Checkpoint 7

HTML containers

Thus far, you have been learning bite-sized pieces of web page development, like how to add, modify, and restyle text and images. But you have yet to learn about the core structure of a web page—until now. In this checkpoint, you'll learn how to work with HTML containers to create more complex web page layouts. You will also practice creating links that jump to specific parts of a web page.

Outline

It's important to keep in mind that although these containers are a very important part of web page layouts, they are just the tip of the iceberg. There is still much more for you to learn about web page layouts and what you can do with them. But this checkpoint will get you started, showing you how to add color and images to the background of these large block containers to help improve the presentation of a web page. Once you've mastered this, you'll be better equipped to create more sophisticated page layouts in the future checkpoints.

By the end of this checkpoint, you will be able to do the following:

- Organize content on a web page using container elements

Introduction to HTML containers

So, what are containers? *Containers* are specific HTML elements that wrap around web page content—namely text, images, and links—in order to help you manage the layout and positioning of that content. These are the most common HTML5 container tags:

- `<header> ... </header>`
- `<nav> ... </nav>`
- `<footer> ... </footer>`
- `<main> ... </main>`
- `<article> ... </article>`
- `<section> ... </section>`
- `<div> ... </div>`

Outline

Before you learn about what each does, you'll need to understand how these containers are similar and why they're important. Here are the similarities:

- They all work the *exact* same way.
- They all wrap around text, images, and links.
- They all provide the same starting shape and placement within the flow of the web page.

And here's why they're important and how they work within the web:

- Search engines use containers to compare content across websites. Specifically, they look at the content within web page containers in order to rank the importance of one website over another. Therefore, using these containers properly and effectively will give your web pages more clout on the web.
- Containers make it easier to read code. The containers group relevant content within it, so it's easier to find what you're looking for. For instance, if you have a logo and navigation within a header container, then you know to look first for the `<header>`. There, you'll find the logo and navigation.

Semantic code and containers

At its most basic level, semantics is the study of the meaning of words and phrases. It involves looking at the logic behind language. As you began to see in the previous checkpoint, semantics play a role in HTML coding. *Semantic code* is code that has a specific, logical meaning that helps describe the content it is associated with.

In code, semantic elements more clearly, simply, and (in a way) literally express what they do than non-semantic elements. They do more than provide instructions about how the code should appear or what it should do. Semantic code also has semantic significance that makes it easier for search engines, computers, and programmers to read and understand how it operates.

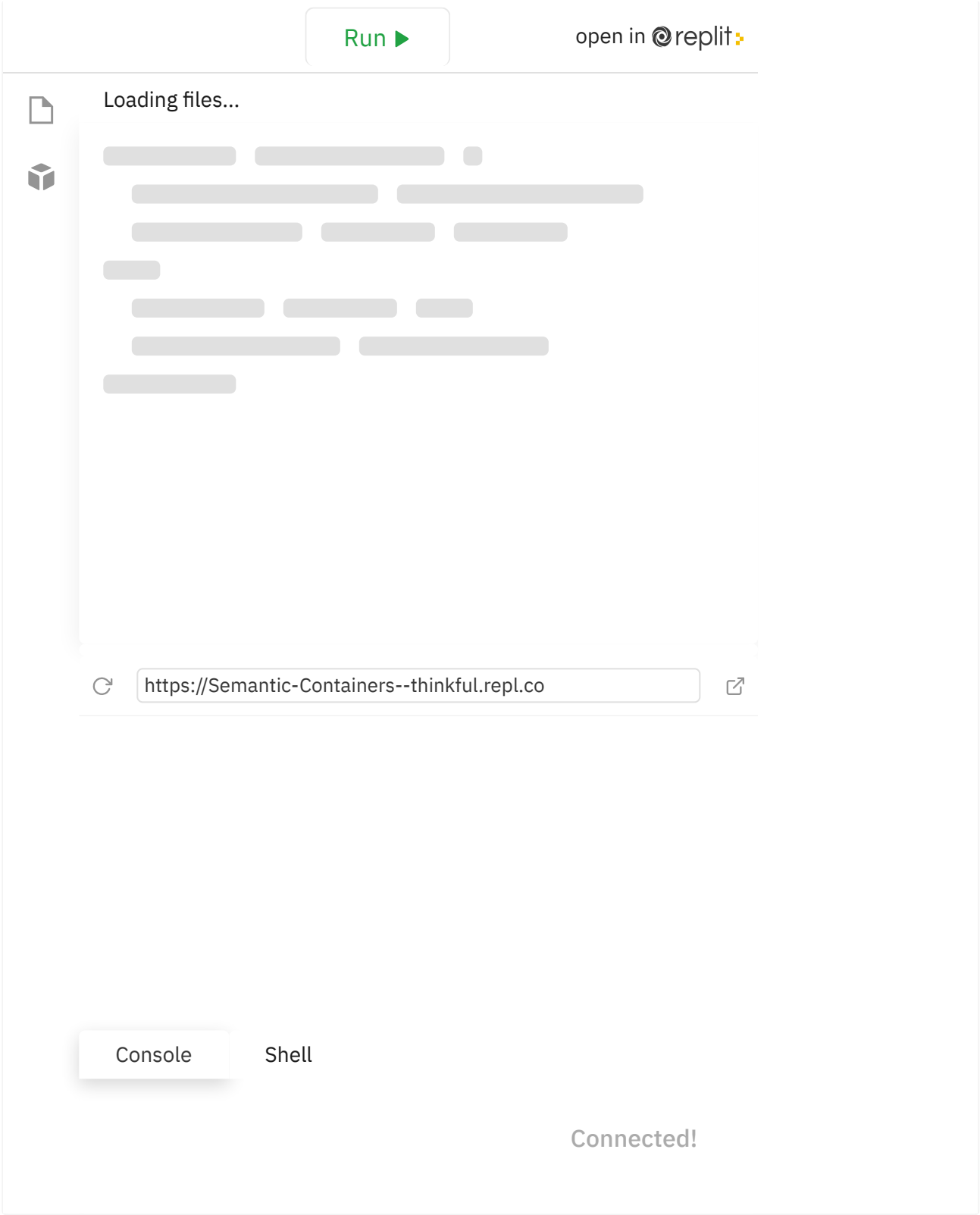
For instance, consider the text-formatting elements you learned about: `<b>` and `<strong>`. If you wanted to make text bold on your page, you could use either. But the `<b>` is not semantic—it doesn't

have any other significance other than saying that the text should be presented as bold. An alternative, and better, semantic tag for bolding is `<strong>`. This tag is preferable because it's actually providing a robust description.

But what is a semantic container? A *semantic container* is an HTML element designed to contain images, text, and links to help with page layout and positioning. But because it's semantic, a semantic container also has a specific meaning for search engines and the developer. Like *semantic code*, it helps describe the content it is associated with.

HTML4 versus HTML5

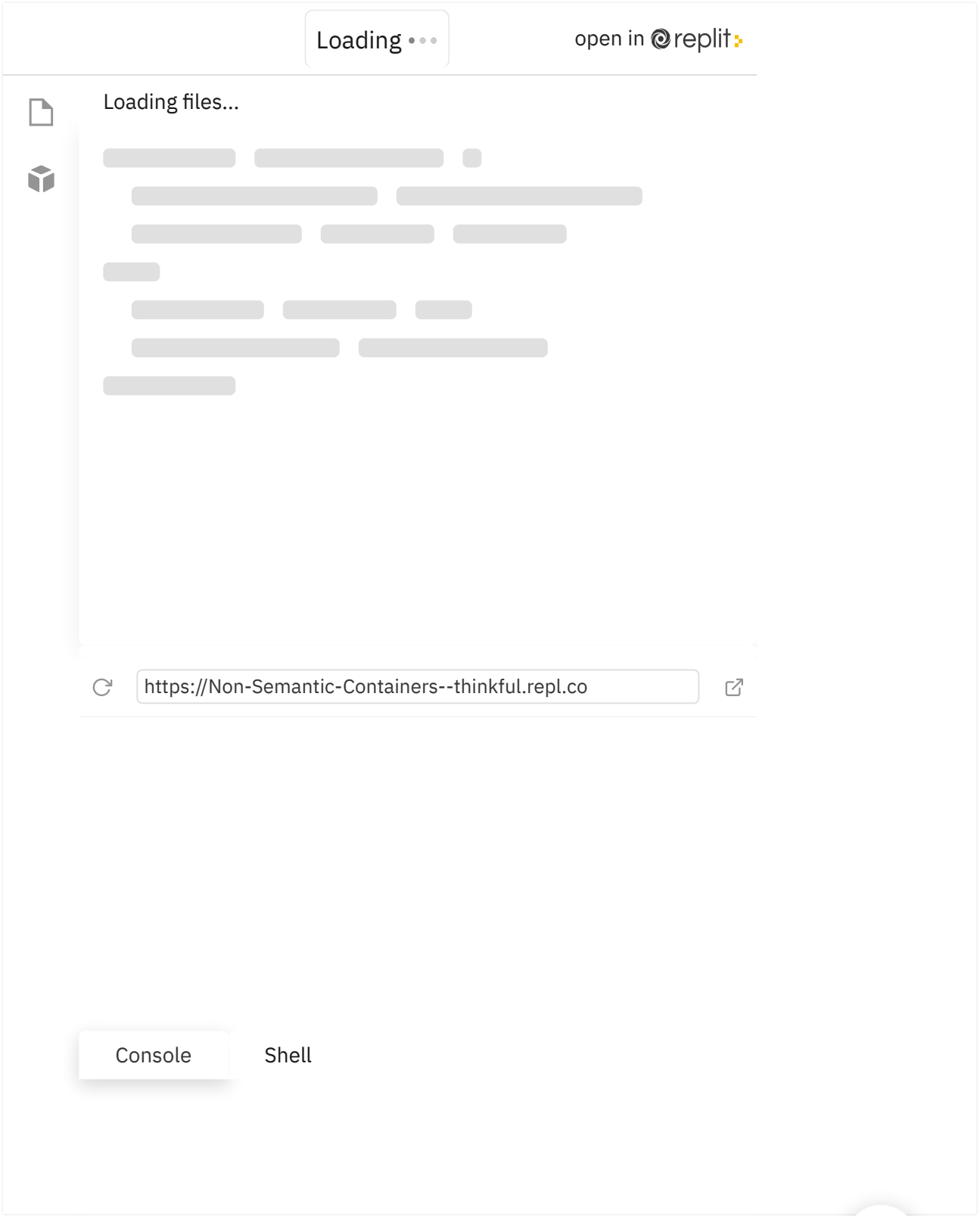
It's easier to understand the importance of semantic container elements when they're compared with non-semantic elements. In HTML5, semantic containers were added so each container itself provided a description of the content within it. Check out the code sample in the Repl.it below to see an example of how this works in HTML5.



Outline

By comparison, within HTML4, the only containers were non-semantic `<div>` containers. These generic containers have no semantic importance because they provide no meaningful description of

content they contain. See the Repl.it below for an example of how this works in HTML4.



Outline

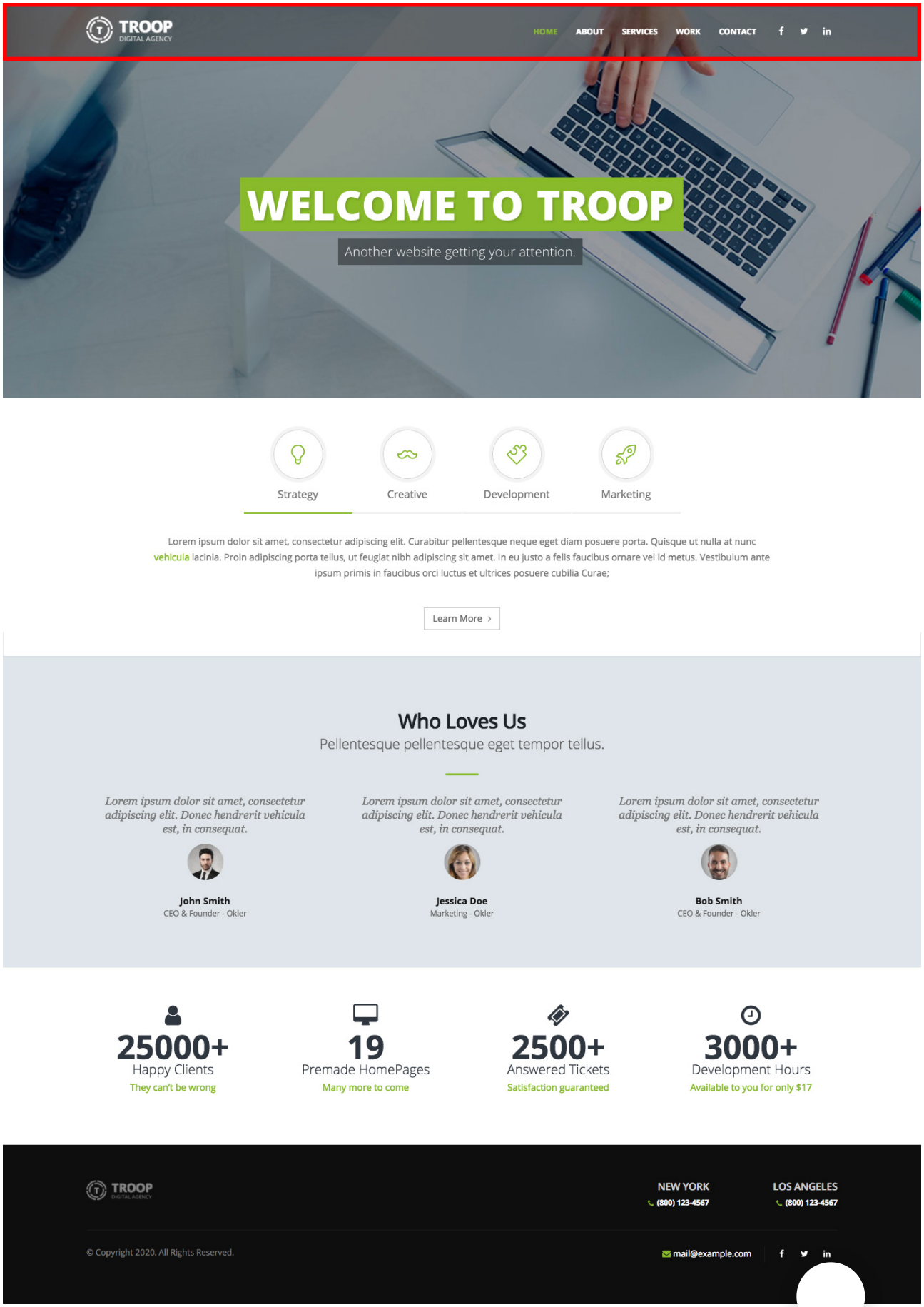
Remember that when you compare the presentation of the content in HTML5 to the presentation in HTML4, you won't see any visual

difference. Visually, these containers do the same things as the bold tags `<b>` and `<strong>`. But the value of using semantic containers is that they help you (and search engines) better organize and understand your code. Ultimately, `<header>` and `<nav>` are much more informative than `<div>`.

Header container

Now that you have a sense of what containers are all about, you'll learn the specifics. Can you see the header container in the website below?

Outline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Outline

As you build web pages, you'll find that nearly every web page you create should have a header container, which is enclosed in `<header>` and `</header>`. A *header container* helps identify the topics of the content in the web page. The header container may be placed over the navigation, or it can wrap around the navigation so the navigation sits within the header.

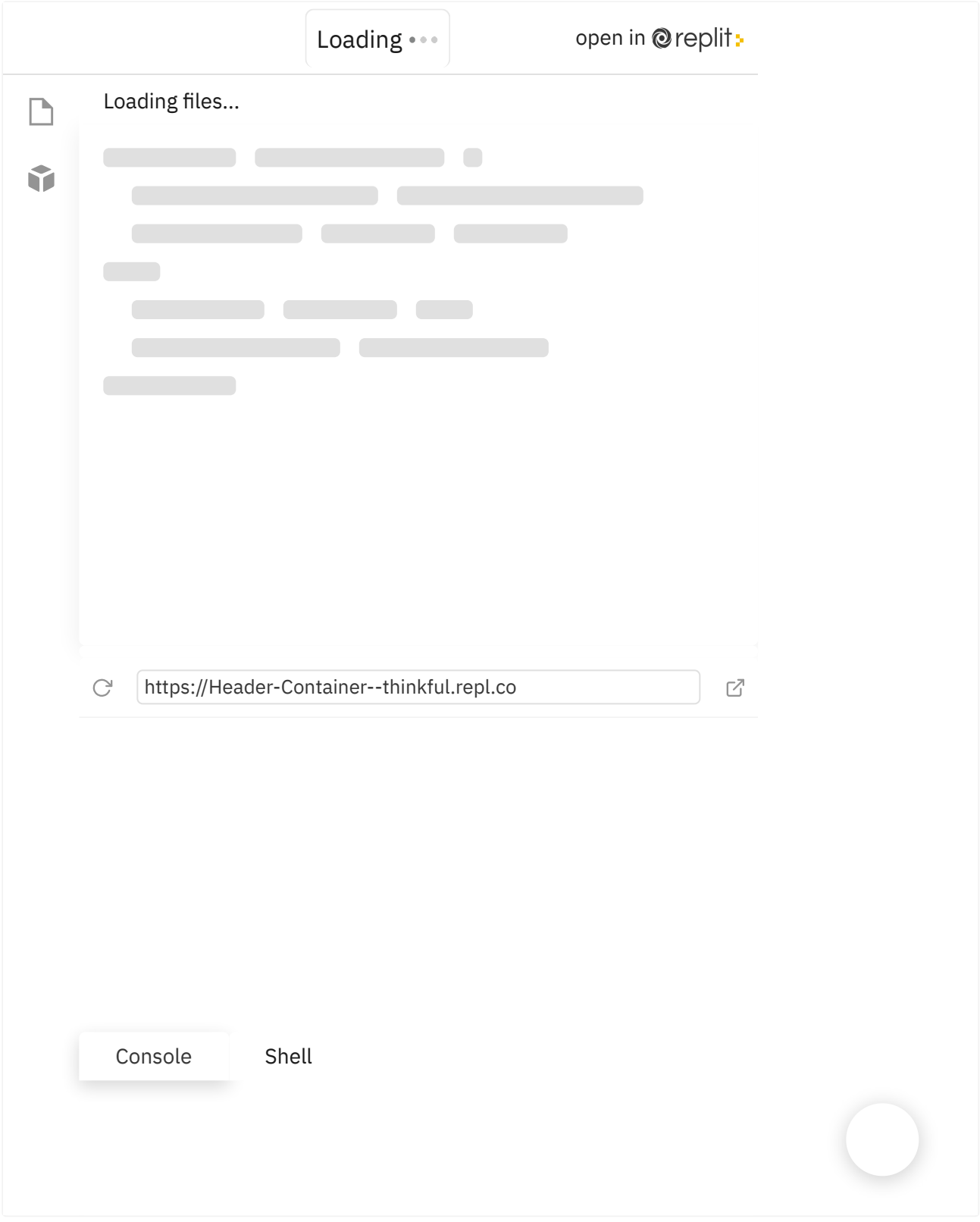
As mentioned above, containers help search engines understand and organize websites. Therefore, when used properly, these containers can help improve the *search engine optimization*, or SEO, of a website, which deals with how search engines rank and prioritize websites in search queries. To improve the SEO of your website, make sure that the primary header on your web page contains the name of your company or the purpose of the web page. Typically, this will be displayed as a logo in the header. Because of the hierarchy of the web page content, placing the company or business name within a `<h1>` heading element will tell search engines you are prioritizing this element of content. Then, within the content sections of the web page, you can use `<h2>` elements for the important page section titles, and you can rely on `<h3>` (or smaller) elements for the subheadings of smaller sections on the web page. Grouping and arranging your content like this helps keep the web page organized for you, your audience, and search engines.

Outline

Note: It's important to mention that there is also an HTML element called `<head>`, which is in every HTML page. Do not get `<head>` and `<header>` elements confused, as they have very different purposes.

Demo: Header

Check out the code in the Repl.it below to get a better sense of how the `<header>` works. A header container can be written and roughly styled the way you see here, but feel free to experiment with the code to see what happens.

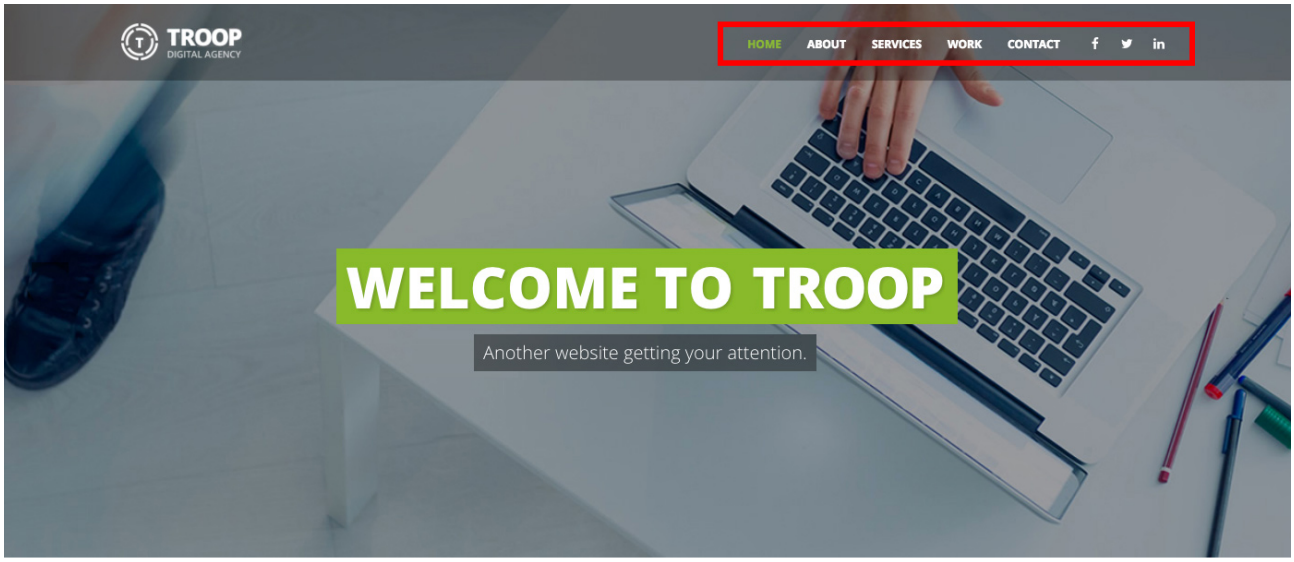


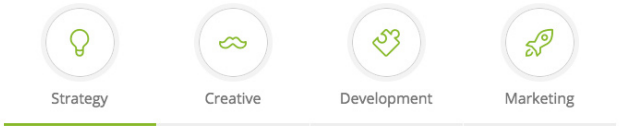
Outline

Navigation container

Next up is the navigation container. Can you find that in the image below?

Outline





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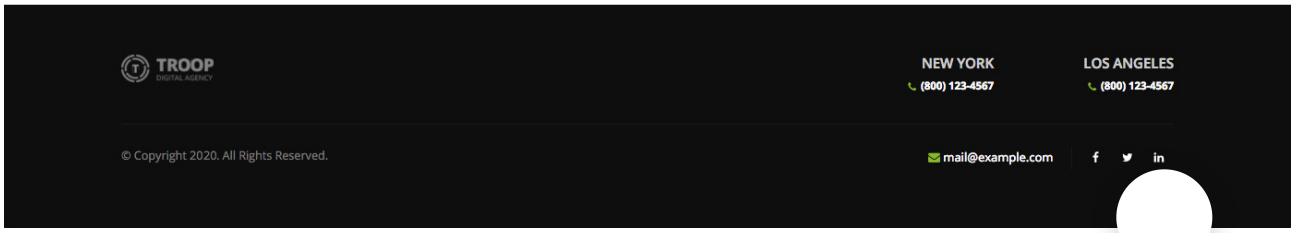


Outline

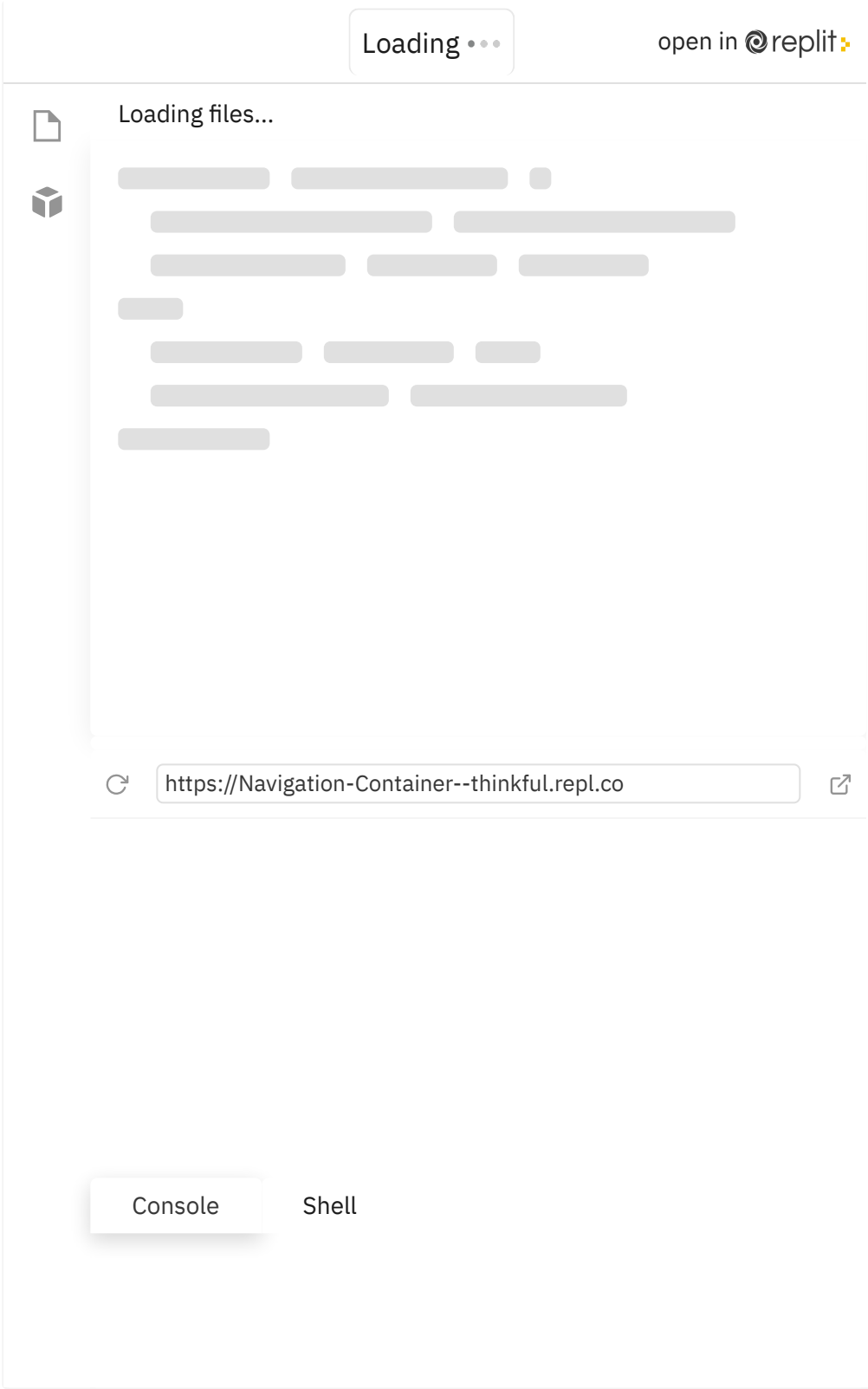
As you might've guessed, the *navigation container*, set off by `<nav>` and `</nav>`, holds the primary navigation links for the website. A navigation container can be used multiple times, at both the top and the bottom of a web page, and contain the main web page links that help orient and guide users through the website. And when the navigation container is placed at the top of a web page, the navigation container can be placed above, below, or within a header container.

Keep in mind that the navigation container does not need to contain every link within a web page. This container is reserved for the primary navigation links, which helps you and search engines understand what links it contains. Though you may still have questions about using navigation links and navigation containers, at this stage, you only need to understand the purpose of the navigation container. The detailed CSS styles used to create that actual navigation will be covered in more detail in future checkpoints.

Outline

Demo: Navigation

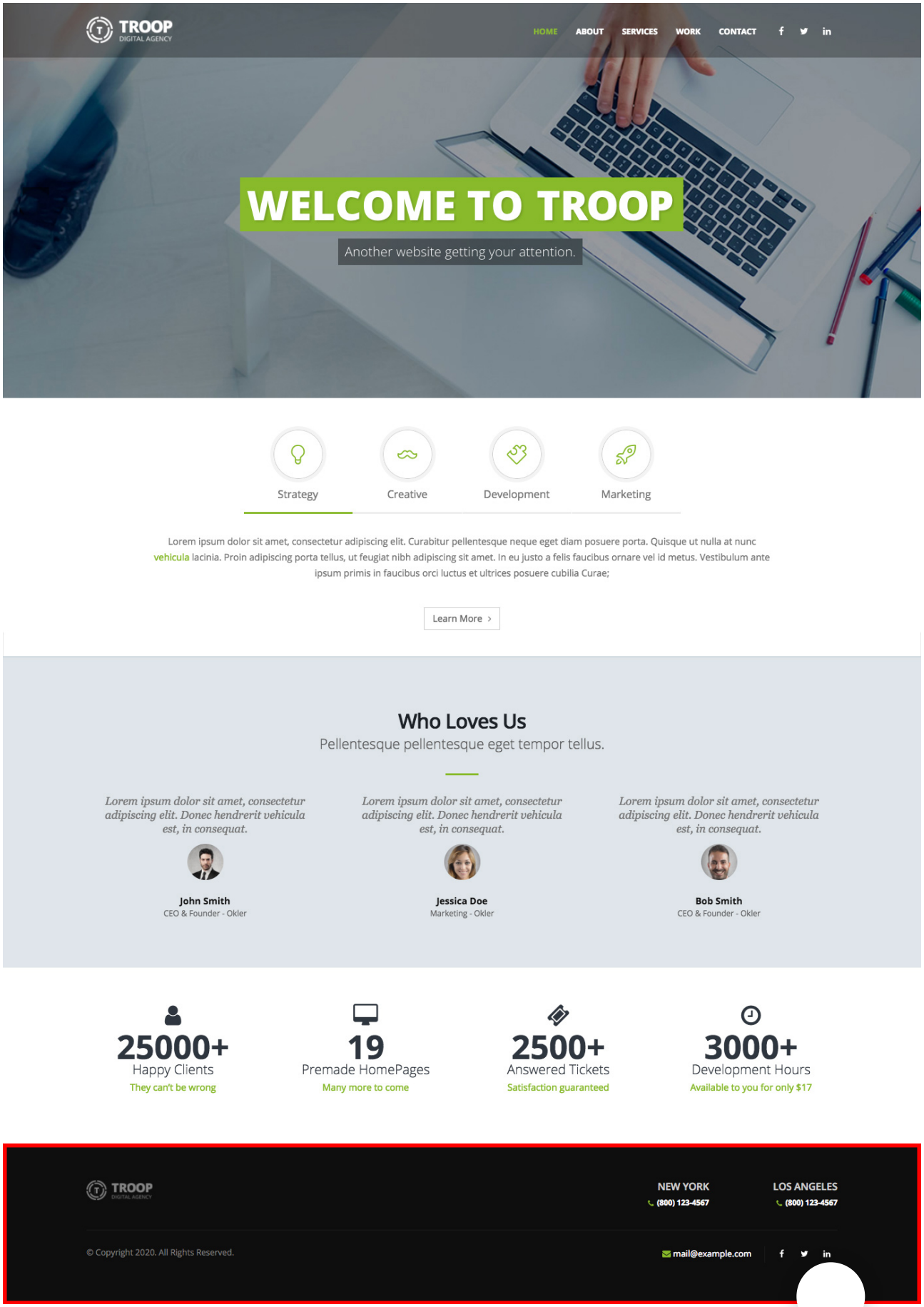
Check out the Repl.it below to learn how the navigation container can be written and styled.



Outline

Footer container

Can you find the footer container in the image below?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The *footer container*, which is set off by `<footer>` and `</footer>`, sits at the bottom of the web page. It contains important contextual information, such as relevant links or legal details, about the web page content that is placed above it.

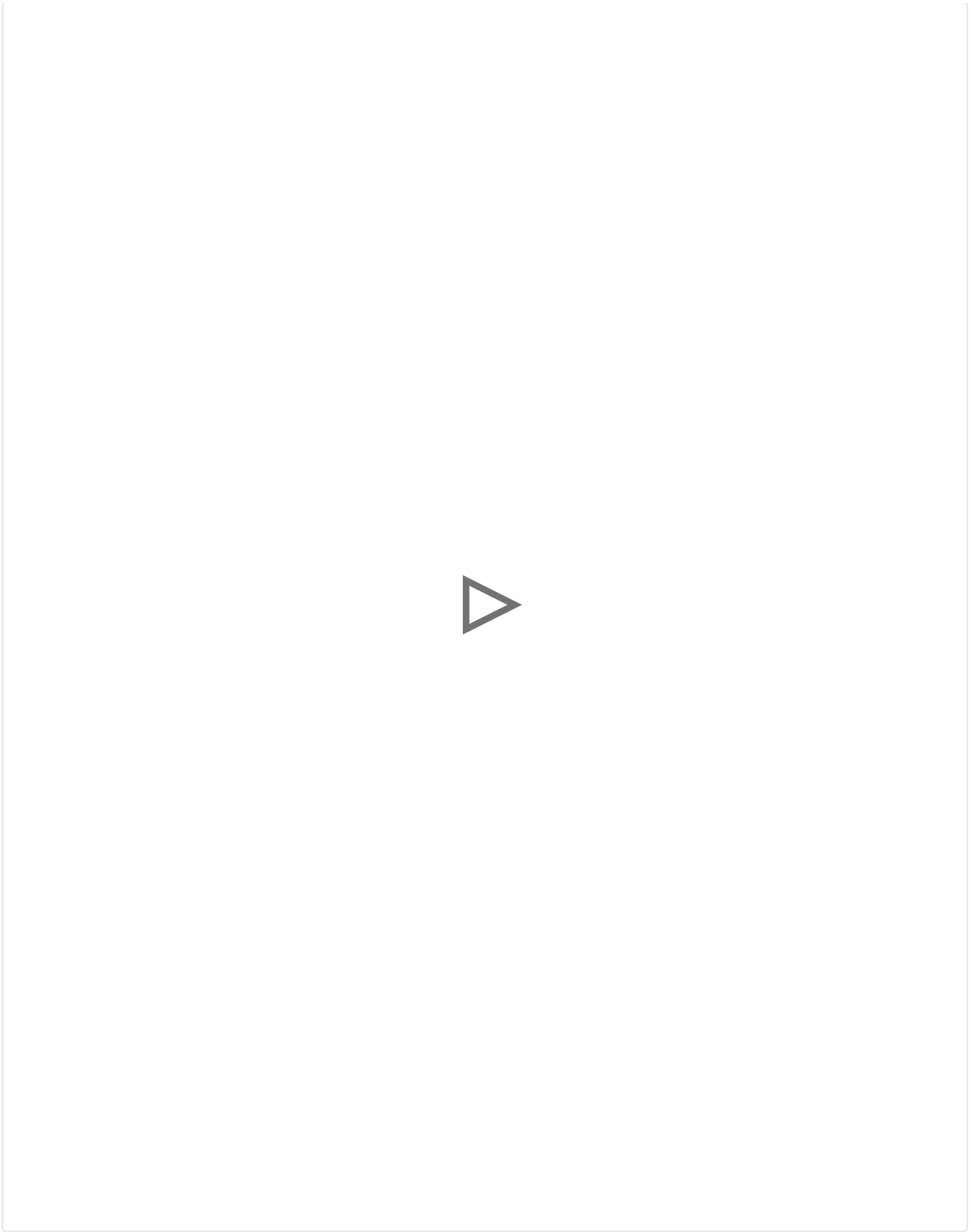
Each web page should have at least one footer. This is beneficial for both SEO and accessibility. The footer can contain different kinds of information, including the following:

- Copyright details
- Copyright links
- Credit to the website author or designer
- Links to related documents or web pages

Outline

Demo: Footer

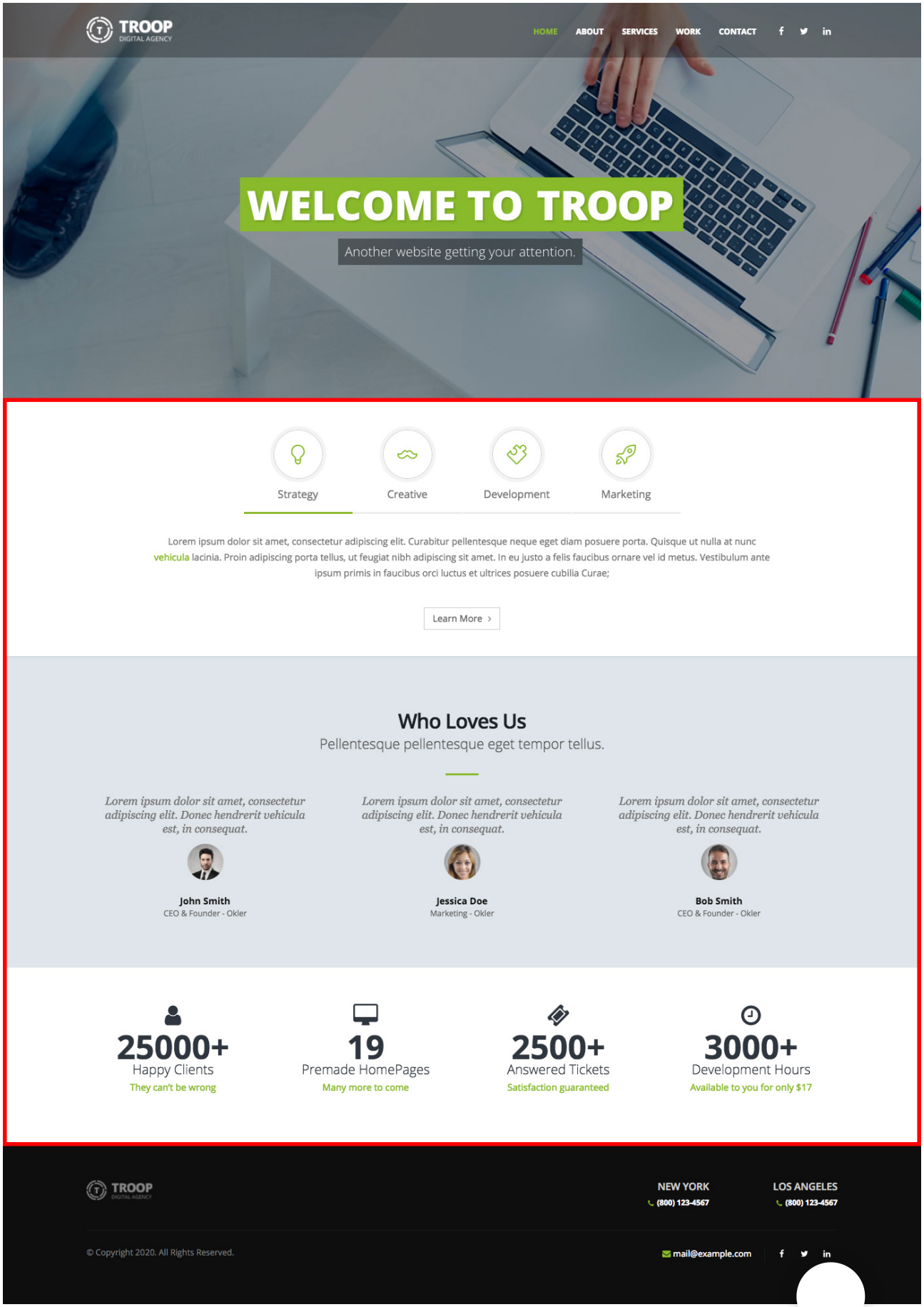
Review and play around with the code sample in the Repl.it below to learn how the footer container can be written and styled. How are the header, footer, and navigation containers similar and different?



Outline

Main container

Now, you're ready to learn about the main container. Can you lo it?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Outline

The *main container*, enclosed in `<main>` and `</main>`, groups together all the main content of a web page. It is really important to remember that *there can only be one main container per HTML web page*. This is essential.

The main container should *not* contain any content that is repeated across files, such as the following:

- Sidebars
- Navigation links
- Copyright information
- Website logos
- Search forms

Outline

Demo: Main

In the Repl.it below, review the main container to understand how it's written and styled. What kind of content does it hold?

Outline

Article container

Next up: article containers. *Article containers*, set off by `<arti>` and `</article>`, are useful for grouping related content within the

web page, generally inside the main container. The content within an article container should be cohesive or connected in some way; the content in an article container should make sense if it were read or seen independently.

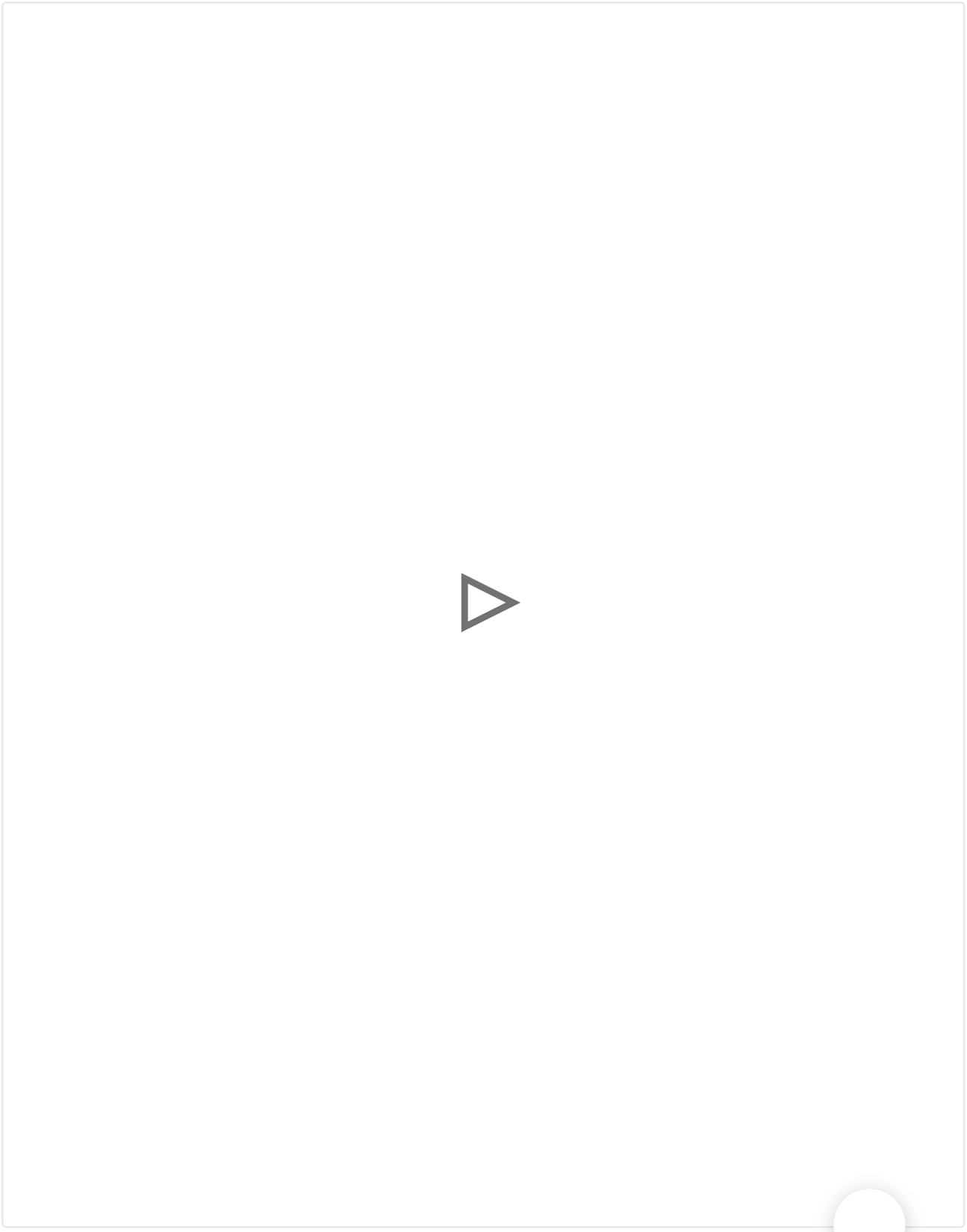
For instance, if an article container were distributed separately from the rest of the website, it should feel like it stands alone. The emphasis on using article containers for distinct, unique content comes from the container's purpose of self-containment: an article container that holds a weather report for Denver, Colorado, could be moved from one website to another without requiring any additional content or explanation of context. Content like news articles, blog posts, or user comments might be held in article containers. However, when article containers are embedded within other article containers, they are assumed to be part of the parent container and not separate ones.

An article container should always have a heading, usually a heading between the size of a `<h2>` and an `<h6>`, because the `<h1>` should be the primary page heading. Here are some good types of content to contain in an article container:

- Blog post
- Forum post
- News story
- Comment

Demo: Article

Review and play around with the Repl.it below. What do you notice about where the article container sits in this code sample?



Outline

Section container

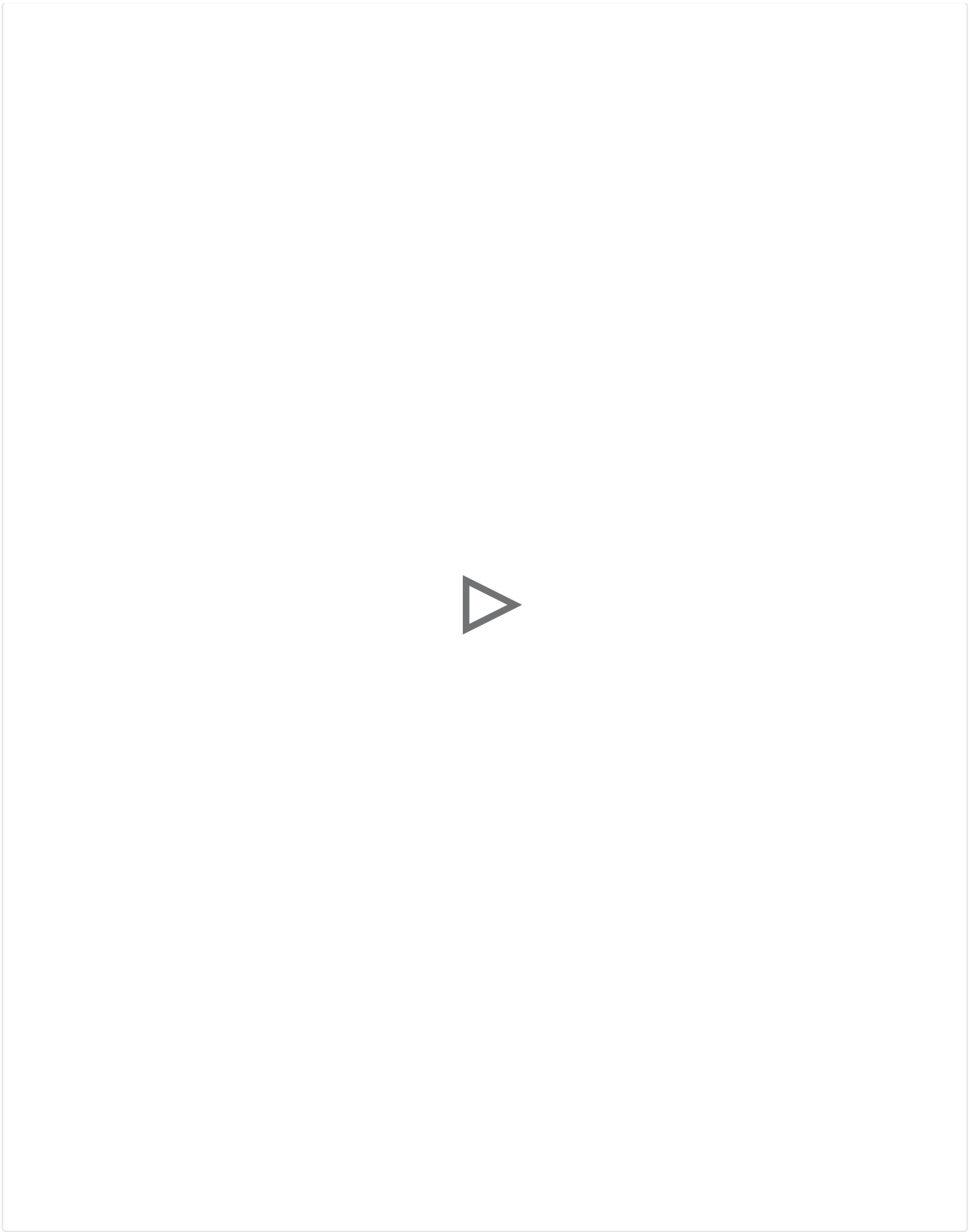
Now, you're ready for the section container. The *section container*, set off by `<section>` and `</section>`, groups together certain content within a web page, and it should always have a heading, usually an `<h3>`, `<h4>`, `<h5>`, or `<h6>`. The `<h1>` should be the primary page heading, and `<h2>` should be reserved for the article container heading.

Sections can be used to group related content within article containers, and they are represented by the individual parts within a larger `<article>`. However, often other containers are better suited to this purpose than a section container. Try to avoid using section containers if other containers, such as article or navigation containers, are more appropriate. Div containers can also be better for styling purposes. And be sure to only use a section container if there is a heading at the start of the section.

Outline

Demo: Section

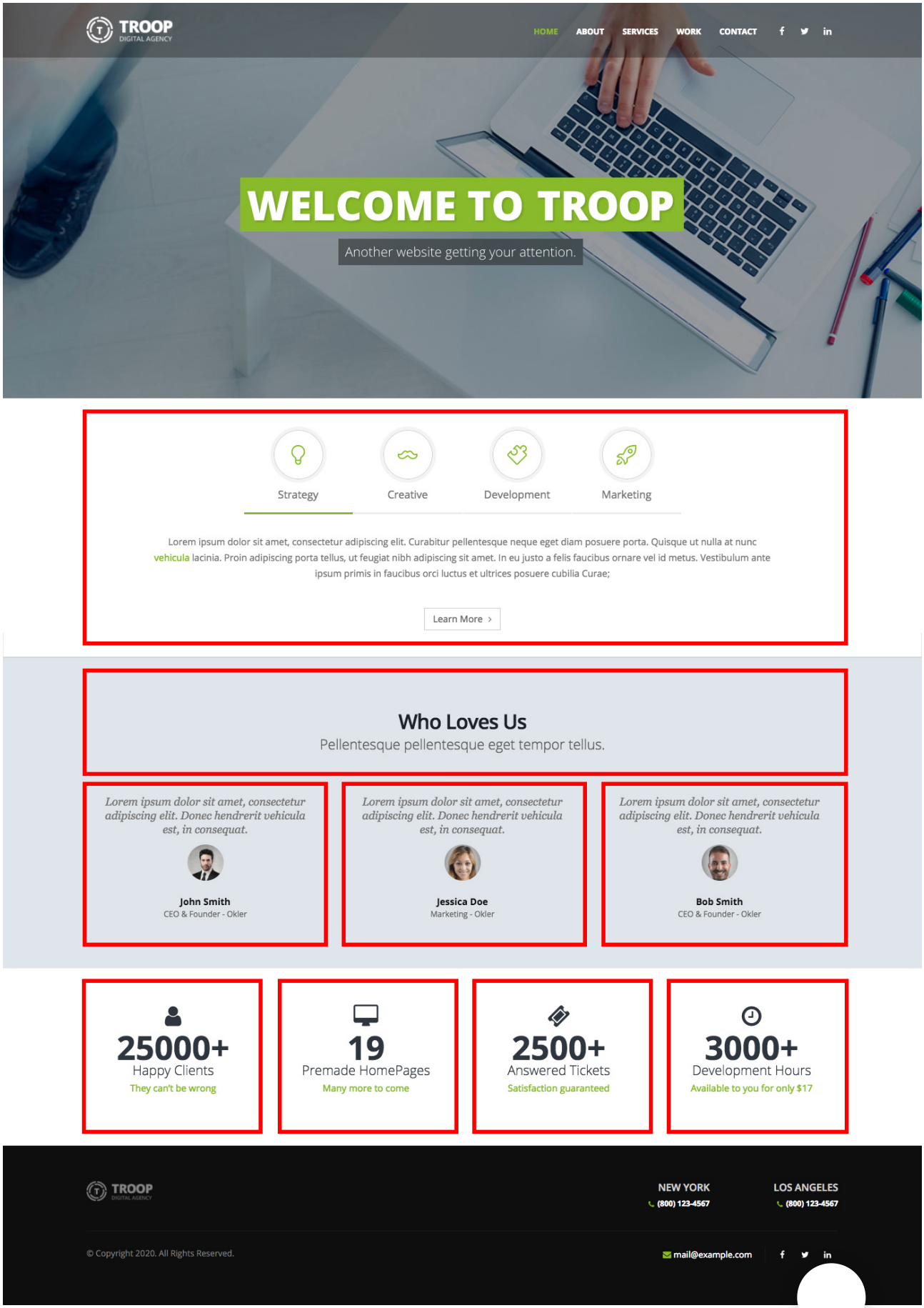
Review the code sample in the Repl.it below to better understand the section container and how it works.



Outline

Div container

And finally, here's the div container. Can you locate the div con s in the image below?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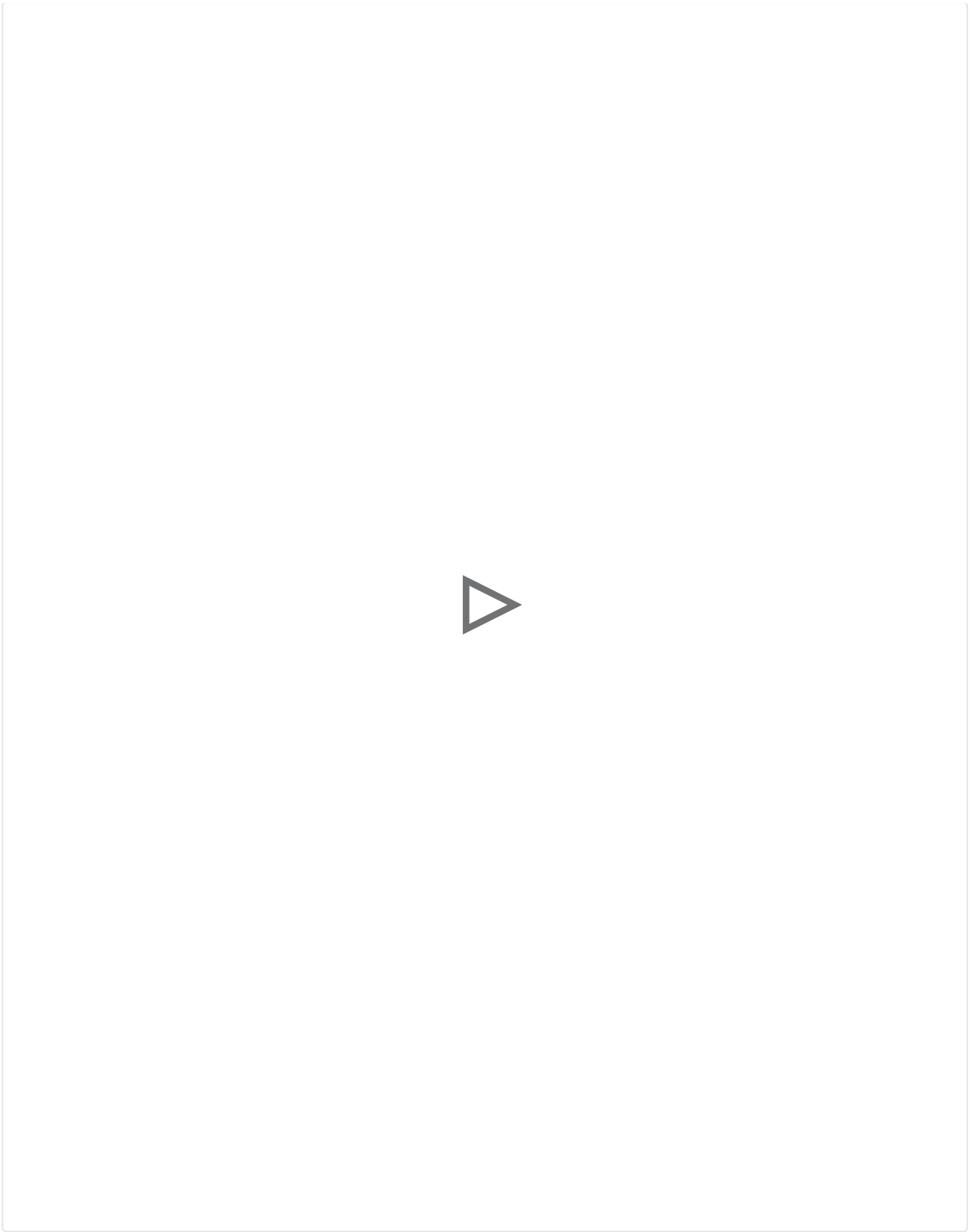
The *div container*, set off by `<div>` and `</div>`, is the most generic container in HTML. And unlike the other containers above, it has no semantic meaning. As you learned above, this means that div containers mean nothing semantically to search engines; they don't provide any additional description about the content they contain to you or the web.

The *div* stands for *division* within the web page. Div containers, often referred to as *divs*, are used to structure web page content in a visual way. They are frequently used to position content within a web page. For instance, divs allow you to reposition content that is by default left aligned, allowing you to center the content within those structural containers discussed above.

Demo: Divs

The Repl.it below shows a very simple example of a div container. Review the code sample to learn more—what do you notice?



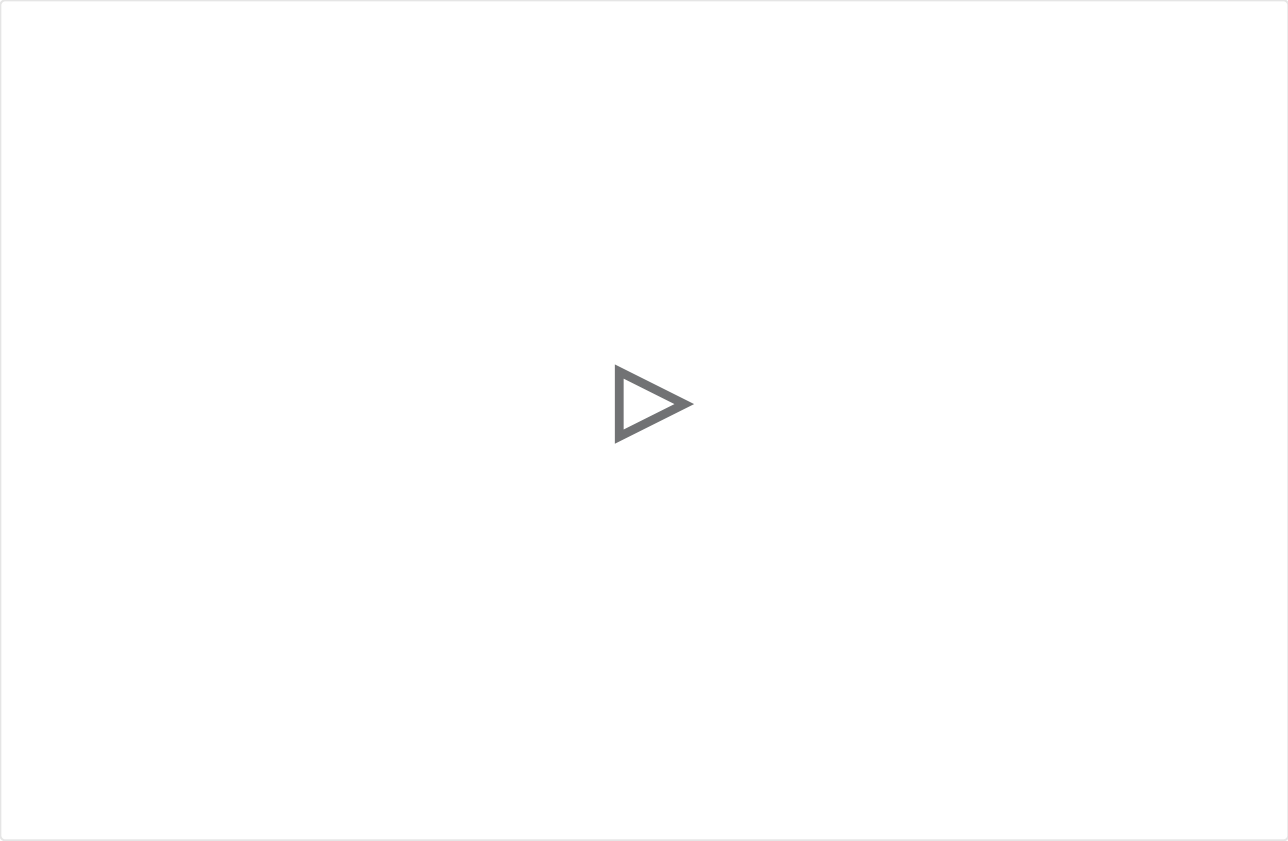
Outline

Demo: Multiple containers

The Repl.it below shows a more complex code sample that uses several different containers. Play around with the code. How do the containers

work together here?

It's important to note that the content within the header, main, and footer containers is visually structured to be centered using a div container. Because search engines don't care how this content is visually presented, a div container is particularly useful here.



Outline

Link to locations within a web page

In previous checkpoints, you learned how to link text or an image from one page to another web page. Now, you'll learn how to create a link that navigates to another location within the same page.

Imagine you have a single-page website, with your Home, About Us, Services, and Contact Information as blocks on the web page (which you'll learn more about). In this situation, it can be helpful to contain

that content within article containers. That way, the user can navigate to different information, contained in article containers, on the page using anchor links.

But those links need to "know" where to navigate to. To ensure that a link takes the user to the correct destination on the web page, you need to assign an `id` attribute to the location that you want to link to. In this case, you'll add it to the article containers, like in the examples below.

```
<article id="home">Full Home Content Here</article>
<article id="about">Full About Content Here</article>
<article id="services">Full Services Content Here</ar
<article id="contact">Full Contact Content Here</arti
```

Outline

Then, when linking to an anchor's `id`, you'll include a pound sign `#` and then the `id` name that you assigned, as seen here.

```
<a href="#contact">Contact Link</a>
```

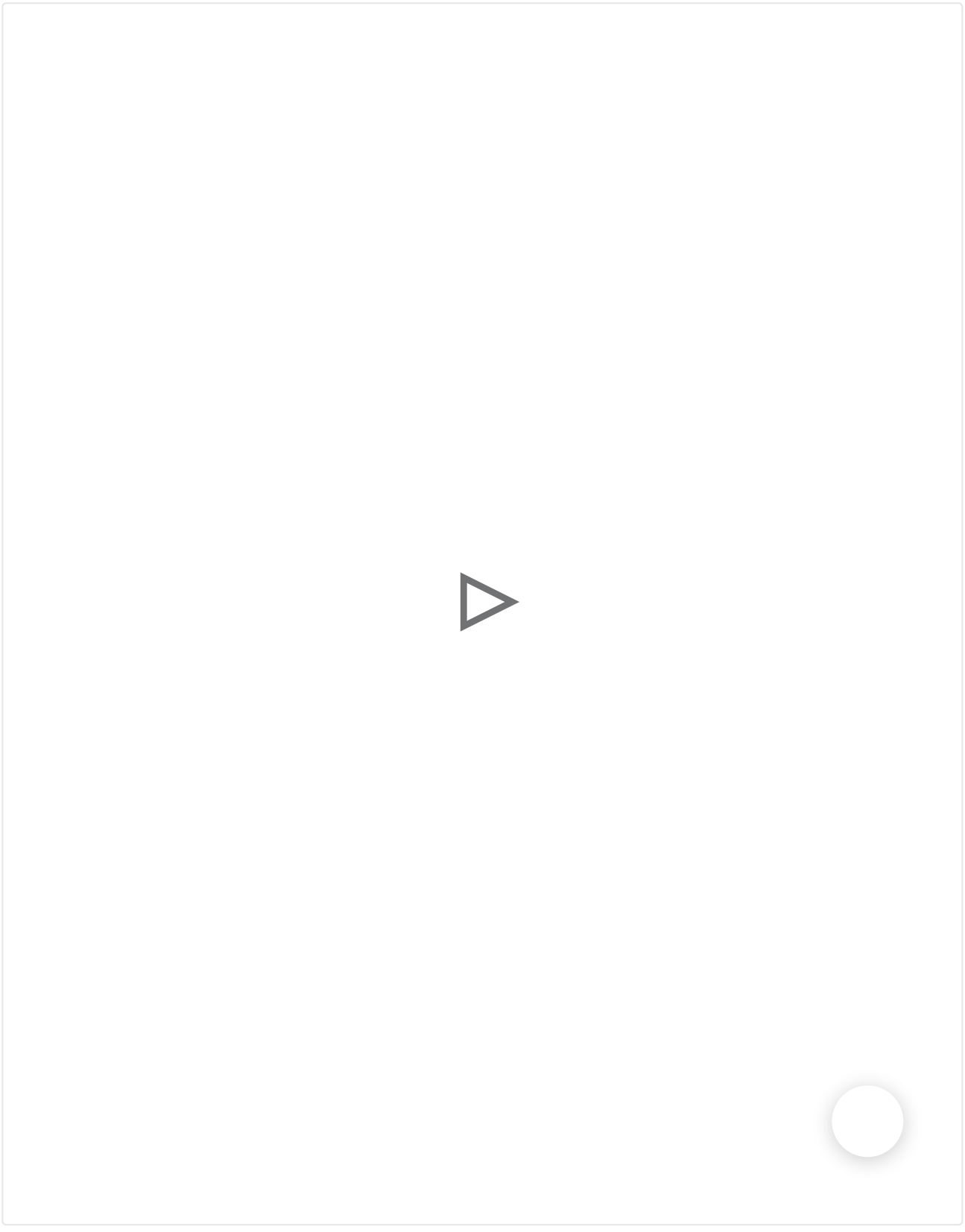
This link will take you to the contact section of the web page!

Remember, it's important to follow the same naming conventions for `id` names as you would for web files.

Demo: Anchor links

Review the code sample in the Repl.it below to better understand anchor links.

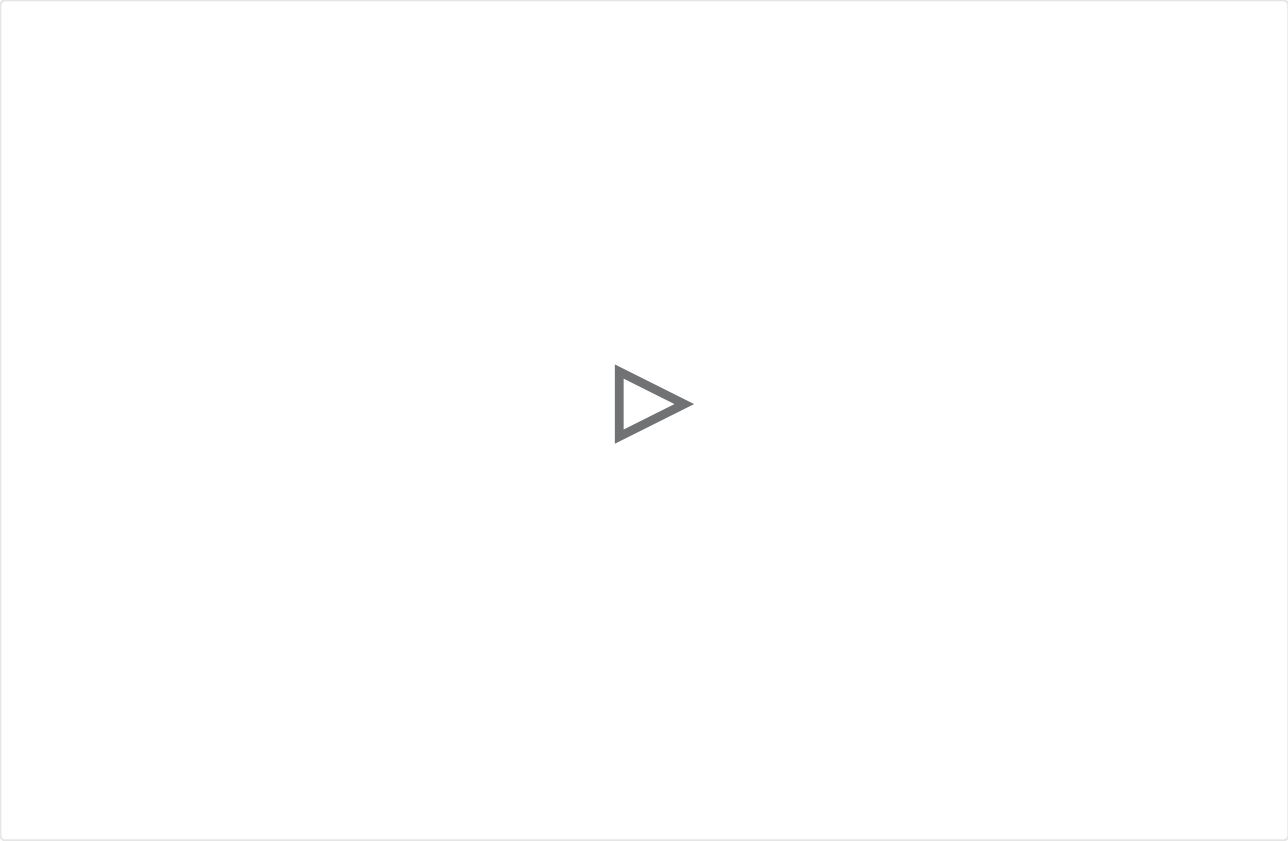
Note: If the link to Section #4 doesn't appear to work like the other links, that is only because the browser is trying to display as much of the bottom of the website as possible. If more content is added to fill the page, the link will appear to work the same as the others.



Outline

Drill: Anchor link practice

Now, it's time to start applying your new skills. In the Repl.it below, take a few minutes to connect the top four links in the code sample to the appropriate article containers within the web page.



Outline

When you're done, you can compare your solution to the code below:

Solution to Link Practice

Backgrounds: Colors and images

Just like other HTML elements, you can style containers. Specifically, you can give them different backgrounds, like a specific color or image. There are five properties that define the backgrounds for all HTML elements, including containers:

- `background-color`

- `background-image`
- `background-repeat`
- `background-attachment`
- `background-position`

For now, you'll focus on learning about the first two: `background-color` and `background-image`. These are explained below. If you want to learn more, check out the MDN page on backgrounds, which provides more information about these properties.

Background color

As you may have guessed, the `background-color` property assigns a color to the background of an HTML element, such as a container. The color can be assigned using either a color name or a hex color code. Both of the examples below are valid.

Outline

- Color name: `red`
- Hex color code: `#ff0000`

Background image

The `background-image` property, on the other hand, assigns an image to display as the background of an HTML element. The `background-image` allows you to easily display an image behind the text within a container.

An image in the background of an HTML element repeats by de
This means that it displays at its native size and then is duplicated, on

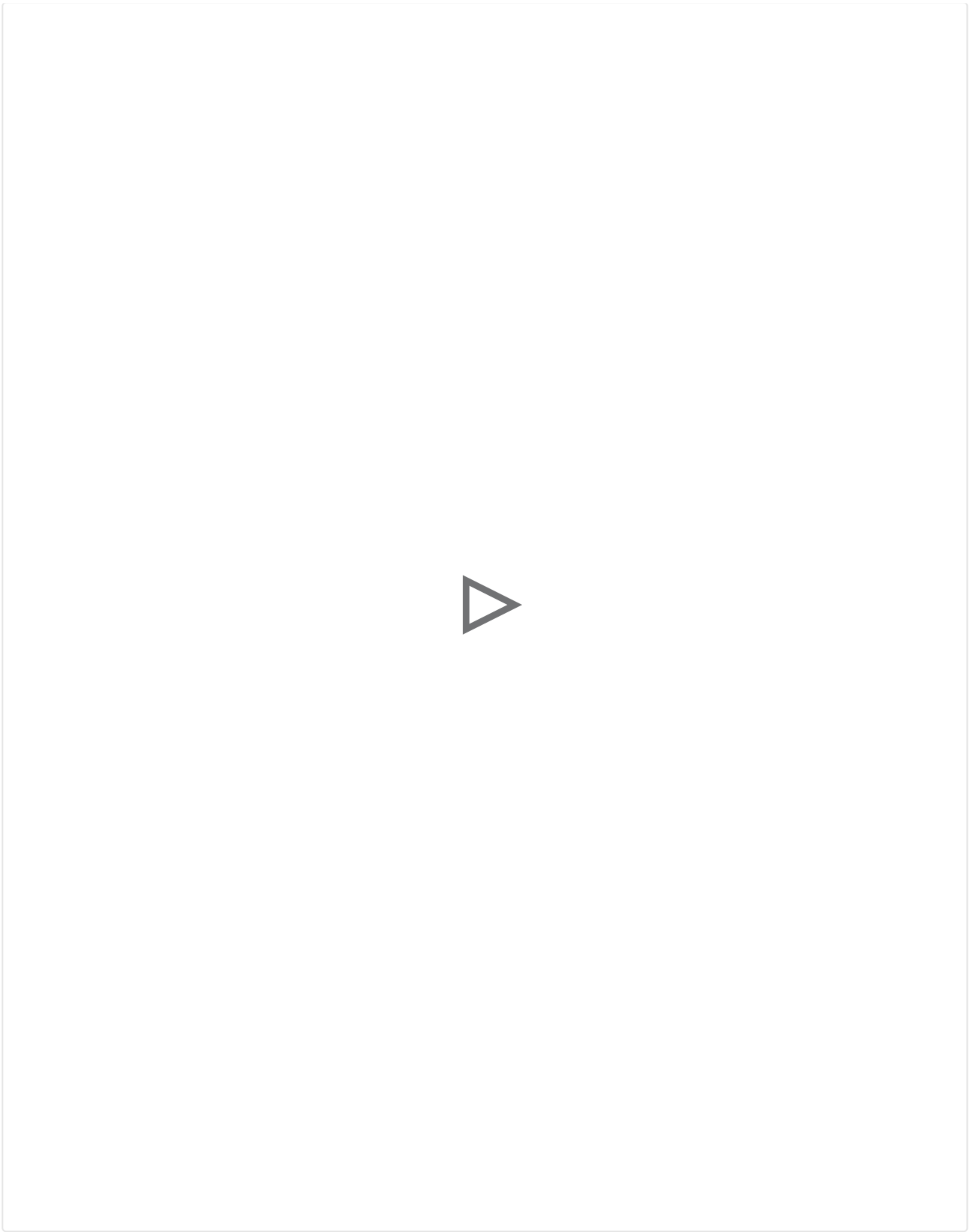
the right and bottom of the image, to cover the entire background of the HTML element.

Demo: Background image

Review and play around with the code sample in the Repl.it below to see how the `background-image` property works.

Note: If you open up the result panel as large as possible, you'll see the background image repeating. If you add a height property to the header container, like `height: 500px;`, then you'll see how the image repeats down the page.

Outline



Outline

Assignment

You will complete two similar challenges that involve applying H
containers to existing content.

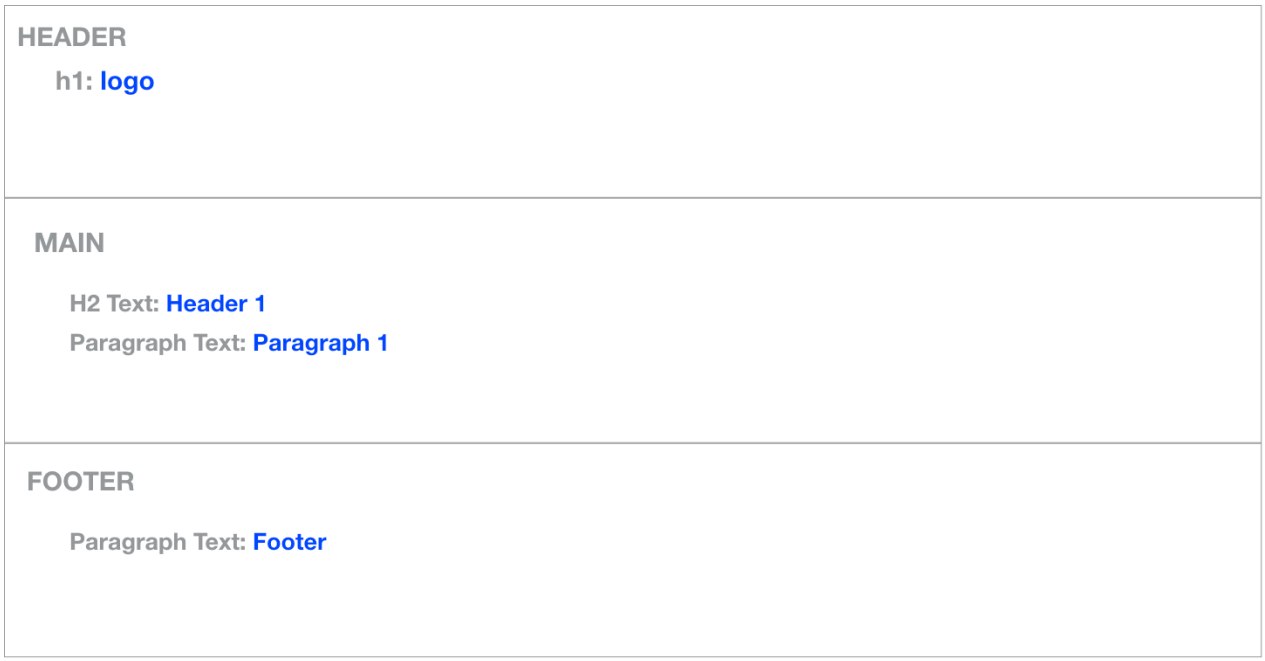
Container challenge #1

Your first challenge is to build the HTML structure of a website based on a *wireframe*, which is a simple diagram that arranges the content elements and page hierarchy of a web page.

Use the code sample in the Repl.it below to add the HTML containers around the existing content. Do not edit or worry about the CSS styles; all those styles will be explained in detail in upcoming checkpoints. The CSS code for this project has already been coded in the Repl.it, but it will only display the HTML properly when the containers are written in the proper orientation.

First, check out your wireframe to visualize the HTML containers.

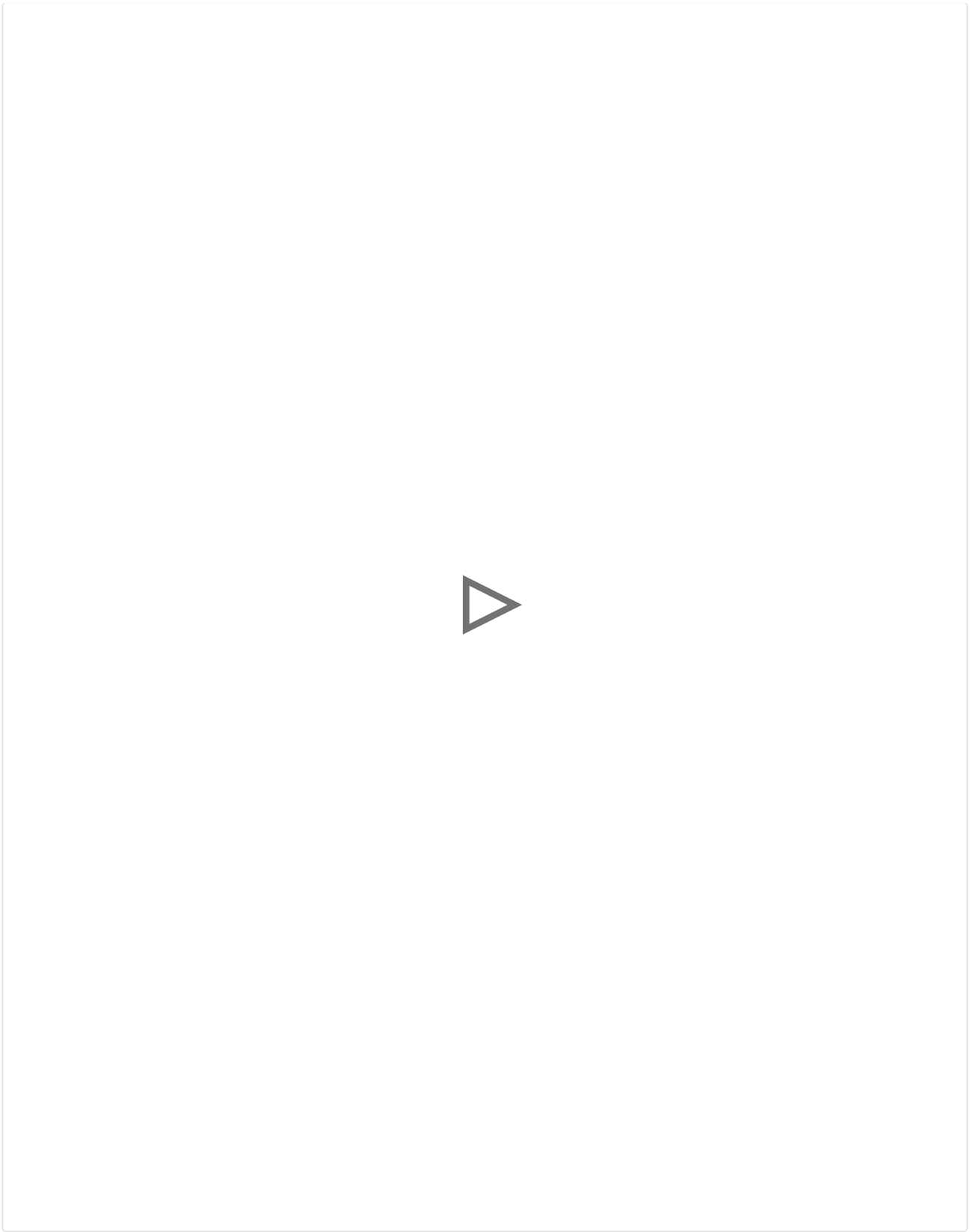
Outline



As you add the HTML containers, the CSS styles will apply certain styles. Once you add all the containers in the proper orientation, the result should look like this.

And here is your code sample starting point.

Outline



Outline

If you wish to compare your project with a completed version, you can view the completed project here:

Container Challenge #1 Solution

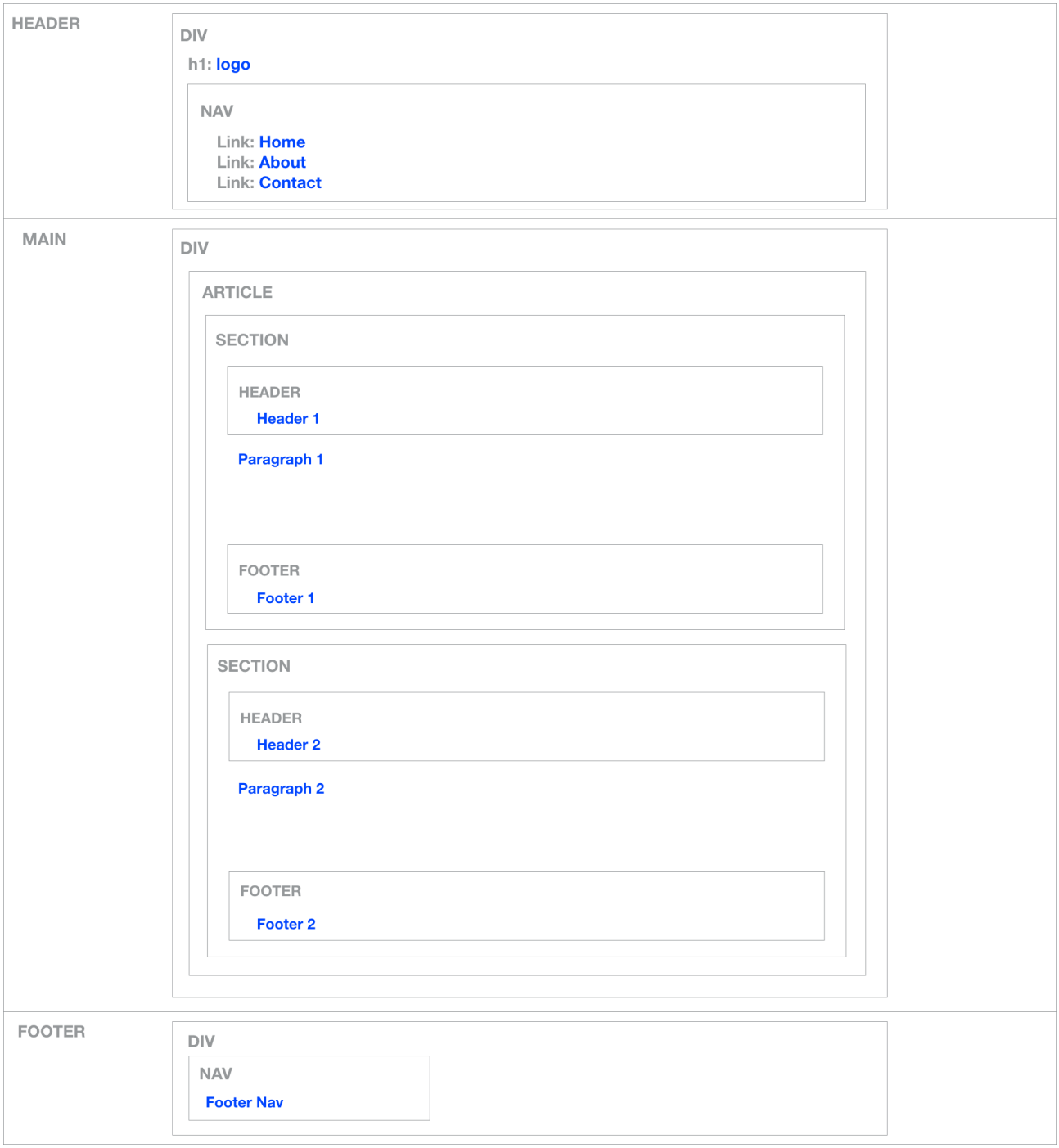
Container challenge #2

Your second challenge is to build the HTML structure of a slightly expanded version of the website that you built in the first challenge. Like you did above, you'll use a wireframe to guide you.

Use the code sample in the Repl.it below to add the HTML containers around the existing content. Again, you don't need to modify the CSS styles. The CSS code has already been coded, and it will display the HTML properly when the containers are written in the proper orientation.

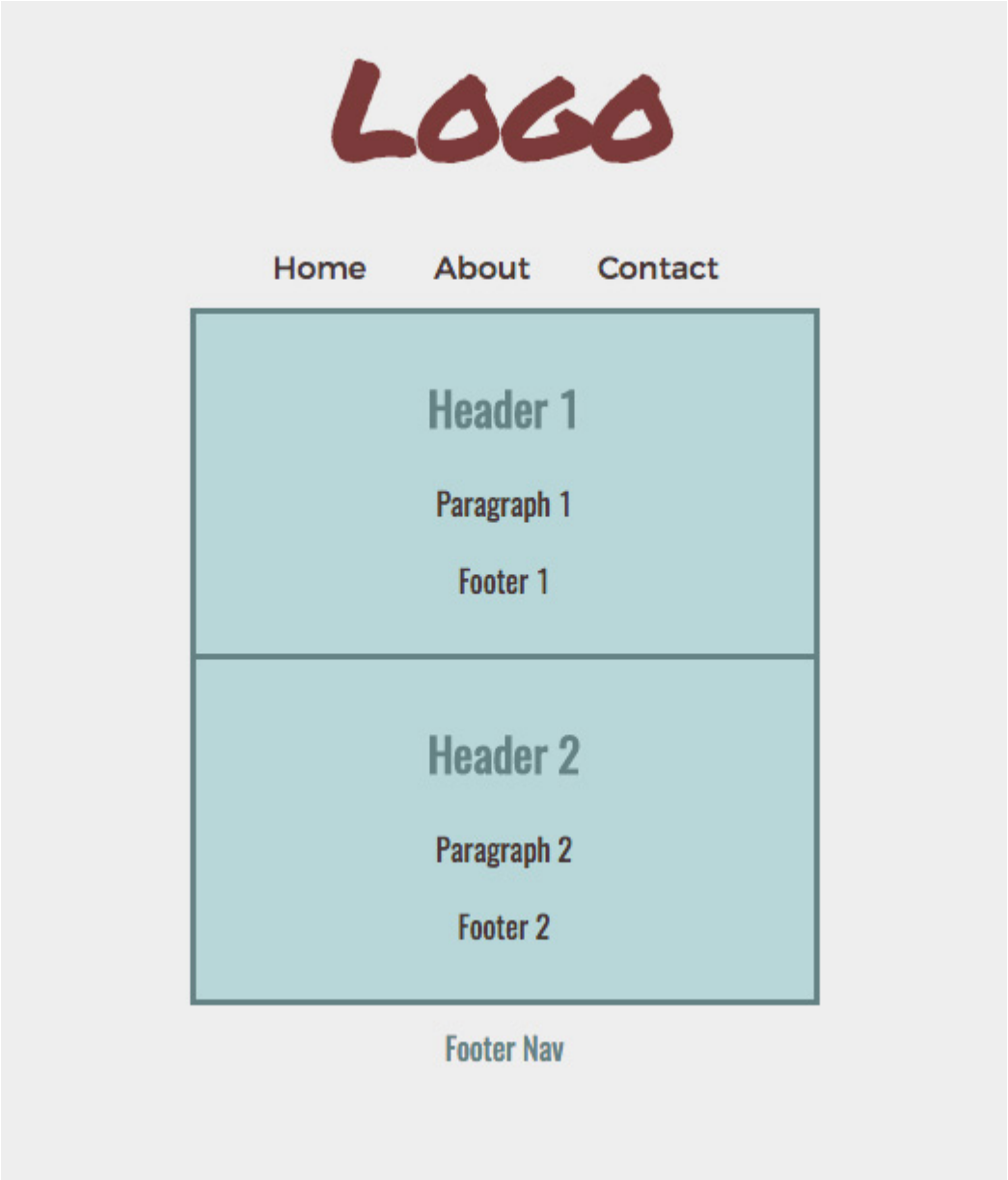
First, check out your wireframe to visualize the HTML containers.

Outline



Outline

As you add the HTML containers, the CSS styles will apply certain styles. Once you add all the containers in the proper orientation, the result should look like this.



Outline

Submit a link to your Repl.it in the box below.

Outline

If you wish to compare your project with a completed version, you can view the completed project here:

Container Challenge #2 Solution

Checkpoint

Submit your ideas or a link to your work here and use it as a conversation starter during your next mentor session.

This checkpoint will not be graded, but is still required.

Your work

03.11.21

Share your ideas here...

bold _italic_ `code` > quote - bullet list

Preview

Outline

Completed

Next checkpoint

How would you rate this content?

Report a typo or other issue

Go to Overview

Outline