CS 401/516: Introduction to Web Development

Marissa Schmidt
Who am I?

- Marissa Schmidt (aka Master Marissa)
- Master’s in CS @ BSU in 2012
- Software Design Engineer for hp (‘11 to ‘14)
  - R&D for Indigo server DFE (Digital Front End)
  - Java WebAPI (server) and JavaScript (client).
  - Server diagnostic tool in Groovy/Grails framework
- Internship @ FirstToFile
  - Random webdev stuff (Java/JS/HTML/CSS)
Teams and Introductions

- Answer questions on handout.
- Team formation
  - 3 students per team
  - Add up the points on your handout (0 - 12)
  - Line up (separate lines for CS 401 and CS 516)
    - (it doesn’t matter what number you have...higher is not “better”)
  - CS 401 (count off 1-6)
  - CS 516 (count off 1-4)
Introductions

- Introduce yourselves.
- Share one of the things you are proud of.
- How did you get really good at something?
Course Logistics

- Have fun!

- **Intro** to Web Development
  - If you know “everything”, be respectful. Use your knowledge for good.

- **CS401/CS516**
  - Still working out the details, but expectations will be slightly different.
Course Logistics

● Team-based Learning(ish)
  ○ You will be expected to watch videos/do tutorials outside of class for some modules.
  ○ Spend more time applying in class.
  ○ Bring laptops if possible. One per team each class would be good.

● Decide on Quiz weights
  ○ Individual (@least 60%)
Resources

- Piazza
- Get the book!
- Office hours - when do you want them?
- Tutors
  - Mostly for CS516 … they are paying for them
- Help each other. Ask me for help.
Weeks 1/2 & 5/6

FRONT-END DEVELOPMENT

1. A site is loaded in a browser from the server.

2. **Client-side scripts** Run in the browser and process requests without call-backs to the server.

3. When a call to the database is required, JavaScript and AJAX send requests to the back end.

4. The **back-end server-side scripts** process the request, pull what they need from the database, then send it back.

5. Server-side scripts process the data, then update the site—populating drop-down menus, loading products to a page, updating a user profile, and more.

**Responsive** front-end design allows a site to adapt to a user’s device.

Everything a user sees in the browser is a mix of **HTML**, **CSS**, and **JavaScript**.
What you need

- A web browser
  - Chrome
  - Firefox
- A text editor
  - Notepad++
  - Sublime Text
  - Visual Studio Code
Weeks 2, 3, 4, 5

BACK-END DEVELOPMENT & FRAMEWORKS IN SERVER SIDE SOFTWARE

FRAMEWORKS are libraries of server-side programming languages that construct the back-end structure of a site.

The “STACK” comprises the database, server-side framework, server, and operating system (OS).

server-side scripts process requests and pull what they need from the database

APIs structure how data is exchanged between a database and any software accessing it.

server-side software (scripts & frameworks)

webdev## VM

THE FRONT END

Request

Response

Internet
What you need

● LAMP, MAMP, or WAMP
  ○ Linux/Mac/Windows, Apache, MySql/MariaDB, PHP
  ○ You will have a webdev VM
    ■ Credentials will be distributed.’

● SSH/SFTP

● A text editor
All semester

Web Security

WebAIM
web accessibility in mind

- XSS: 25%
- Information Leakage: 11%
- Authentication and Authorization: 6%
- Session Management: 7%
- SQL Injection: 13%
- CSRF: 15%
- Other: 23%
What you need
How the web works.

- Start with HTTP/DNS
- But first, HW1 (before I forget)