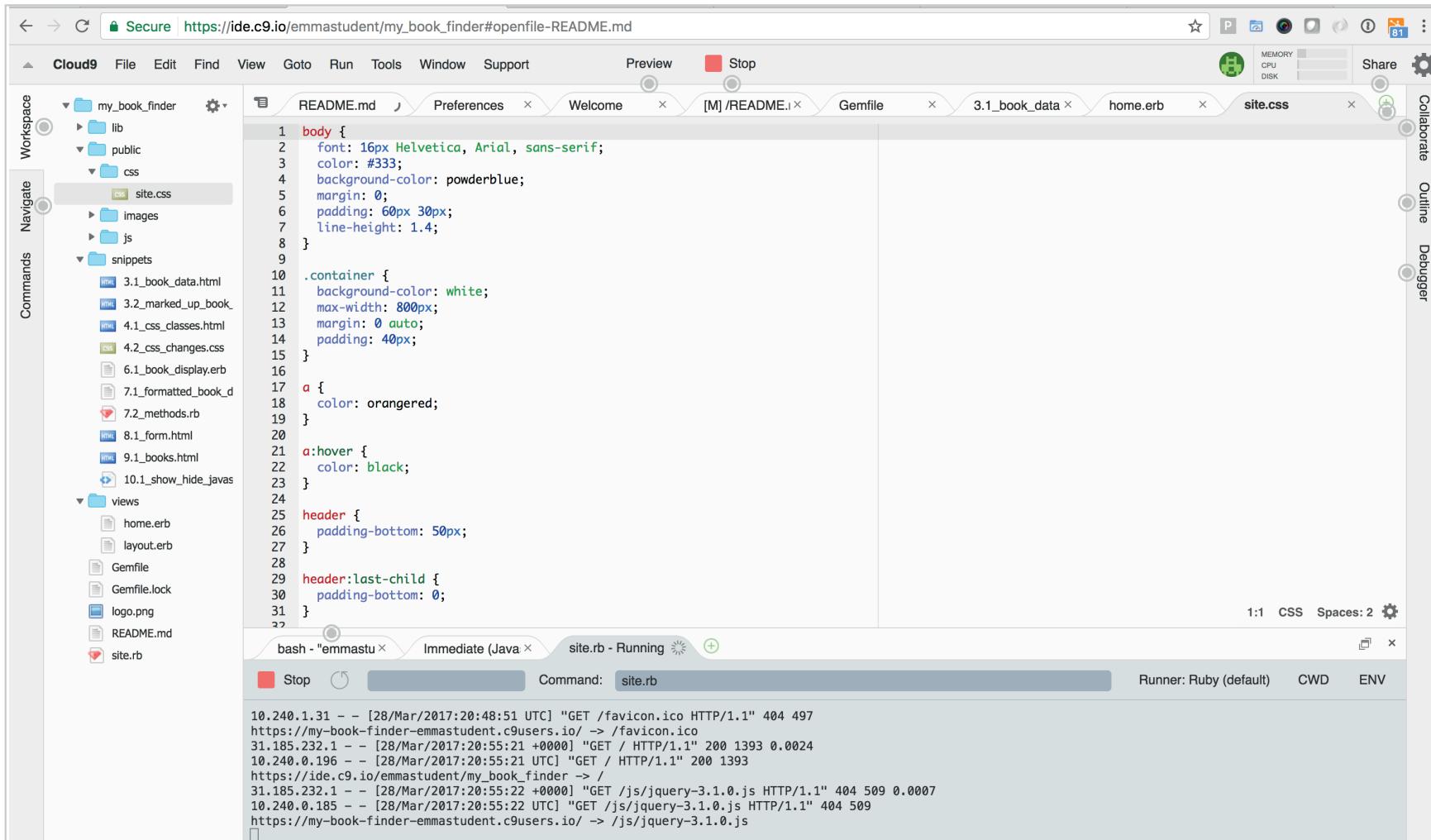
Then look in the snippets folder for **3.2_marked_up_book_data.html** where you'll find the answers for reference.

Make your **home.erb** match the snippet. Try not to copy and paste.

4. CSS

CSS

Navigate to **public/css/site.css**.



The screenshot shows the Cloud9 IDE interface with the following details:

- Workspace:** my_book_finder
- Selected File:** site.css
- Code Content:**

```
1 body {
2   font: 16px Helvetica, Arial, sans-serif;
3   color: #333;
4   background-color: powderblue;
5   margin: 0;
6   padding: 60px 30px;
7   line-height: 1.4;
8 }
9
10 .container {
11   background-color: white;
12   max-width: 800px;
13   margin: 0 auto;
14   padding: 40px;
15 }
16
17 a {
18   color: orangered;
19 }
20
21 a:hover {
22   color: black;
23 }
24
25 header {
26   padding-bottom: 50px;
27 }
28
29 header:last-child {
30   padding-bottom: 0;
31 }
```

- Preview:** Shows the rendered CSS output.
- Bash Terminal:** Displays log entries from the application's runtime environment.

```
10.240.1.31 - - [28/Mar/2017:20:48:51 UTC] "GET /favicon.ico HTTP/1.1" 404 497
https://my-book-finder-emmastudent.c9users.io/ -> /favicon.ico
31.185.232.1 - - [28/Mar/2017:20:55:21 +0000] "GET / HTTP/1.1" 200 1393 0.0024
10.240.0.196 - - [28/Mar/2017:20:55:21 UTC] "GET / HTTP/1.1" 200 1393
https://ide.c9.io/emmastudent/my_book_finder -> /
31.185.232.1 - - [28/Mar/2017:20:55:22 +0000] "GET /js/jquery-3.1.0.js HTTP/1.1" 404 509 0.0007
10.240.0.185 - - [28/Mar/2017:20:55:22 UTC] "GET /js/jquery-3.1.0.js HTTP/1.1" 404 509
https://my-book-finder-emmastudent.c9users.io/ -> /js/jquery-3.1.0.js
```

Readable code

```
body {  
    font: 16px Helvetica, Arial, sans-serif;  
    color: #333;  
    background-color: powderblue;  
    margin: 0;  
    padding: 60px 30px;  
    line-height: 1.4;  
}
```

4.1 Apply CSS classes to your HTML

Apply CSS classes to the two **divs** in `views/home.erb`.

Look in the snippets folder for a file called `4.1_css_classes.html`. But try not to copy and paste.

4.2: Change colours and fonts

Look in the snippets folder for a file called **4.2_css_changes.css**, and edit the CSS in **public/css/site.css** as the comments indicate. Try not to copy and paste.

5. A static website

How the web works

This is the domain name

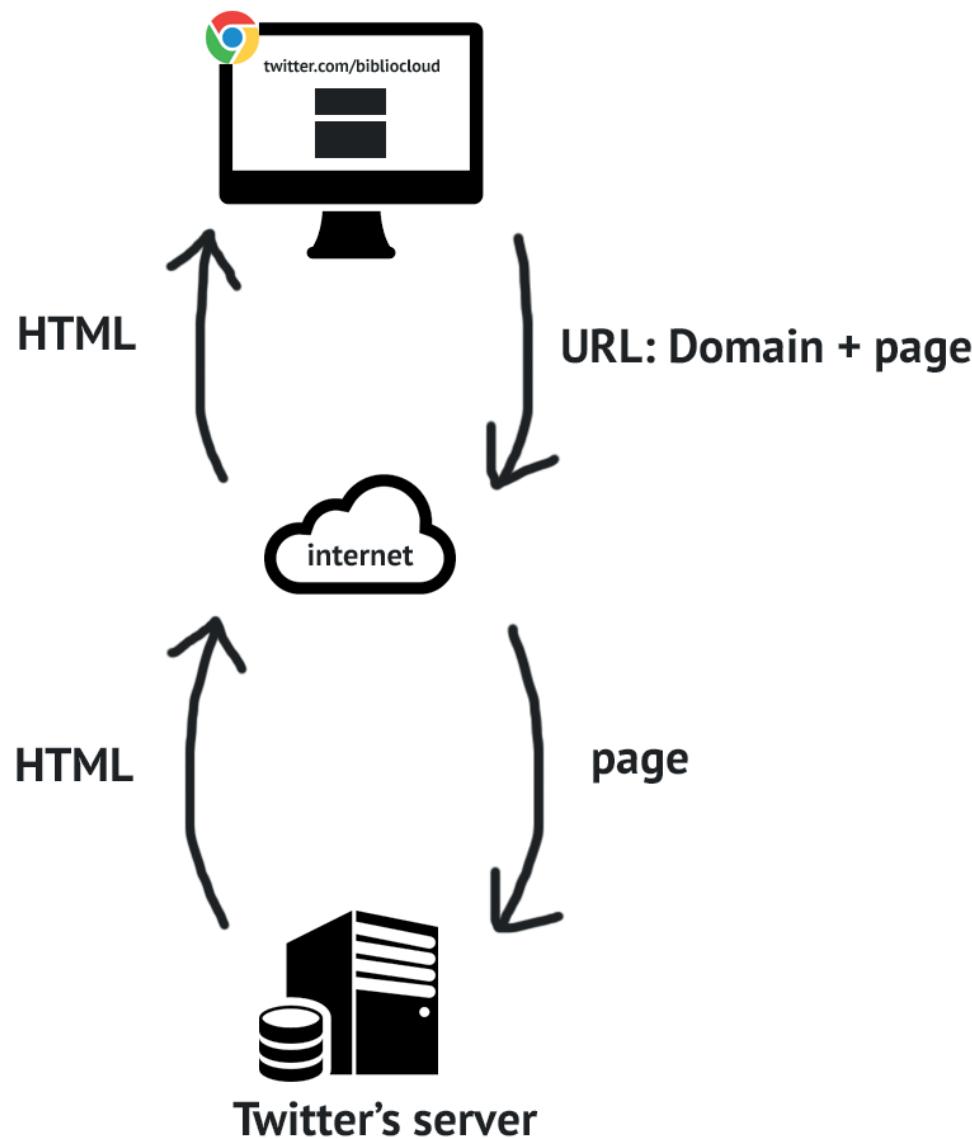


www.twitter.com/bibliocloud

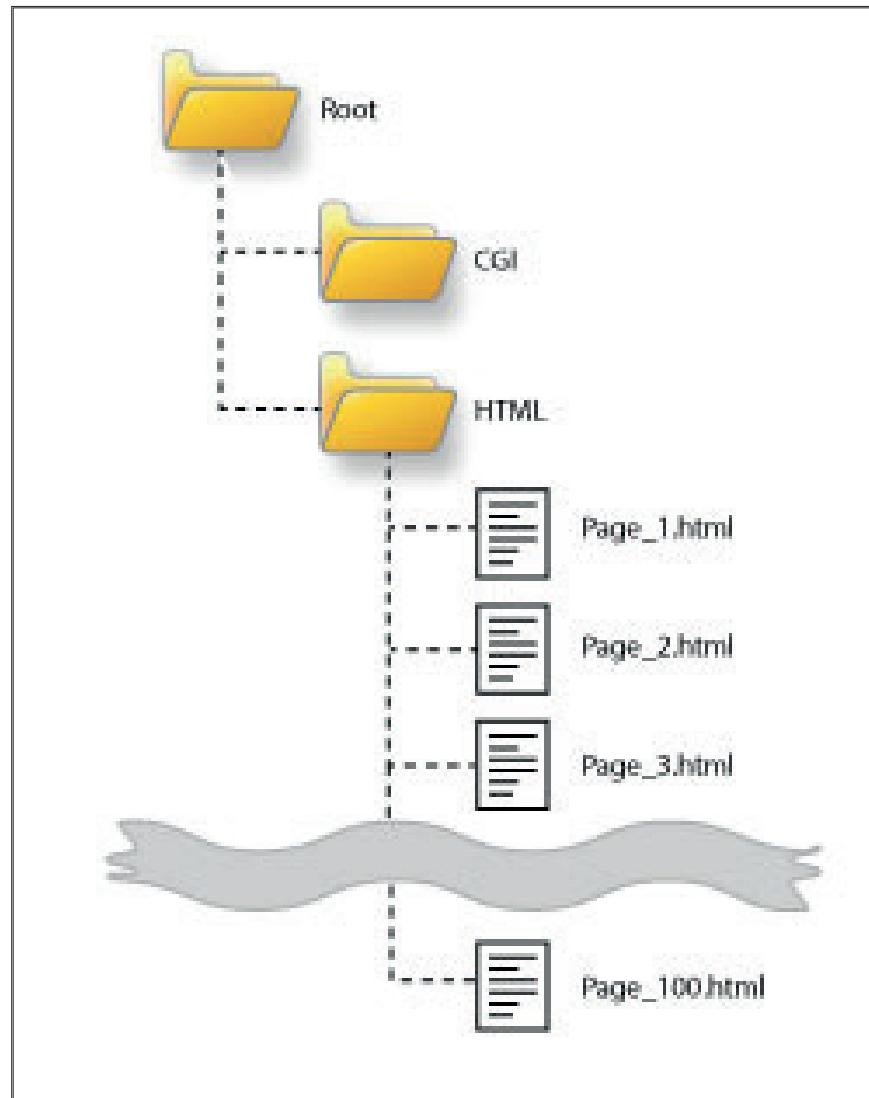


This is the page

The round trip from browser, via the internet, to a server and back



A static website

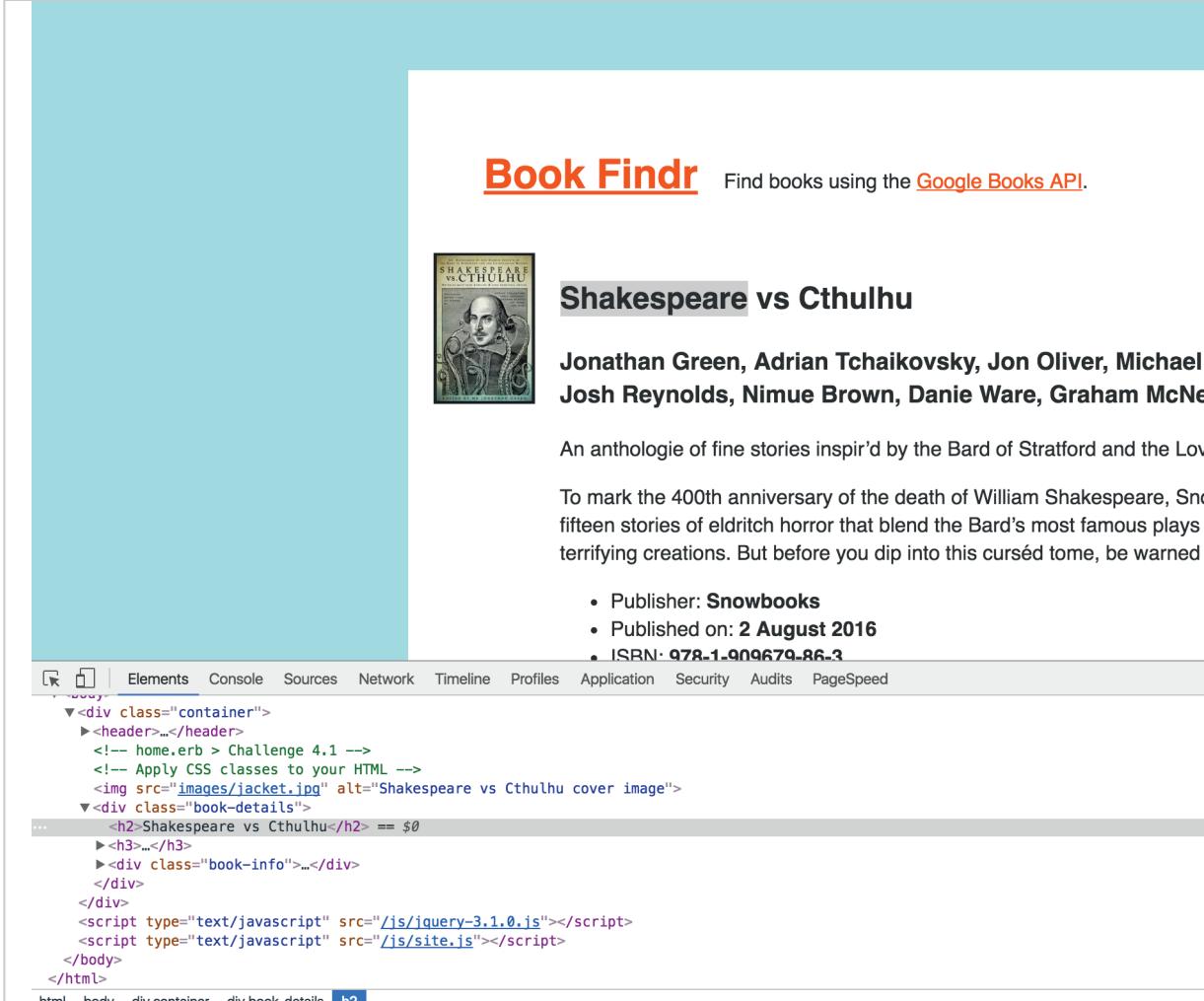


All web pages are made from HTML

Let's prove it. Open the `views/home.erb` file and in the code, find the line that reads

```
<h2>Shakespeare vs Cthulhu</h2>
```

Now see if you can find those words on the web page: on the browser, hover your mouse over the words "Shakespeare vs Cthulhu". Right click your mouse, and choose 'Inspect'. A pane will open in your browser, showing the HTML that's generating the page. It's the same as in your `home.erb` file.



The screenshot shows a browser window displaying the Book Findr website. The title of the book, "Shakespeare vs Cthulhu", is visible at the top. Below the title is a small thumbnail image of the book cover. To the right of the image, the authors listed are Jonathan Green, Adrian Tchaikovsky, Jon Oliver, Michael Josh Reynolds, Nimue Brown, Danie Ware, and Graham McNe. Below the authors, a brief description of the book is provided. At the bottom of the page, there is a list of details including the publisher, publication date, and ISBN. The bottom portion of the screenshot shows the browser's developer tools, specifically the Elements tab, which displays the raw HTML code for the page. The `<h2>Shakespeare vs Cthulhu</h2>` line is highlighted in the code view, demonstrating that the page's content is indeed generated from the specified ERB file.

Book Findr Find books using the [Google Books API](#).

Shakespeare vs Cthulhu

Jonathan Green, Adrian Tchaikovsky, Jon Oliver, Michael Josh Reynolds, Nimue Brown, Danie Ware, Graham McNe

An anthologie of fine stories inspir'd by the Bard of Stratford and the Lov

To mark the 400th anniversary of the death of William Shakespeare, Snc fifteen stories of eldritch horror that blend the Bard's most famous plays' terrifing creations. But before you dip into this curséd tome, be warned:

- Publisher: **Snowbooks**
- Published on: **2 August 2016**
- ISBN: **978-1-909679-86-3**

Elements Console Sources Network Timeline Profiles Application Security Audits PageSpeed

```
<div class="container">
  <header>...</header>
  <!-- home.erb > Challenge 4.1 -->
  <!-- Apply CSS classes to your HTML -->
  
  <div class="book-details">
    <h2>Shakespeare vs Cthulhu</h2> == $0
    <h3>...</h3>
    <div class="book-info">...</div>
  </div>
  <script type="text/javascript" src="/js/jquery-3.1.0.js"></script>
  <script type="text/javascript" src="/js/site.js"></script>
</body>
</html>
```

html body div.container div.book-details h2

Challenge 5.1: Change the web!

Go to any web page -- bbc.co.uk, twitter.com, anything you like. Hover over any text, then right mouse and Inspect. Edit the HTML in the Inspect pane by clicking and typing over some words. See what happens in the browser.

Result:

Editing the HTML changes what's displayed on the web page.

Web pages are made from HTML.

6. A dynamic website

Ruby tags

```
<h3>The date today is [Computer please insert today's date]. Welcome back [Computer please insert user first name]!</h3>
```



```
<h3>The date today is January 1st. Welcome back Stan!</h3>
```

Databases

APIs

Why Ruby?

Omit needless words.

Vigorous writing is concise. A sentence should contain no unnecessary words, a paragraph no unnecessary sentences, for the same reason that a drawing should have no unnecessary lines and a machine no unnecessary parts. This requires not that the writer make all his sentences short, or that he avoid all detail and treat his subjects only in outline, but that every word tell.

Strunk and White, *The Elements of Style*, 1918

Why Sinatra?

Syntax

The syntax for a Ruby tag is this:

```
<%= book.title %>
```

Attributes

BOOK ATTRIBUTE	EXAMPLE
book.image_path	/public/images/jacket.jpg
book.title	Shakespeare vs Cthulhu
book.authors	[Jonathan Green, Adrian Tchaikovsky, Jon Oliver, Michael Carroll, C L Werner, Josh Reynolds, Nimue Brown, Danie Ware, Graham McNeill]
book.description	An anthologie of fine stories inspir'd by the Bard of Stratford and the Lovecraftian Mythos. To mark the 400th anniversary of the death of William Shakespeare, Snowbooks proudly presents fifteen stories of eldritch horror that blend the Bard's most famous plays with Lovecraft's most terrifying creations. But before you dip into this curséd tome, be warned – that way madness lies...
book.publisher	Snowbooks
book.publish_date	2016-08-23
book.isbn	978-1-909679-86-3

Some data

Open **lib/sample_book.rb**.

You'll see some sample data--the title is *War and Peace*, the publisher is Snowbooks, and so on.

The screenshot shows a code editor interface with a file named `sample_book.rb` open. The code defines a constant `SAMPLE_BOOK` which is an instance of the `Book` class. The `Book` class has attributes like `image_path`, `title`, `authors`, `description`, `publisher`, `publish_date`, and `isbn`. The code includes comments explaining the use of constants and freezing objects. Below the code editor is a terminal window showing a command-line interface with tabs for `bash - "emmastu"`, `Immediate (Java)`, and `site.rb - Running`. The terminal output shows a log entry from a server at IP 10.240.1.31, timestamped [28/Mar/2017:20:48:51 UTC], indicating a "GET /favicon.ico" request resulted in a 404 error.

```
# We defined this sample book to work exactly as the results returned by the Google Book search
# Book.new creates an instance of a book using a list of attributes and related values that we define
# Have a look in lib/book.rb for how making a new book works
# The capital letters mean that sample book is a "constant", which means it won't change during the lifetime of the application
# Additionally, the book itself is "frozen" which means you'll get an error if you try and modify it during runtime
# Learn more about constants: http://rubylearning.com/satishtalim/ruby_constants.html
# Learn more about freezing objects: http://rubylearning.com/satishtalim/mutable_and_immutable_objects.html
SAMPLE_BOOK = Book.new(
  image_path: "images/jacket.jpg",           # Set the image path (the image actually lives in the "public" folder)
  title: "War and Peace",                   # Set the title
  authors: ["Bill", "Ben"],                 # Set the authors. We use an "array", indicated by the square brackets
  description: "A book about war, mainly.", # Set the description
  publisher: "Snowbooks",                  # Set the publisher
  publish_date: Date.new(2016, 3, 23),     # Set the publish date. We use a real Date object here, so it can be formatted
  isbn: "9781905005123"                   # Set the ISBN13
).freeze
```

```
10.240.1.31 - - [28/Mar/2017:20:48:51 UTC] "GET /favicon.ico HTTP/1.1" 404 497
https://my-book-finder-emmastudent.c9users.io/ -> /favicon.ico
```

6.1: Replace static text with Ruby tags

Use the Ruby tag syntax to replace static text in `home.erb` with the dynamic attributes in the book attributes table.

Look in the snippets folder for a file called `6.1_book_display.erb`. But try not to copy and paste. Ruby's tag syntax is `<%= ... %>`

Optionally, in the `lib/sample_book.rb` file, try amending some of the data and seeing what happens when you refresh the browser.

7. Ruby methods

7.1: Format the publication date

Look in the snippets folder for **7.1_formatted_book_display.erb**. and type the method you see into the relevant place in **home.erb**.

If you have time, open a new tab and Google how Ruby handles dates. Much of a programmer's time is spent Googling for answers.

Ruby methods

publish_date is something that a **book** has.

The syntax:

book.publish_date

is the same as saying “Book, please tell me your publish_date”.

Another ruby method

Here's a method that figures out the stock delivery date of a book that's been printed:

```
def delivery_date  
  publish_date - 30  
end
```

We can get that date by calling

```
book.delivery_date
```

Another ruby method

Here's a method that puts the title into capitals:

```
def title_in_caps
  title.upcase
end
```

Challenge 7.2: Methods

Look in the snippets folder for a file called **7.2_methods.rb**. You'll see a method defined, called **uppercase_title**.

Open the **lib/book.rb** file and on line 40 type in this method to transform the title into uppercase. Try not to copy and paste.

Then use the method in your view code by using the Ruby dot to call your method on book. Your view code is in the file called **views/home.erb**. You should replace the code **book.title** with **book.uppercase_title**

Then restart the server by clicking Stop, and then Run, on the site.rb terminal tab.

If you want a further challenge, try writing more methods to transform the title. For instance, can you define a method called “rollercoaster” where every other character in the title is uppercase?

8. An API data source

Google Books API

<https://www.googleapis.com/books/v1/volumes?q=cookery>



A screenshot of a web browser window displaying the JSON response from the Google Books API. The URL in the address bar is <https://www.googleapis.com/books/v1/volumes?q=cookery>. The page content shows a single item from the search results:

```
ind: "books#volumes",
totalItems: 1105,
items: [
- {
    kind: "books#volume",
    id: "BXmDGQAACAAJ",
    etag: "huVFF7EA3Hg",
    selfLink: "https://www.googleapis.com/books/v1/volumes/BXmDGQAACAAJ",
    volumeInfo: {
        title: "The Country Life Cookery Book",
        subtitle: "With a Few Hints and Reminders about the Kitchen Garden. Wood Engravings by Eric Ravilious",
        authors: [
            "Ambrose Heath"
        ],
        publishedDate: "1937",
        industryIdentifiers: [
            - {
                type: "OTHER",
                identifier: "OCLC:254984181"
            }
        ],
        readingModes: {
            text: false,
            image: false
        },
        pageCount: 253,
        printType: "BOOK"
    }
}
```

8.1: Add a form to query the API

Add a form into **layout.erb** (not **home.erb** this time)

To do that, look in the snippets folder for a file called **8.1_form.html**

Copy the contents into line 15 of **layout.erb**, above

</header>

Stack trace

Type a book title or subject in and click Search. Then go to your command line: it will show the ‘stack trace’ which is a log of all the code that runs on the server. You’ll see something like this:

```
172.17.42.1 - - [10/Sep/2016:18:20:36 UTC] "GET  
/?query=you+are+the+hero HTTP/1.1" 200 1514
```

9. Displaying data

Variables

You can define a variable using an equals sign, like this:

```
books = Book.all
```

Navigate to [snippet/9.1_books.html](#). Look at the line

```
<% books.each do |book| %>
```

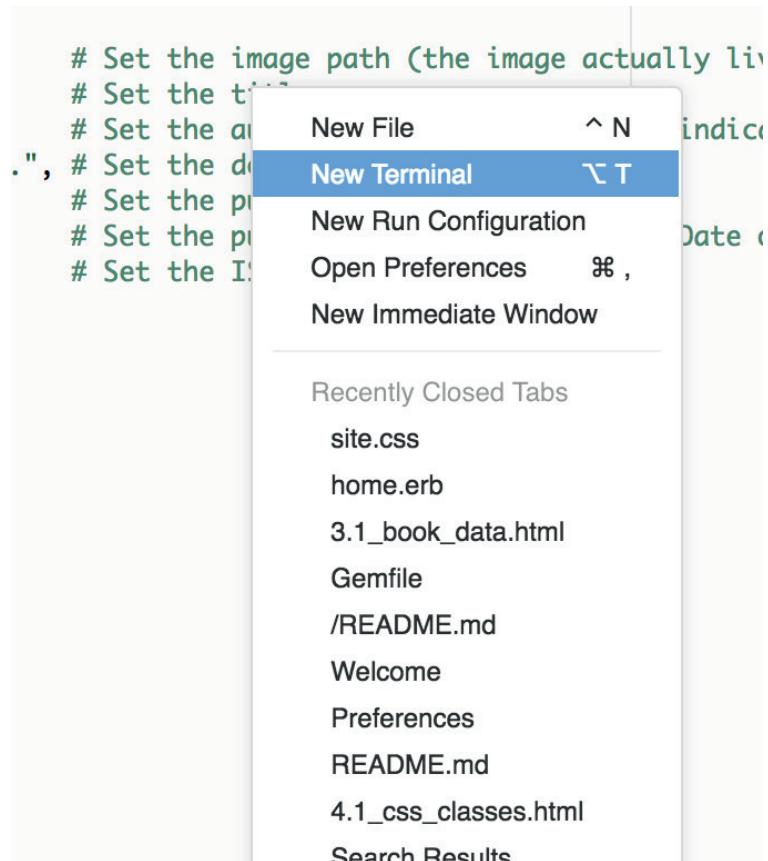
The `books` variable is set in [site.rb](#) when this line of code runs:

```
books = GoogleBooksApi.new.search_volumes(params["query"])
```

irb

Add a new terminal window by clicking on the plus sign and selecting New Terminal, then type into the terminal:

```
bundle exec irb -I. -r site.rb
```



```
emmastudent:~/workspace (master) $ bundle exec irb -I. -r site.rb
RubyDep: WARNING: Your Ruby is outdated/buggy.
RubyDep: WARNING: Your Ruby is: 2.3.0 (buggy). Recommendation: upgrade to 2.3.1
RubyDep: WARNING: (To disable warnings, see:http://github.com/e2/ruby\_dep/wiki/)
```

Calling the API

Type in:

```
books = GoogleBooksApi.new.search_volumes("bob")
```

Iteration

```
<% books.each do |book| %>
```

Conditional logic

```
<% if query %>
  <!-- all the results of the query -->
<% end %>
```

Challenge 9.1: Display the results

Add code to **home.erb** to iterate through the **books** variable and display each book.

To do this, look in the snippets folder for a file called **9.1_books.html**.

The comments explain which bits of the code in that snippet should go where.

10. Javascript

10.1: Add a show/hide feature

Add code into **public/js/site.js** to show and hide the data.

To do this, look in the snippets folder for a file called **10.1_show_hide_javascript.js**. Copy and paste that code into **public/js/site.js**

Client side vs server side

Look in **views/layout.erb**: at the bottom of the file you'll see the line:

```
<script type="text/javascript" src="/js/  
site.js"></script>
```

That's how the code in **site.js** gets included in the HTML page on your browser.

src means “source”.

Next steps

Help us improve!

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