



CSCI-UA-4-005

Intro to Web Design + Computer Principles

Version Control, Web Hosting + Domain Names

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Agenda

- Domain Names + Web Hosting
 - Domain Names
 - Web Hosting
 - Search Engine Optimization
 - Website Analytics
- Version Control
 - Centralized vs Distributed
 - Git vs Github
- Demo: Github Pages
- Final Exam Information

Version Control

A system that records changes to a file or set of files over time so that you can recall specific versions later

Commonly used for software source code but any type of file can be placed under version control

A Version Control System (VCS) allows you to:

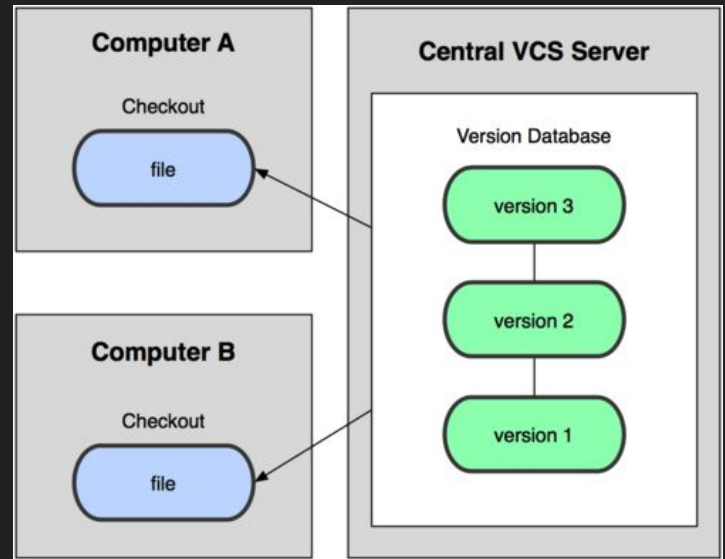
- Revert files back to a previous state
- Review changes made over time
- Collaborate more efficiently
- Maintain project backups



What is Git? [2 minutes]

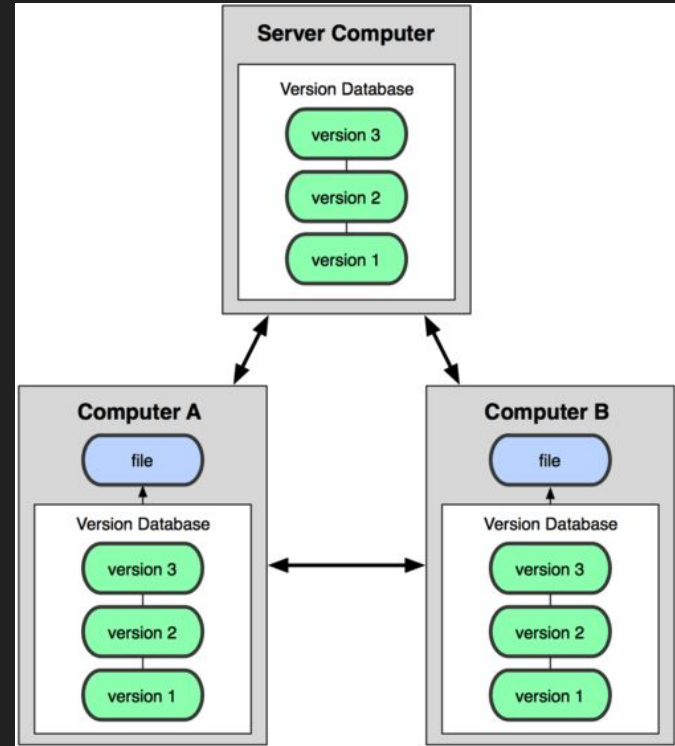
Centralized Version Control

- Centralized Version Control Systems were developed to allow collaboration with developers on other systems.
- With a CVCS, a single server contains all the versioned files and clients “check out” files from that central place.
- For many years, this has been the standard for version control.
- The downside of centralized version control is the vulnerability of having the entire history of a project in one place.



Distributed Version Control

- With Distributed Version Control Systems, clients don't just check out the latest snapshot of files, they fully mirror the entire history of the project.
- If a server dies, anyone with a copy of all the versioned files can restore it to the server.
- Every checkout is really a full backup of all the data.
- You can also collaborate with different groups of people in different ways simultaneously within the same project.



Git History

Git was created in 2005 by Linus Torvalds and the Linux development community for Linux kernel maintenance

Linux is an open source operating system project of fairly large scope

Its goal was to be a fully distributed VCS with a simple design, support for non-linear development, and the ability to handle large projects efficiently



How Git Actually Works



Git Workflow [2 minutes]

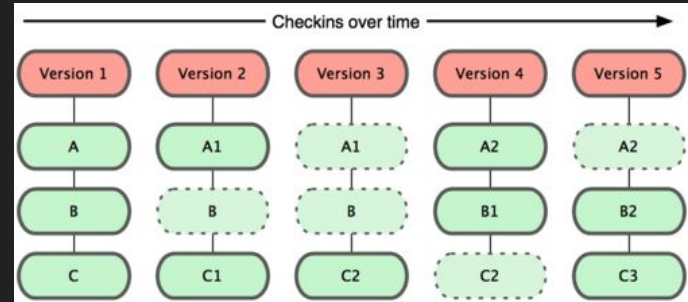
Git Basics

Git thinks of its data like a set of snapshots of a mini file system.

Every time you save the state of your project, it basically takes a picture of what all your files look like then and stores a reference to that snapshot.

To be efficient, if files have not changed, Git doesn't store the file again—just a link to the previous identical file it has already stored.

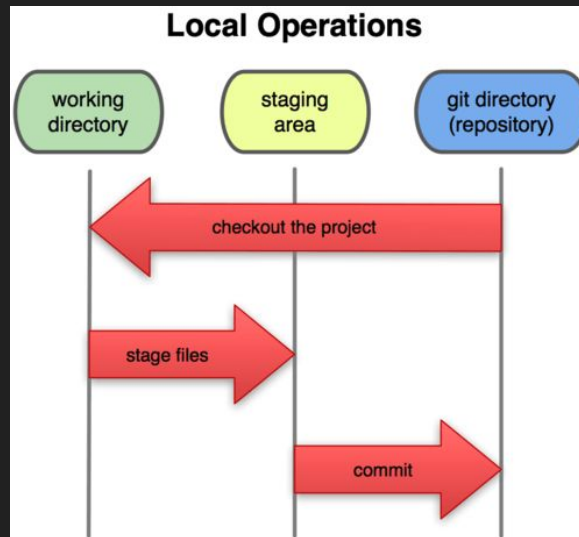
This makes Git more like a mini file system with some powerful tools built on top of it.



Git States

Git has three main states that your files can reside in: modified, staged, and committed.

- **Modified** means that you have changed the file but have not committed it to your database yet.
- **Staged** means that you have marked a modified file in its current version to go into your next commit snapshot.
- **Committed** means that the data is safely stored in your local database.



Git Workflow

1. Modify files in your working directory
2. Stage the files, adding snapshots of them to your staging area.
3. Commit changes, which takes the files as they are in the staging area and stores that snapshot permanently to your Git directory.
4. (When collaborating, push changes to a remote repository, as well.)

Github

GitHub is a web-based hosting service that uses the Git VCS.

- The site also provides social networking functionality such as feeds, followers, wikis, and statistics.
- The company was founded in 2008 and is located in San Francisco.
- In addition to computer programmers, architects, musicians, municipal governments, and academics are among its users.



[Action] Create Github accounts + set up Github Desktop

Domain Names

Domain Names

- Domain names serve as a more memorable reference to Internet resources.
- Domain names are used to identify Internet Protocol (IP) addresses.
- An IP address is an identifier for a node—a computer or device on a network.

Top Level Domain

Every domain name has a suffix that indicates which top level domain (TLD) it belongs to.

Top-level domains today are grouped as follows:

- Generic top-level domains (.com .org .net)
- Country-code top-level domains (.us .uk .jp)
- Infrastructure top-level domain (.arpa)
- Sponsored top-level domain (.museum .cat .post)
- Special-use top-level domain (.localhost .example)

Generic TLDs

Generic TLDs Generic top-level domains initially consisted of:

- GOV: Government agencies
- EDU: Educational institutions
- ORG: Nonprofit organizations
- MIL: Military
- COM: Commercial business
- NET: Network organizations

Some of these, such as .com and .net, are no longer restricted to their original intended usage.

More generic TLDs have since been added and are being added today.

Selecting a Domain Name

When you register a domain name, you are not its owner, rather you have the exclusive right to use it.

Some factors to consider when selecting a domain name:

- Relevance to site
- Communicability
- Availability

Here is a list of all domain name registrars:

www.internic.net/alpha.html



DOMAIN FOR SALE

Computers.com

The domain computers.com presents the opportunity for a brand, product, or service in any market segment to leverage a powerful and identifying domain name as a vehicle for growth and development.

The current asking price for this premium domain name is \$3,000,000 USD.

For more information, please fill out the form. To see other domains for sale, [click here](#).

Opportunity

This is a rare opportunity to own a highly desirable .com with tremendous branding potential and unparalleled marketing potential for any brand or product.

First Name*

Last Name*

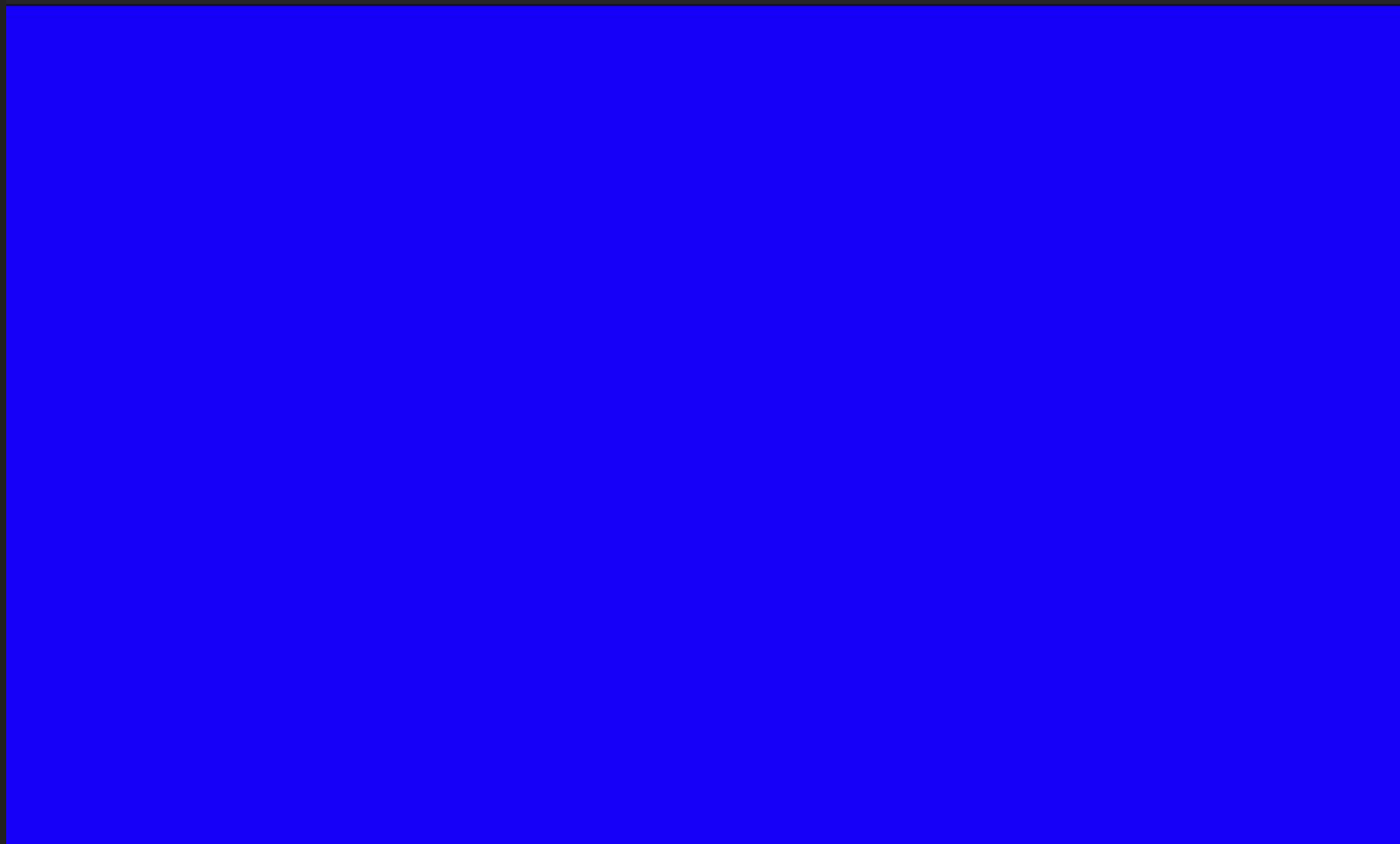
Phone Number*

Email*

Company Name*



<https://www.sometimesredsometimesblue.com>



Domain Name Registrars

- [Network Solutions](#)
- [Google Domains](#)
- [GoDaddy](#)

Whois

Whois is a protocol used for querying databases to obtain information about the registration of domain names and IP addresses, revealing details like ownership and registration dates.

ICANN

Internet Corporation for Assigned Names and Numbers is a nonprofit organization responsible for coordinating the global Internet's systems of unique identifiers, including managing the domain name system and IP address allocation.

Web Hosting

Web Hosting

- A web hosting service allows individuals and organizations to make their website accessible to others.
- The host usually provides storage space on a server as well as Internet connectivity.
- Theoretically, any computer can serve as a web host, but it needs to always be on and implement measures for security and stability.

Selecting a Web Host

- Dedicated vs. shared server space
- Disk space
- Bandwidth (data transfer)
- Up time (reliability)
- Overage
- Extras: databases, mailboxes, and types of customer support

Web Hosting Services

Free:

- [GitHub Pages](#)
- [Glitch](#)

Paid:

- [Pair Networks](#)
- Media Temple (now [GoDaddy](#))
- [Reclaim Hosting](#)

[Demo] Github

In this walkthrough, we'll use GitHub, GitHub Desktop, and GitHub Pages to create and host a simple website for free!

1. Create a GitHub Repository

1. Log in to your GitHub account.
2. Click the green “New” button in the upper-left corner or on your dashboard to create a new repository.
3. Fill out the repository details:
 - Repository Name: demo-website
 - Description: (optional) "A demo repository for hosting a website using GitHub Pages."
 - Visibility: Public (required for GitHub Pages).
4. Check the box “Initialize this repository with a README”.
5. Click “Create repository.”

2. Enable GitHub Pages

1. Navigate to the Settings tab of your repository.
2. Scroll down to the “Pages” section (usually under the "Code and automation" header).
3. Under Source, select “Deploy from a branch.”
4. Choose the main branch and the /root folder as the source, then click Save.
5. GitHub will provide a URL where your website will be hosted (e.g., <https://<your-username>.github.io/demo-website/>). Note this URL.

3. Clone the Repository Using GitHub Desktop

1. Open GitHub Desktop and log in to your GitHub account if prompted.
2. In GitHub Desktop, click File > Clone Repository.
3. Select the repository you just created (demo-website).
4. Choose a local folder where the repository will be cloned.
5. Click Clone.

4. Add HTML + CSS Content

1. Open the cloned repository folder on your computer using a text editor (e.g., VS Code or Notepad++).
2. Create a new files named `index.html` and `styles.css` in the root of the repository.
3. Add HTML + CSS code.
4. Save the files.

5. Commit and Push Changes Using GitHub Desktop

1. Return to GitHub Desktop.
2. You should see the new `index.html` and `styles.css` listed under "Changes."
3. Add a commit message, e.g., *Add initial static website content.*
4. Click Commit to main.
5. Click Push origin to upload your changes to GitHub.

6. Verify the Website

1. Go back to your GitHub repository in your web browser.
2. Under the Settings > Pages section, confirm that the website is published. This may take a few minutes.
3. Visit the provided GitHub Pages URL (e.g., <https://<your-username>.github.io/demo-website/>) to view your website.

7. Add More Content + Update

1. Add JS or additional files to the project.
2. Push those changes using GitHub Desktop and refresh the GitHub Pages URL to see updates.

Search Engine Optimization

Search Engine Optimization (SEO)

- Search engine optimization (SEO) is the process of making your site easy for others to locate.
- The more thoughtfully and selectively you add keywords to your pages, the better your search rankings.
- There are several factors that help your website to rise in search results.

On-Page Techniques of SEO

On-page techniques are the methods you can use to improve search results for your site.

This involves identifying and implementing keywords in seven particular places in your page.

1. Page title
2. URL
3. Headings
4. Text
5. Link text
6. Image alt text
7. Page descriptions

Rangefinder Site

```
<!-- descriptive text for SEO -->  
    <meta name="description" content="History and distinctives of rangefinder cameras">  
<!-- keywords for SEO -->  
    <meta name="keywords" content="rangefinder, SLR, vintage, film, camera">
```

Off-Page Techniques of SEO

- Search engines also look at the number of other sites that link to yours to determine search ranking.
- This is especially so when the content of a referring site is similar to yours.
- It's ideal when the words that appear in links to your site also appear in the text of the page that the site links to.
- Finally, as more people visit your site, the search ranking will also improve.

Semantic URLs








Semantic URLs, also known as "Clean URLs" or "SEO-friendly URLs," refer to web addresses that are designed to be easily readable and understandable by both humans and search engines.

For example, a non-semantic URL might look like www.example.com/page?id=123, whereas a semantic version of the same URL could be www.example.com/products/. The latter is more descriptive and user-friendly.










"Pretty" URLs

You can organize web pages into directories and rename them as `index.html` so that the URL becomes cleaner and more semantic:

[example.com/about.html](#) → [example.com/about/](#)

< >  ghibli	
Name	
	filmmakers.html
	films.html
> 	images
	index.html
> 	starter-files
	styles.css



< >  ghibli	
Name	
▼ 	filmmakers
	index.html
▼ 	films
	index.html
> 	images
	index.html
> 	starter-files
	styles.css

Website Analytics

Website Analytics

Once people start visiting your site, it's helpful to know!

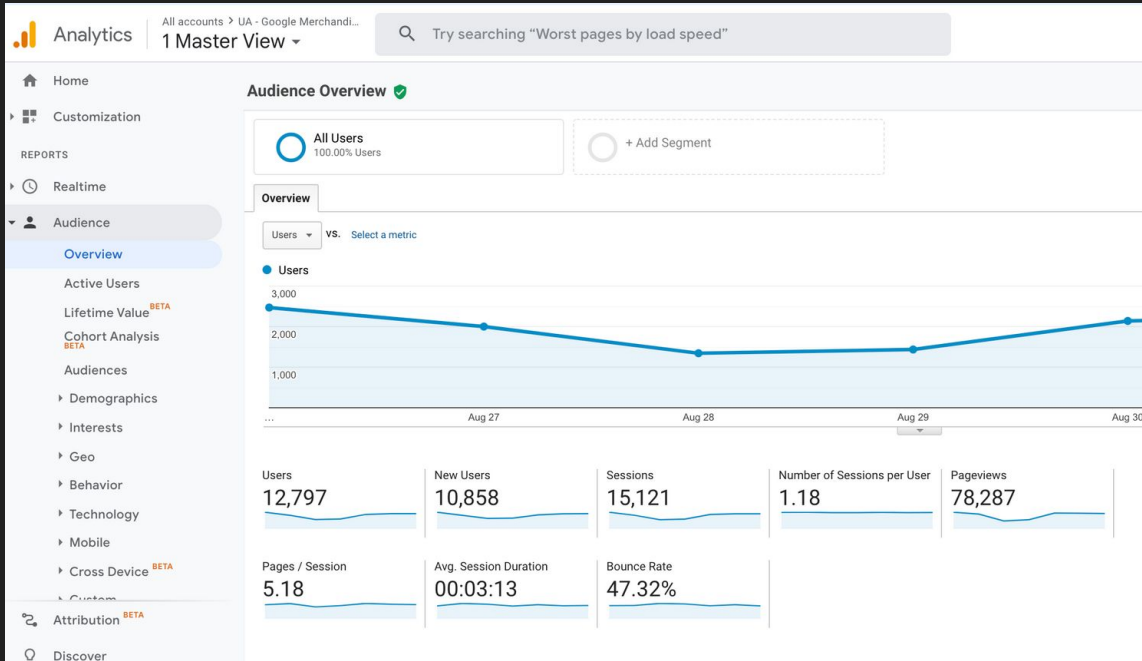
Analytics tools allow you to observe data about the traffic your site receives.

This can include the following information:

- Number of visits
- Geographic location of visitors
- Time spent on pages
- Referring web page
- Browser information
- Real-time activity

Google Analytics

<https://analytics.google.com/>



Final

Final

Date: Thursday, December 12
3:30pm-4:15pm, GCASL 279

Format: Multiple Choice

Topics Covered: First Half Topics + Accessibility, Page Layout, Responsive Design, Javascript, Audio + Video, Forms, Version Control, Web Hosting + Domains

- Paper exam; no laptops/internet
- Open note (1 sheet front + back)
- 60 questions total (5-10 per topic, ~20 for attached code)

Homework

Homework

- Be prepared to share A#9 so far for Design Workshop next class
- (1) Mock final — Multiple Choice
- (2) Practice — Recreate Website (on Ed)