Web Development Lab 1 - Building a Website

CS 1301 - Intro to Computing - Fall 2024

Important

- Due Date: **Tuesday, October 1st, 11:59 PM**.
- This is an individual assignment. High-level collaboration is encouraged, **but your submission must be uniquely yours.**
- **This assignment is meant to be a self-guided exploration of web development. TAs will not be providing in-depth support when making your site.**

Purpose

Welcome to the CS 1301 Web Development Lab Track! In this lab track, you will gain experience working with front-end development, including building webpages with HTML, styling them with CSS, and interacting with them with JavaScript. The lab track will culminate with working with Streamlit in Python to develop your own portfolio/resume that you can host online for recruiters and potential employers to see!

In Lab01, you will be introduced to the basics of **web development**, a field of computer science related to creating content and applications for the Internet. We will start this exploration with HTML and CSS, the two fundamental languages for creating websites. **This assignment is very different from your typical homeworks, so read the entire document before you begin.**

Submission Overview

When you finish this assignment, you will need to zip all of your files into a compressed folder and submit to Gradescope under the correct assignment before the deadline (See Submission Process for more information). **Please double check your submission by re-downloading your submission from Gradescope to ensure that it is correct.** Please un-zip your downloaded file (see Starter Files) before you double check, since your webpage may not properly load inside of a compressed folder.

CS 1301 is not responsible for incorrect or missing submissions to Gradescope past the deadline of this lab. An incorrect or missing submission will receive no credit and is not eligible for a regrade request. PLEASE double check!

Document Overview

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Explanation

This lab is composed of two sections:

- In **Section 1**, you will create a basic clone of the Google Search webpage by following the steps outlined in a video tutorial.
- In **Section 2**, you will create a new webpage about any school appropriate topic, including information about you, a hobby, favorite movies, etc.

Lab Rules

You may **not** use any kind of HTML generators or website builders such as Wix, Weebly, Squarespace, Webflow, etc, to make your site. You must use a text editor (such as Visual Studio Code, Atom, etc). We also **do not allow** the use of any frontend frameworks/libraries such as React, Vue, Angular, Bootstrap etc.

Lastly, all code written in this assignment must be written by you. Since all students will be following the same tutorial for Section 1, we anticipate that your code will be similar. However, we are expecting completely unique content for Section 2. While we encourage the use of Google to reference HTML and CSS properties, any **large sections** of code taken from another source are not permitted. **Submissions violating any of these rules will receive an automatic 0 and a report to the Office of Student Integrity.**

Getting Started

To start this lab, you will need the starter files provided on Canvas as `Lab01.zip` as well as a text editor program. **This information is also covered in the Section 1 video of this lab.**

Starter Files

To start this lab, download the `Lab01.zip` file from Canvas. Extract the files by right clicking the `.zip` and clicking "Extract All" (for Windows) or double-click the file on Mac. Once you extract the files, you should see the following file structure:

```
Lab01
    – index.html
    – styles.css
    – images
        – profile.png
        – logo.png
```

Use these files as a base to start Section 1 of your lab. Make sure that all images you add from your computer are inside the **images** folder shown above. **All files related to your lab must be in this Lab01 folder.**

At any time, you can open an `.html` file in a web browser such as Safari or Chrome by double-clicking the file, or dragging the file into the browser.

Text Editors

For this lab, you will be using a third-party text editor of your choice to write the HTML and CSS yourself. Python and IDLE **will not** be used in this assignment. The recommended text editors are Visual Studio Code (https://code.visualstudio.com/) and Atom (https://atom.io).

Additional Resources

If you have more questions about learning HTML or CSS after watching the Section 1 video, we have also added some additional helpful resources for common points of confusion. Check the Appendices at the end of this document. You may also go to office hours or Ed Discussion for additional questions.

Section 1: Tutorial

In this section, you will be creating a clone of the Google Search homepage. To do this, watch the Tutorial Video: https://youtu.be/cmTJo0iWgKM. **WATCH THIS VIDEO IN ITS ENTIRETY.** It contains full details on what is expected for this portion of the lab.

You are expected to exactly follow the tutorial video so that your end result appears nearly identical to the final result shown below. It is expected that your code will be nearly identical to the code shown in the video.

All work for Section 1 will be within `index.html` and `styles.css` . This portion of the lab will be graded based on whether the end result adheres to the code provided in the video. **Along with this, the following are required in Section 1:**

- Replace the provided text of the `<title>` tag with your name
- Replace the provided profile picture (in upper right corner) in the menu with your own image (it can be of yourself, but does not have to be)

Optionally, you can customize this page further if you wish. Some basic ideas include:

- Changing the default page background
- Change the provided logo

Clone of the Google Search homepage

Section 2: Exploration

In Section 2 of this lab, you will be building the `profile.html` page that we created in Section 1. You have full creative freedom to make your website content about whatever you want, as long as the content is school appropriate. You may continue to build off the existing `styles.css` files from Section 1, or you may link `profile.html` to a new `.css` file. However, your resulting `profile.html` must meet the following requirements:

- Must be linked from `index.html` (the Google homepage covered in Section 1)
- Must have your name in the `<title>` tag
- Must include a link back to your `index.html` (the Google homepage covered in Section 1)
- Must customize the background of `profile.html`
- Must change the default font of `profile.html`
- Must contain at least 3 (or more) images. Additional images can be spread out across your page however you wish
- Must style an element using a class
- Must style an element using an ID

These requirements are the minimum. Feel free to add anything else. **Be creative!**

Extra Credit

You may receive up to **10 bonus points** on this lab (allowing for a max grade of 110/100 on Lab01) for going above and beyond what is required in Section 2 of your lab. These bonus points will be awarded at the discretion of the TAs. Some possible ways to earn these points include, but are not limited to:

- Include non-trivial JavaScript functionalities and interactive elements to your website. Some ideas include **alert boxes**, **dropdown lists**, **menus**, and **buttons**.
- Go above and beyond on your page design with more advanced CSS topics like css-grid, flexbox, or your own effects.
- **Overall creativity and aestheticness!**

Submission Process

Lab01 will be submitted through Gradescope. You will need to submit all files used in Lab01 (all images, HTML and CSS files). To do this, compress the entire Lab01 folder that you are working in into a `.zip` file. Follow the instructions below:

1. Right click your Lab01 folder:

    - On Windows, click **Send To > Compressed (zip) folder**
    - On Mac, click **Compress "Lab01"**

2. This will create a zip folder on your computer. Rename the zip folder so that it has the following name (**DO NOT include the curly braces**):

   ```
   {your first name}-{your last name}.zip
   ```

3. Upload this `.zip` file to the Lab01 assignment on **Gradescope.**

Please put all images that you used in your website in this Lab01 folder. Otherwise, your grader will not be able to see images that you included.

To double check that you did this correctly **(PLEASE do this!)**, download your submission and unzip the .zip file you submitted. Once you unzip your file, you can open `index.html` in your browser to ensure everything works and looks correct.

Note: If you do not unzip your file before opening `index.html`, your webpage will not load correctly. That's perfectly normal! Your grader will unzip your submission before grading it.

Grading Rubric

Section 1 (50 points):

Description	Points
Result shows that student successfully completed Video Tutorial	30
Title tag contains student name	10
Profile picture (upper right corner) is customized	10

Section 2 (50 points + 10 extra credit):

Description	Points
Linked from `index.html`	5
Title tag contains student name	5
Includes a link back to `index.html`	5
Page background is styled (not default)	5
Page font is styled (not default)	5
Contains 3 or more images	15
Styles a tag using a class selector	5
Styles a tag using an ID selector	5

Final Total (with extra credit): 110/100 points

Submissions that demonstrate the following will receive a zero:

- Section 2 shows evidence of large portions of copying from Internet or other student.
- Used a website builder program to create submission (including, but not limited to: Webflow, Wix, Weebly, Squarespace, Bootstrap Studio, etc)
- Used a framework or library to create submission (including, but not limited to: React, Vue, Angular, Bootstrap)
- Contains inappropriate content
- Incorrect, blank, or missing submission

Appendix A: Learning Resources

HTML is a language that specifies the content of a web page. CSS is a language that specifies how the content of a web page is styled and presented to the viewer (the colors, fonts, positioning, etc). HTML files end with the `.html` file extension, and CSS files end with the `.css` extension. A CSS file is "linked" to an HTML file with a special HTML tag in the header. You will have at least two `.html` files and one `.css` file by the time you are finished. Before you get started, you may want to review some of these links that cover the basics of HTML and CSS:

- w3schools
- HTML Guide
- CSS Guide

Appendix B: Adding Images

To add images to your website, you have two options. You can either add an image from the Internet with a link, or you can add an image from your computer. Below is an explanation for both methods:

- **From the Internet:** To add an image from the Internet, you simply need to find a link to the image, and then use that link as the `src` of the img tag:

  ```
  <img src="https://picsum.photos/id/237/200/300" alt="Img Description" />
  ```

  Alternatively, you can also download an image from the Internet to your computer, and then you can follow the instructions below.

- **From your Computer:** To add an image that is on your computer, copy the image into the `images` folder in your Lab01 folder. Then, link the image so that the `src` of the image is the new path of the image:

  ```
  <img src="images/{your-image-file-name-here}" alt="Img Description" />
  ```

  If you incorrectly link an image from your computer by providing an invalid URL or path, your grader will not be able to see the image. **All images from your computer must be inside the `images` folder of Lab01.**

Appendix C: IDs vs Classes

Often in web development and design, developers must decide whether to use a class or an ID for an element to style it with CSS. If you are confused about which CSS selector to chose, simply follow the rules below:

- If you want to style multiple elements with the same group of CSS properties, **use a class.** Examples include groups of buttons, blocks of texts, titles, etc.
- If you want to style **exactly one** element and only one, **use an ID.**
- If you are still unsure, **use a class.** Classes are more flexible, since having a single element in a class is an acceptable practice, but having multiple elements share an ID is not.