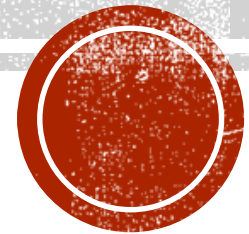# DESIGN & OUR FIRST WEB MAP

TGIS 503 – Web GIS

Week 2 – October 8, 2019

SCHEDULE FOR THE NIGHT

- Front matter: announcements, ice-breaker, resource spotlight

- HTML and CSS review

- Web fonts

- UX design

- Break: 15 mins

- Responsive design

- CSS templates

- Break: 5 mins

- A first web-map: Google My Maps or ArcGIS Online Storymap

OPPORTUNITIES & ANNOUNCEMENTS

- **UWT Sustainability Committee** is looking for a student member.

  "The Committee seeks to connect and engage the entire campus in creating a culture of sustainability by promoting and facilitating learning opportunities, hosting events, providing input, constructing policies, and sponsoring sustainable initiatives at UW Tacoma and in the surrounding community. Time commitment is 1-hr meeting once a month and pick a project to work on. If interested, please send a resume and 100-200 word cover letter explaining why you are interested in working on sustainability on campus to jimgawel@uw.edu. Priority application deadline is October 21, 5:00 PM." More info: https://www.tacoma.uw.edu/sustainability/about-us

- **UW Campus Climate Survey**: open until Nov. 8. I will give you class time closer to then (since many of you are brand new to campus) to complete it.

- **Urban Studies Welcome and Social Hour**. Wednesday, Oct. 16th, 4:30pm-6pm, at 7 Seas (2101 Jefferson Ave.)

# RESOURCE SPOTLIGHT: PREVENTIVE HEALTH AND WELLNESS

- Free flu shots on campus this week! Thursday (Oct. 10), 10:30-1:30 in the Columbia Bank Lobby of Philip Hall
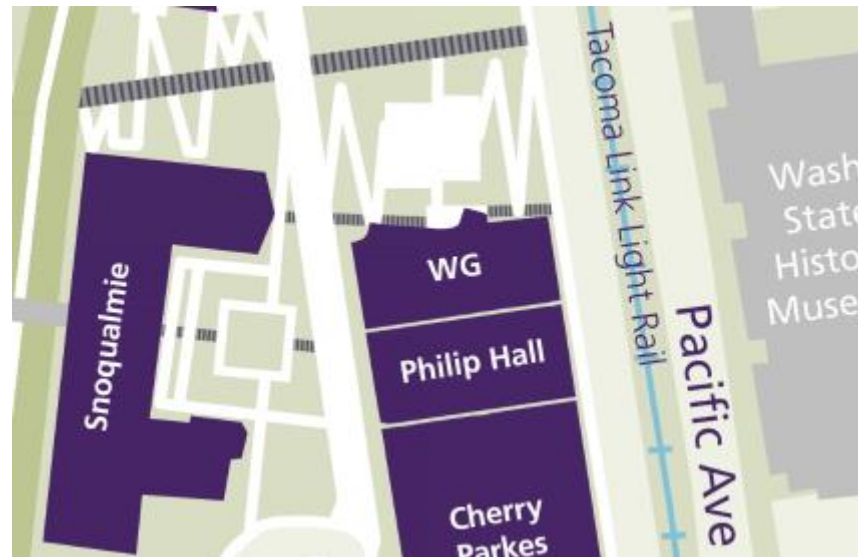
RESOURCE SPOTLIGHT: PREVENTIVE HEALTH AND WELLNESS

- **UWY membership** is included in your quarterly student fees.

- Activate your membership at the membership desk for access to UWY facilities like the rock wall, exercise room, and gym and YMCA facilities around the country. Child care is available on-site for kids under 6.

- **The Pantry** provides free supplemental food and hygiene items to all UWT students. Services can be used once a week. For more information, see: https://www.tacoma.uw.edu/thepantry
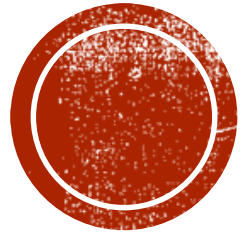
REVIEW OF WEEK 1

HTML

CSS

REVIEW: HTML

- An HTML document is composed of nested **elements**, which are defined by **tags**

```
<!DOCTYPE html>
<html>
    <head>
     <title>Title of the page </title>
    </head>
    <body>
     The page content here.
    </body>
</html>
```

- Common elements found in the body of an HTML document are `heading <h1>`, `link <a>, paragraph <p>, image <img>,` **and** `div <div>`

REVIEW: HTML

- Elements contain content, such as text or images

- Elements can have **attributes,** which are placed inside an opening tag

- **Values** are assigned to a given attribute and are contained inside quotation marks:
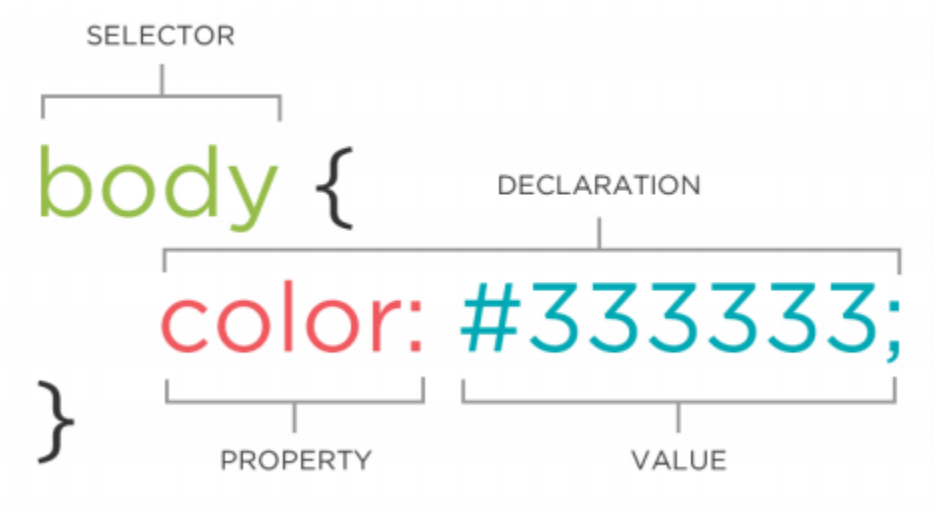
```html
<div id="copyright">© Inc. 2017</div>
<img src="html_website.png" />
<a href="http://inc.com">INC</a>
```

- **Common attributes are** `id, class, src,` **and** `href.`

REVIEW: CSS

- CSS is used to style HTML elements.

- The CSS **selector** can be an element name, an id name, or a class name

- You define the **property** of the selected element that you want to style

- You give a **value** to the defined property

REVIEW: CSS

- Common properties are background-color, font-family, font-size, color, width, height, padding, and margin

- Values can be
  - Keywords, **e.g.** `p{font-family: "Arial"}`
  - Colors, **e.g.** `body{background-color: #eb4034}`
  - Length values with numbers and units, **e.g.** `h1{font-size: 2.5em}`
  - Percentage values, **e.g.** `img.header{width: 100%}`

- CSS is typically incorporated into HTML as an **external style sheet**

```
<!DOCTYPE html>
<html>
<head>

<link rel="stylesheet" type="text/css" href="styles.css">

</head>
```

REVIEW: HTML AND CSS

- Syntax is important!

```
<p this is a paragraph </p>


body{color=#333333;}
```

- Comment with notation specific to each language

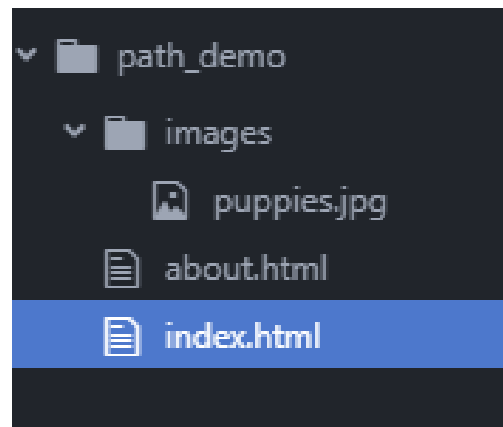```
<!-- This is an html comment -->
/*This is a CSS comment*/
```

# REVIEW: RELATIVE PATH NAMES

▪ A file that is stored in the same directory (containing folder) as the HTML document that links to that file can be referenced with no path information

```html
<a href="about.html">About</a>
<img src="images/puppies.jpg" alt="Three puppies sitting on grass">
```

```
∨ 📁 path_demo
    ∨ 📁 images
        🖼 puppies.jpg
    📄 about.html
    📄 index.html
```

ERROR CATCHING ACTIVITY

- From the week 2 Canvas page, download the error_catching.zip folder

- Right click > Open with WinZip > Extract > select a suitable workspace > 'Extract'

- Open the files in Google Chrome *and* in Atom

- Use Google Developer Tools and your own know-how to identify and fix errors in the code
  - 5 errors in the index.html file
  - 1 error in the styles.css file

QUESTION FROM LAST WEEK:

If you define CSS styles in line *and* using an external style sheet, which takes precedence? If the styles conflict, how is this resolved?

THE CASCADE: STYLE PRECEDENCE

- In-line styles win out over external styles

- Within a single style sheet, styles declared *later* win out

- If importing multiple style sheets, the style sheet that is brought in last wins out

- Also remember:
  - IDs win out over classes
  - Classes win out over elements
  - Elements typically inherit styles from the elements they are nested inside (but there are exceptions—so check a reference guide on the specific elements and properties you are interested in)

Example: https://codepen.io/ejeans/pen/GRRgyEB

WEB FONTS

- We learned last week that many basic fonts are built into web browsers—but, not all browsers recognize the same fonts, so fallback generic fonts are always recommended

- Another option is to use **web fonts,** or fonts that you link to like you would an external style sheet, which the browser downloads when it loads the page

WEB FONTS CONTINUED

- **Pros:** reliable way to (beautifully) style your fonts, regardless of what browser the client uses

- **Cons:** Requiring the browser to download web fonts uses bandwidth, so limit the number you include, or don't include them if you know your user will have limited connectivity
  - However, like external style sheets, browsers can cache fonts, which helps load times

- *Many good web fonts are available for free, but many also cost money. Pay attention to license conditions--such as crediting the font creator in your code--and never steal fonts.

HOW TO USE WEB FONTS

- Link to the font family in your HTML <head>

- Then specify the font-family as a CSS property value

- Always include a generic fallback in case the client's browser fails to load the web font!

- Example: https://codepen.io/ejeans/pen/WNNbdPN

- A great source of free web fonts is Google Fonts

- For more information: https://developer.mozilla.org/en-US/docs/Learn/CSS/Styling_text/Web_fonts
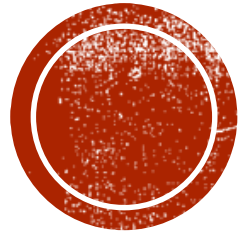
DESIGN CONSIDERATIONS

The User Experience design process

Responsive web design

CSS templates

USER EXPERIENCE (UX)

- UX refers to how users INTERACT with your site

- Why is it important?
  - Create more engaging products
  - Encourage usability & promote participation
  - Limit frustration & pain points

- Example of bad UX:
  - https://www.safetravelusa.com/sd/

- Example of good UX:
  - https://www.caranddriver.com/

COMMON UX TRAPS

- Navigation Mazes
  - Users hitting dead-ends in navigation
  - Using a header that changes

- Forms
  - Asking users to provide more information than necessary
  - Poorly worded or ambiguous questions

- Planning for the wrong device
  - Is your page meant for desktop or mobile?

HOW TO AVOID UX TRAPS

- Plan! Plan! Plan!
  - User Stories

- Test Early, test often

- <u>Follow standard conventions</u>.You don't have the user-base to do what Apple does.

- Ask yourself:
  - WHAT am I trying to solve?
  - WHO is my intended audience?
  - WHERE will they be using my product? (Mobile? Desktop?)

THE DESIGN PROCESS

- Identify all the tasks that a user must undertake to complete their work

- Write those tasks as User Stories
  - As a user I want to ____(some action)_____ so that I can _____(some result)_____
  - Ex: As a user I want to be able to click a button on the map that zooms to my current location so that I don't need to find my location by myself.

- Sketch Mockups.
  - Do multiple. Do them quickly.
  - One strategy is to take a sheet & paper, do one mockup every minute for 5 minutes.

- Choose the most appropriate, ensure that all user stories are satisfied, proceed

- AS YOU DEVELOP: test your design with users, get feedback & adjust as necessary. You'll never get it right the first time!

DESIGNING INTERACTION SOLUTIONS
IN-CLASS EXERCISE

- You are working for a company that specializes in route-finding for delivery drivers. Users can enter all the stops that they have to make during their shift & the program produces a map/route that is optimized for them to make all their stops. Design a mobile interface for this program.

  - Identify all tasks that must be completed
  - Create user stories for those tasks
    - "As a user I want to ____(some action)_____ so that I can _____(some result)_____"
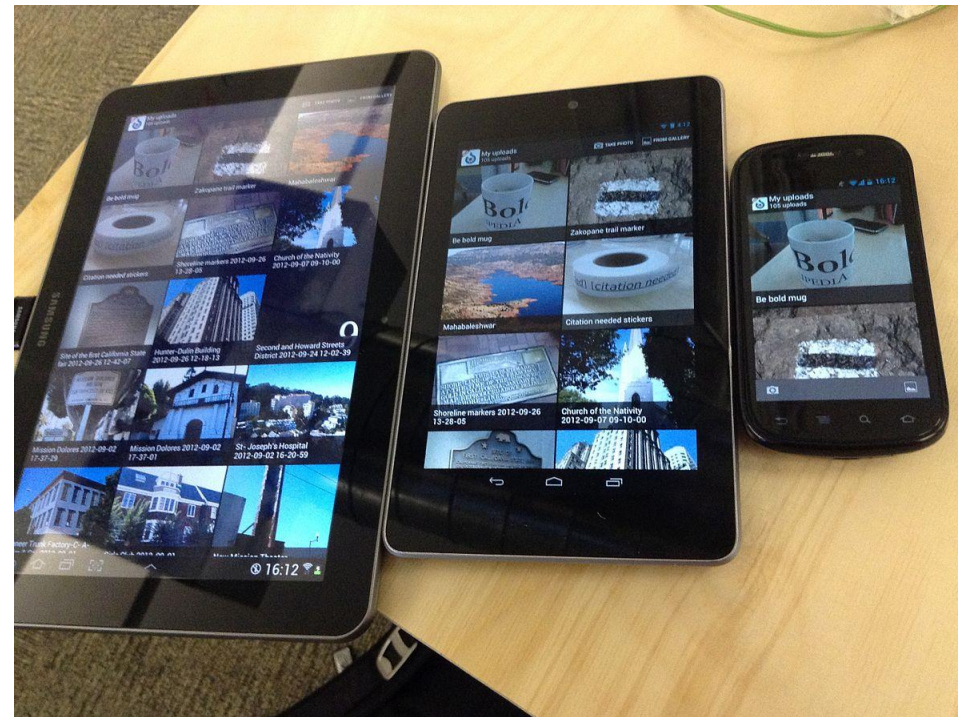 - Sketch multiple mockups that satisfy necessary tasks
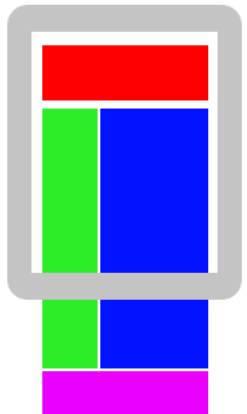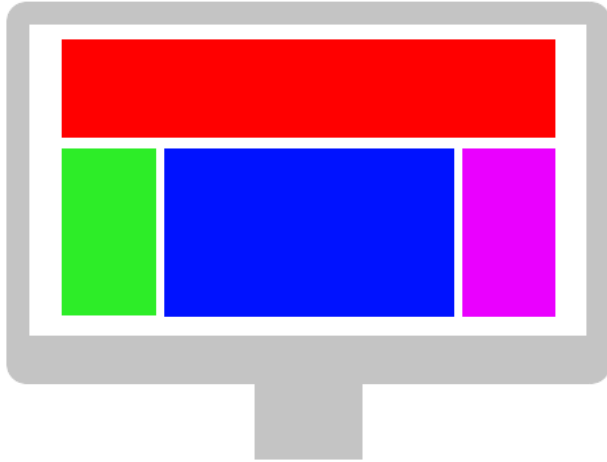
BREAK: 15 MINUTES

PRINCIPLES OF RESPONSIVE DESIGN

- Fluid Grids
- Media Queries
- Breakpoints

FLUID GRIDS

- CSS framework for rearranging content based on screensize

- Let's try it out:

- https://www.w3schools.com/w3css/w3css_grid.asp

MEDIA QUERY

- CSS rule that detects characteristics of the viewing device and sets conditional style rules

- Primarily used to determine the viewport dimensions

```
@media screen and (display-mode: fullscreen) {
  /* code in here only applies to screens in fullscreen*/
}
```

```
@media all and (orientation: landscape) {
  /* code in here only applies in landscape */
}
```

```
@media screen and (min-device-width: 500px) {
  /* code in here only applies to screens equal or greater
than 500 pixels wide */
}
```

BREAKPOINTS

- Trigger conditional style rules based on the viewport width
- Can be set anywhere, but common breakpoints are as follows:

Breakpoint	How code interprets the viewport dimensions
320px or 420 px	Smaller than breakpoint = smartphone, larger than breakpoint = tablet
768 px	Smaller = tablet, larger = laptop
1024px	Smaller = laptop, larger = external monitor

OTHER THINGS TO KEEP IN MIND WITH RESPONSIVE DESIGN

- FIRST RULE: Don't panic! There are frameworks and templates to make this easier. Very few people are designing everything from the ground up on their own!

OTHER THINGS TO KEEP IN MIND WITH RESPONSIVE DESIGN

- FIRST RULE: Don't panic! There are frameworks and templates to make this easier. Very few people are designing everything from the ground up on their own!

- SECOND RULE: At the very least, define widths (e.g. of map canvas) in terms of percentages rather than pixels. Worry less about defining heights.

CSS TEMPLATES

HTML5 UP

... makes **spiffy HTML5 site templates** that are:

💻📱
Fully
Responsive

+

</>
Built on intelligent
HTML5 + CSS3

+

⚙
Super
Customizable

+

🎁
100% Free under the
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Paradigm Shift

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Live Demo   **Free Download** (55,481)
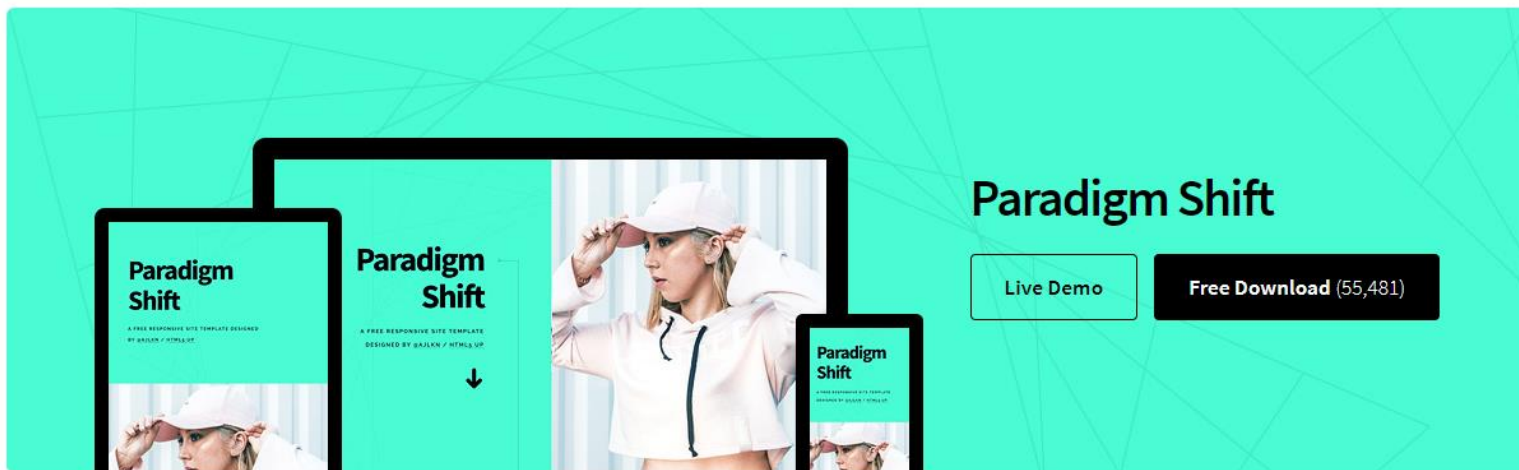
CSS TEMPLATES

- Many excellent templates (responsive, with good UX) are available free of charge under Creative Commons licenses

- Some good sources:
  - https://www.w3schools.com/css/css_rwd_templates.asp
  - https://html5up.net/
  - https://templated.co/

- Let's try some of these out

BREAK: 5 MINUTES

YOUR FIRST WEB MAP

(I MEAN, MAYBE, I DON'T KNOW WHAT YOU'VE BEEN UP TO IN YOUR SPARE TIME)

- We're going to start with something that should be fairly intuitive and straight-forward: Google My Maps

- If you already have experience working with Google My Maps and would like to try something new, I suggest making a Story Map Tour on ArcGIS Online: http://storymaps-classic.arcgis.com/en/

- Find instructions on Canvas in the Week 2 page