3.0 hours

Project 11

Optimizing a Site for Performance

Why can’t I submit this project yet?

You must first complete all prior Techdegree content before you can submit this project. Additionally, you cannot submit more than one project at a time.

Submit

Your current activity is Using jQuery Plugins.

- Instructions
- What makes a good project?

Web site performance is often a live-or-die metric for web sites and apps. Sites and apps that load, or appear to load, quickly are usually seen as being better built and more useful. Also, taking people's available bandwidth, especially on mobile devices, into account makes people happier about using your site or app.

Apply the skills you've learned for optimization of graphics, HTML, CSS, and JavaScript to take a poorly optimized page and reduce the total load size to under 1.3MB. You will need to analyze the assets you've been provided to see where optimizations can and need to be made, make those optimizations, and measure their success. Multiple analyzation, optimization, and measuring cycles may be required.

Before you start

To prepare for this project you'll need to make sure you complete and understand these steps.

5 steps

- **Have a GitHub account and know how to create a new repository and upload files to it.**
    - As with the previous projects, you'll submit your finished working using GitHub.
- **Use Chrome Dev Tools to check out the beginning project site (listed in the Project Resources):**
    - The page requires over 43 requests. This is way too many.
    - There are over 11MB worth of files. These are way too big.
    - Takes over 20 seconds (on a very fast connection) to load. This is way too long.
- **View the Google Page Insights report for the page (listed in the Project Resources).**
- **Download the project files. We've supplied several files for you to use:**

    - index.html is the HTML page that needs optimization
    - css/ is a folder full of CSS files
    - img/ is a folder full of unoptimized images
    - js/ is a folder full of JavaScript files

- **Your browser's developer tools can give you an indication of total page size and number of files downloaded. If you want to see how our Code Reviewers review your project for these two requirements you can download our performance measure tool from GitHub.**

    - You'll find a link to it in the Project Resources Listings. Instructions for how to install and use this tool are listed in the README.md file on GitHub.

Project Instructions

To complete this project, follow the instructions below. If you get stuck, ask a question in the community.

12 steps

- **Install the Performance Measurement Tool**
- **Check the default project with the Performance Measurement Tool.**
- **Reduce browser requests to less than 27.**

    - Look at the **requests** Metric's "Max" value on the Measurement Tool.

- **Final total download size should be under 1.3MB.**

    - Look at the **contentLength** Metric's "Max" value on the Measurement Tool. It should be less than 1300000 bytes or 1.3MB's.

- **Resize images appropriately to reduce the file size of each image while maintaining enough quality so the images don't look pixelated in either the gallery or when the image is clicked and previewed at a larger size.**
- **Replace the social media icons with their SVG equivalents in the img/social folder.**
- **Reduce web font usage by using Google fonts to load required fonts instead of supplied font stylesheets.**
- **Combine and minify CSS files.**
- **Combine and minify JS files.**
- **Link to the minified files in your HTML,**

    - Be sure to include your combined files in your project. We will use these to check for any errors in the CSS and JS.

- **Prevent blocking JavaScript by moving it from the head of the page to a better location.**

- **Make sure to check your code is valid by running it through an HTML and CSS validator.**
    - Links to the validators can be found in the Project Resources. This will help you spot any errors that might be in your code.
    - There are a few exceptions that you don't need to fix:
        - Don't worry about any warnings, we just need you to check any errors that might be there.
        - If CSS validator flags the following errors, these should be ignored:
            - calc
            - vendor prefixes
            - touch-action
            - user-select
            - pointer-events
            - text-rendering
            - Parse Error attr(href) ") ";
            - Parse Error attr(title) ") ";
            - If HTML validator flags use of pipe ('|') in Google font links/URLs this error can also be ignored.
            - If CSS validator flags use of calc, vendor prefixes or pseudo-elements/pseudo-classes these errors should be ignored.

NOTE: A good practice is to check your project for cross browser compatibility. Making sure that it looks and functions correctly in multiple (at least three) browsers is an important part of being a top-notch developer. If you want, leave a comment to the project reviewer about which browser(s) the project was checked to ensure they are seeing things as you have designed them.

Some browser options:

- Google Chrome
- Mozilla Firefox
- Internet Explorer/Edge
- Safari

Extra Credit

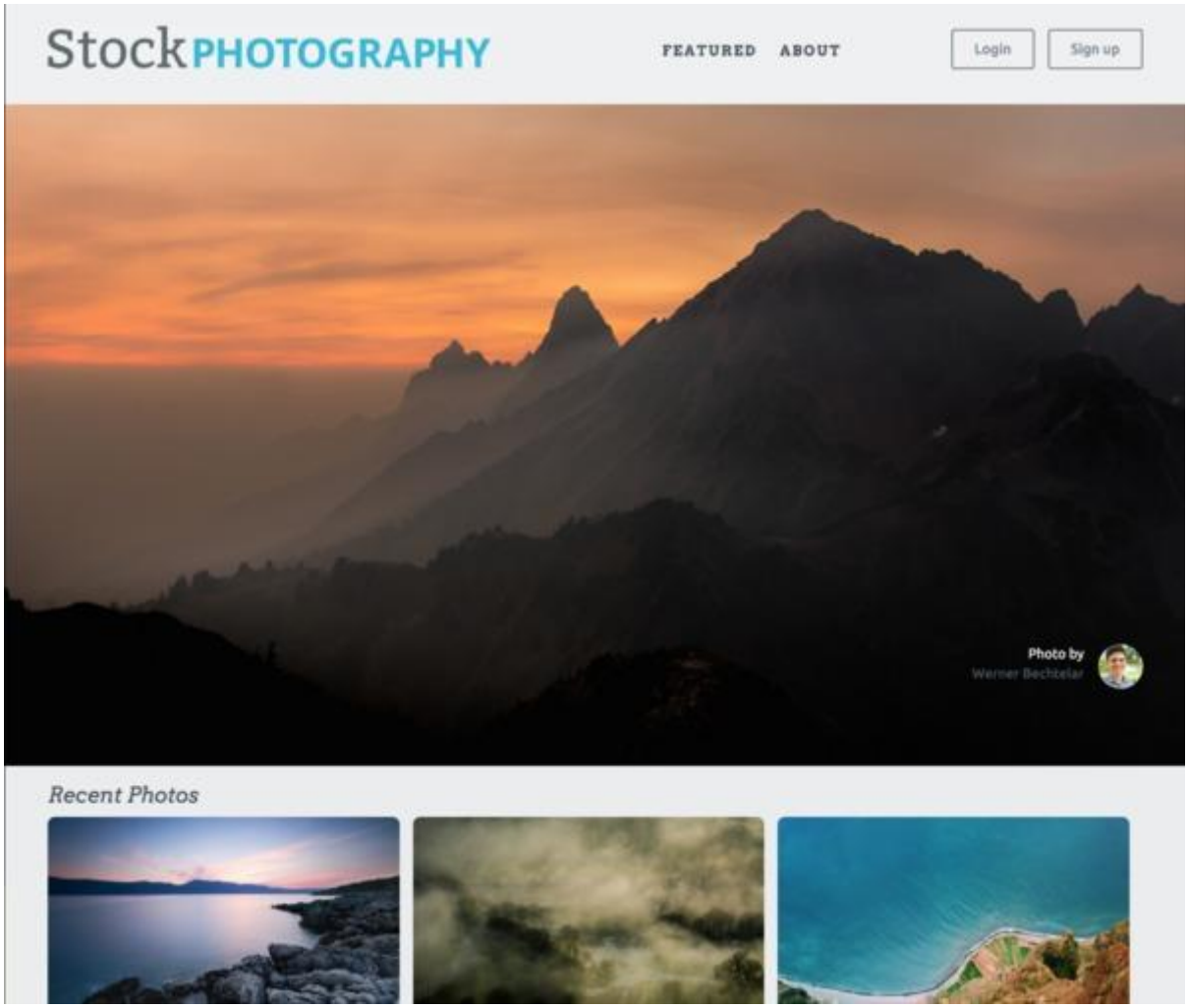
To get an "exceeds" rating, you can expand on the project in the following ways:

6 steps

- **NOTE:** To get an "Exceeds Expectations" grade for this project, you'll need to "exceed" on every requirement that has an "Exceeds Expectations" option.

- **Get browser requests down to less than 23.**
- **Reduce total download size to less than 1MB**
- **Provide multiple file sizes for images and only load larger images when JavaScript pop-up window is called.**
- **Use significantly less CSS and JavaScript.**

- **Build a workflow to automate the optimization process using something like Gulp.js or Grunt.js**



Download files

Zip file

Project Resources

External Link

Beginning Project Page

External Link

Our performance optimization measurement tool.

External Link

Tips for faster page loading

Course

Gulp Basics

Workshop

Using gulp's 'gulpuseref' for a full build pipeline

External Link

Google Page Insights Analysis for the project

External Link

JS Compress: online JavaScript minifier

External Link

CSS Compressor

External Link

PNG Crush: PNG compression

External Link

Gulp Image: Gulp Plugin for image compression

External Link

W3C HTML Validator

External Link

W3C CSS Validator

Need Help?

Have questions about this project? Start a discussion with the community and Treehouse staff.

Get Help