



Photo by Lisa Fotios

Week Twelve

Responsive Design / Mobile First Design

Land acknowledgement

Georgian College acknowledges that all campuses are situated on the traditional land of the Anishnaabeg people. The Anishnaabeg include the Odawa, Ojibwe, and Pottawatomi nations, collectively known as the Three Fires Confederacy. Georgian College is dedicated to honouring Indigenous history and culture and committed to moving forward in the spirit of reconciliation and respect with all First Nation, Métis and Inuit people.

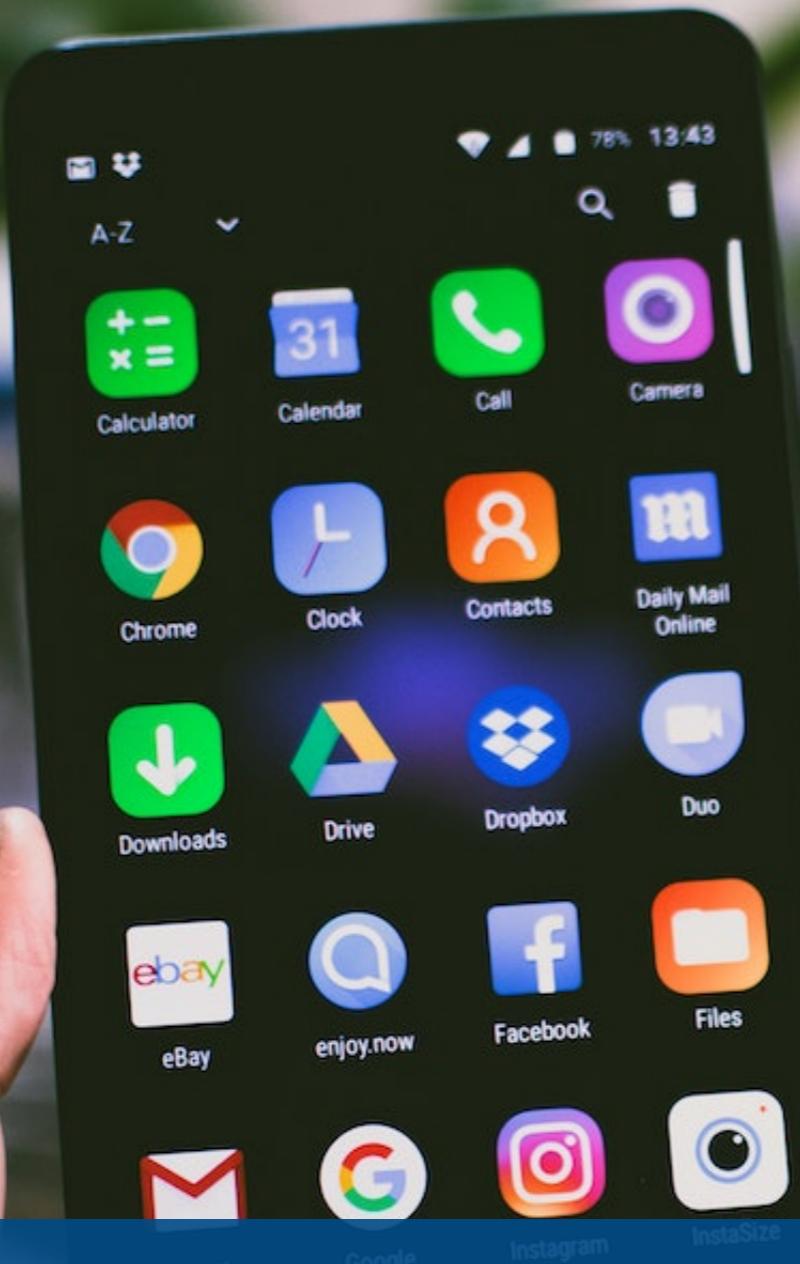
[More Indigenization information & resources](#)

TODAY'S SCHEDULE

1. Week Twelve Warm Up / Week Twelve Check In
2. Review Week 11
3. Responsive Design / Mobile First Design
4. Hold the Query - Modern Approaches
5. CSS Challenge #4 Intro (Last One!)
6. Course Project Work Period
7. Wrap Up, Weekly Tasks & Next Week

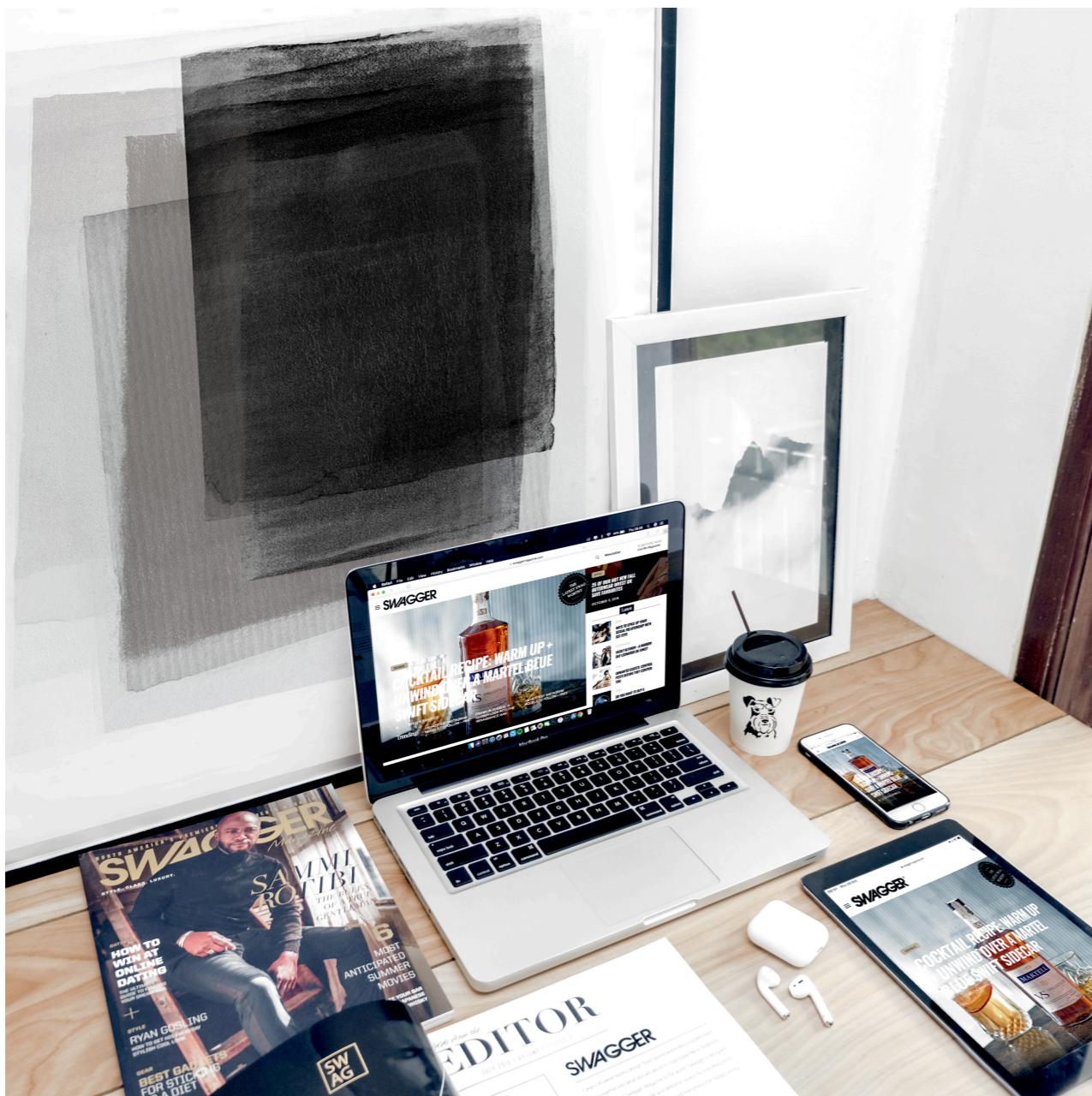
LEARNING OBJECTIVES - WEEK TWELVE

1. Apply best practices when adding CSS to an HTML document, formatting style rules, and organizing stylesheets
2. Describe responsive design and mobile-first design approaches and the tools used to create responsive
3. Utilize media queries and other tools to make interfaces responsive to screen size



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Part One - Week Twelve Warm Up



WARM UP ACTIVITY

**Practice your
responsive design
skills!**

Weekly Learning > Week 12 >
Lecture Content > Warm Up
Activity

WEEK 12 CHECK IN

Image source: pexels.com



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Part Two – Week 11 Review

EARLY WEBSITE LAYOUTS

- ▶ website used to be built to target a particular screen size
- ▶ two options: a liquid layout or a fixed-width layout



Image source: [pexels.com](https://www.pexels.com)

LIQUID VERSUS FIXED WIDTH SITES



- ▶ if your screen size differed from the norm, you had a **less than optimal experience**
- ▶ **fixed layouts** - part of the content would be obscured or a horizontal scrollbar would be used
- ▶ **liquid layouts**, although more 'responsive', were not much better

SEPARATE MOBILE WEBSITES

- ▶ as smart phones became more common, [separate mobile sites](#) were created
- ▶ this was [not ideal](#) as two separate sites had to be created, updated and maintained
- ▶ mobile sites also proved to be [frustrating to users](#) who wanted to access the full content of the site



RESPONSIVE DESIGN



- ▶ term coined by Ethan Marcotte in 2010
- ▶ Describes the use of three techniques in combination:
responsive images,
responsive typography &
media queries
- ▶ not a separate technology,
but rather **an approach to**
create websites and
applications that respond to
all devices and viewports

RESPONSIVE DESIGN

- ▶ Responsive design was only able to emerge due to the media query
- ▶ Media queries let you adapt your site or app depending on the presence or value of various device characteristics and parameters
- ▶ it's common to create a one column layout and then set up media queries to adjust the layout for larger viewports
- ▶ this is referred to as mobile first design

MEDIA QUERIES

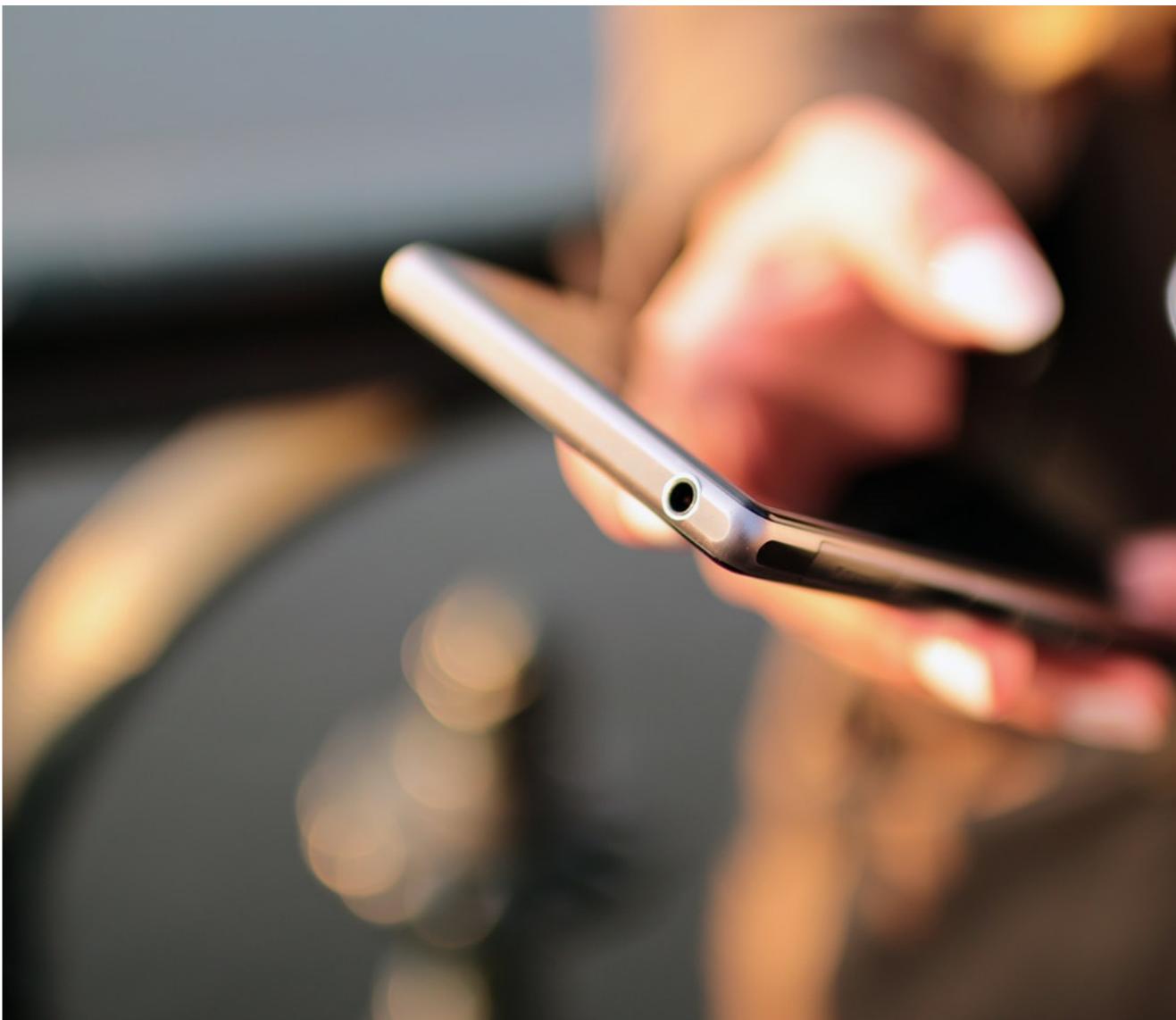
- ▶ Media queries let you adapt your site or app depending on the presence or value of various device characteristics and parameters
- ▶ involves testing a condition and applying CSS selectively to style the page appropriately for the user's needs.
- ▶ the points at which a media query is introduced, and the layout changed, are known as breakpoints.

MEDIA QUERIES

```
@media screen and (min-width: 800px) {  
    main {  
        background-color: #f582ae;  
    }  
}
```

THE VIEWPORT META TAG

- ▶ tells mobile browsers that they should set the width of the viewport to the device width, and scale the document to 100% of its intended size
- ▶ ensure that the document will be displayed at the mobile-optimized size that you intended.
- ▶ why? mobile browsers tend to lie about their viewport width
- ▶ So you should always include the above line of HTML in the head of your documents



RESPONSIVE TYPOGRAPHY

- ▶ Smaller text sizes for smaller screen sizes, larger text sizes for larger screens
- ▶ Use media queries to change font size as screen gets wider, connecting the font size to the viewport's width
- ▶ Include relative units to ensure user has the ability to resize texts
- ▶ Use clamp function to indicate a minimum font-size and a maximum-font size
- ▶ Set line length using relative units
- ▶ Set line height using unitless values as this ensures that line height is relative to font size.

RESPONSIVE IMAGES

- ▶ Goal is to provide the user with the most appropriate image for their device/screen size
- ▶ Strategy One - Constrain images
- ▶ Strategy Two - Use srcset and sizes attributes to suggest different image sizes
- ▶ Strategy Three - use the picture element to serve up different images based on screensize
- ▶ Lazy Loading



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Part Four Responsive Design & Mobile First Design

REVISITING THE MEDIA QUERY

- ▶ Apply styles only when the browser & device environment matches a rule that you specify
- ▶ Key part of responsive design - allow us to create different layouts depending on the size of the viewport
- ▶ Can also be used to detect other things about the environment your site is running on (i.e. touch screen instead of a mouse)

```
@media screen and (min-width: 800px) {  
    main {  
        background-color: #f582ae;  
    }  
}
```

MEDIA QUERY SYNTAX

- ▶ media type (all, screen, print)
- ▶ media expression - what rule or test must be passed
- ▶ A set of CSS rules that will be applied If the test is passed and media type is correct

```
@media screen and (min-width: 800px) {  
    main {  
        background-color: #f582ae;  
    }  
}
```

A FEW MEDIA FEATURE RULES

Width	Used most often for responsive web design, can specify above (min-width), below (max-width) certain width or exact (width)
Orientation	allows us to test for portrait or landscape mode
Use of Pointing Devices	allows us to detect if the user can hover over an element, introduced in Level 4 of Specification
Prefers Reduced Motion	used to detect if the user has enabled a setting on their device to minimize the amount of non-essential motion, introduced in Level 5 of the specification

FIND MORE HERE: <https://developer.mozilla.org/en-US/docs/Web/CSS/@media>

PREFERS REDUCED MOTION

```
/* Tone down the animation to avoid vestibular
motion triggers. */
@media (prefers-reduced-motion) {
    .animation {
        animation: dissolve 4s linear infinite both;
        background-color: □green;
        text-decoration: overline;
    }
}
```

- ▶ used to detect if the user has enabled a setting on their device to minimize the amount of non-essential motion
- ▶ lets browser know that the user prefers an interface that remove, reduces or replaces motion based animations (animations such as scaling or panning large objects can be vestibular motion triggers.)
- ▶ Such animations can trigger discomfort for those with [vestibular motion disorders](#)

MORE COMPLEX MEDIA QUERIES

- ▶ **AND** - combine or create a list of series
- ▶ **OR** - if you have a list of queries, any of which could match
- ▶ **NOT** - negate an entire media query This reverses the meaning of the entire media query

Check Out The [CODEPEN EXAMPLE](#)

CHOOSING BREAKPOINTS?

- ▶ In the early days, designers would try to target very specific device sizes
- ▶ With the amount of different devices available, this is very challenging to do!
- ▶ Two approaches - based on device or based on content
- ▶ To select breakpoints based on device, use [worldwide stats for the most common screen resolutions for 2022](#), site or app analytics, [breakpoints selected by popular CSS frameworks](#)

MEDIA QUERIES BASED ON DEVICES

```
/* Small devices such as large phones (640px and up)
*/
@media only screen and (min-width: 40em) {...}

/* Medium devices such as tablets (768px and up) */
@media only screen and (min-width: 48em) {...}

/* Large devices such as laptops (1024px and up) */
@media only screen and (min-width: 64em) {...}

/* Largest devices such as desktops (1280px and up)
*/
@media only screen and (min-width: 80em) {...}
```

EMS OR PX?

- ▶ pixels are absolute units, no scalability
- ▶ Ems are relative units and are relative to the parent's font size provide scalability and maintain accessibility
- ▶ If the user increases the font size, the design will change and adapt to the larger font-size

EXAMPLE ONE

WHAT IS MOBILE FIRST DESIGN ?

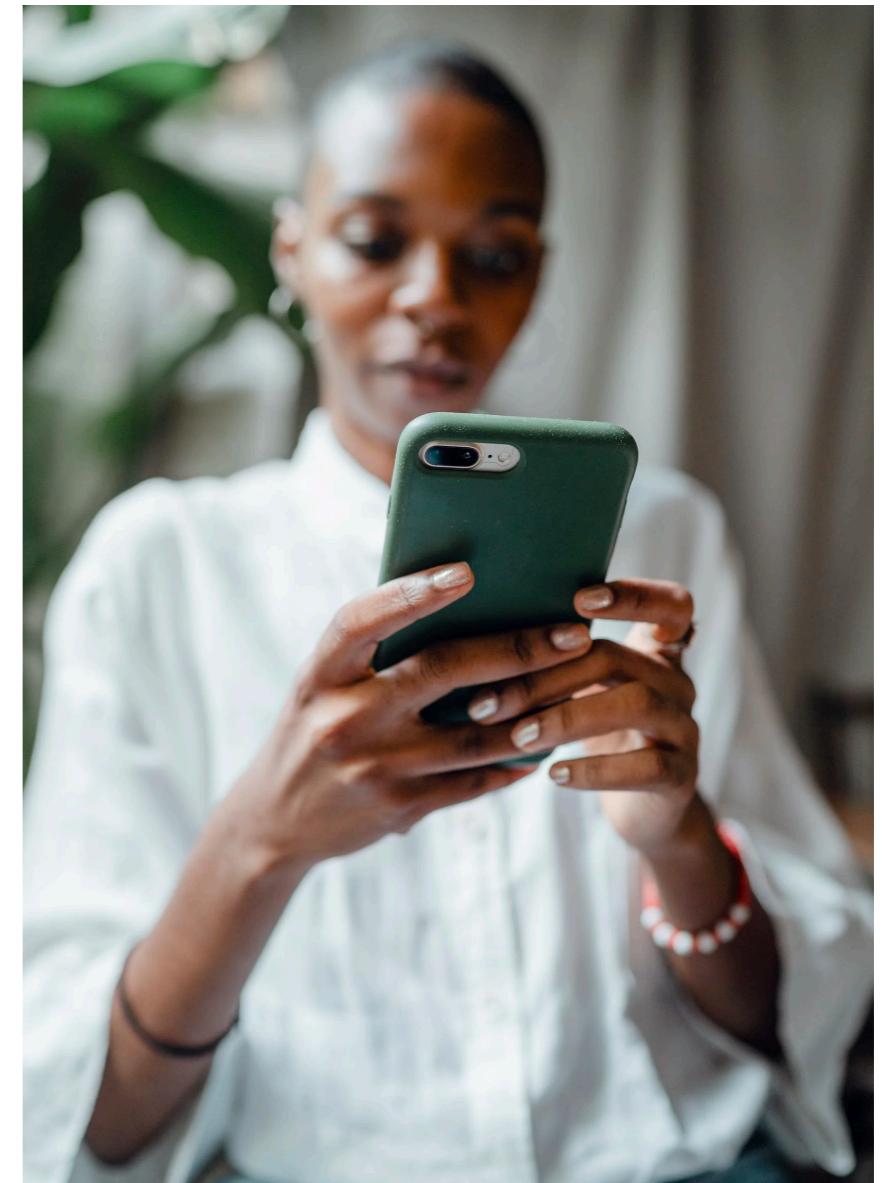
“Mobile first”, as the name suggests, means that we start the product design from the mobile end which has more restrictions, then expand its features to create a tablet or desktop version.’

[Vincent Xia, What is Mobile First Design?](#)
[Why It's Important & How To Make It?](#)



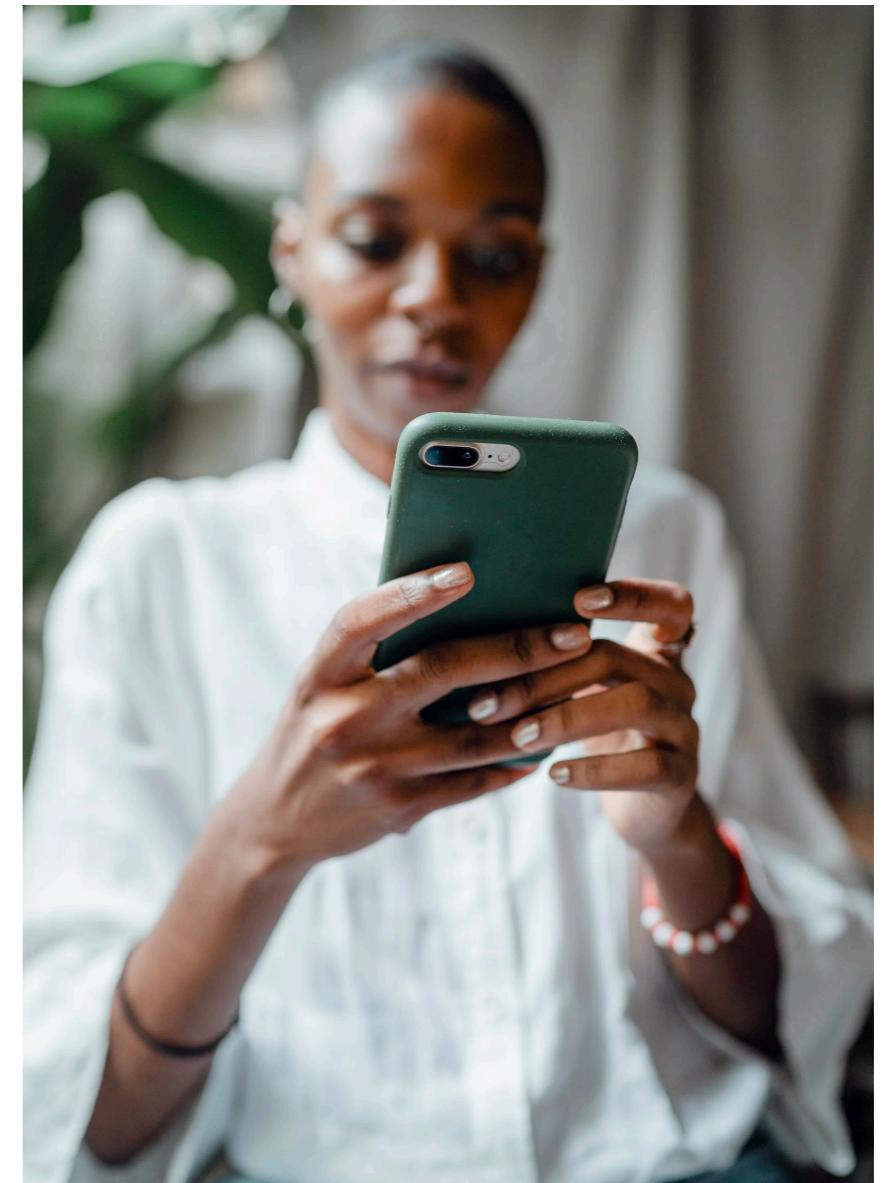
PRINCIPLES OF MOBILE FIRST DESIGN

- ▶ Mobile-first design is focused on the user
- ▶ Visual hierarchy of content
- ▶ Keep it simple
- ▶ Bold and consistent CTAs
- ▶ Site Loading Speed is (even more) important!



PROCESS OF MOBILE FIRST DESIGN

- ▶ Take inventory of your content
- ▶ Prioritize hierarchy of content
- ▶ Smallest breakpoints first
- ▶ Remove hovers
- ▶ Remove large graphics
- ▶ Test on a real device



EXAMPLE TWO



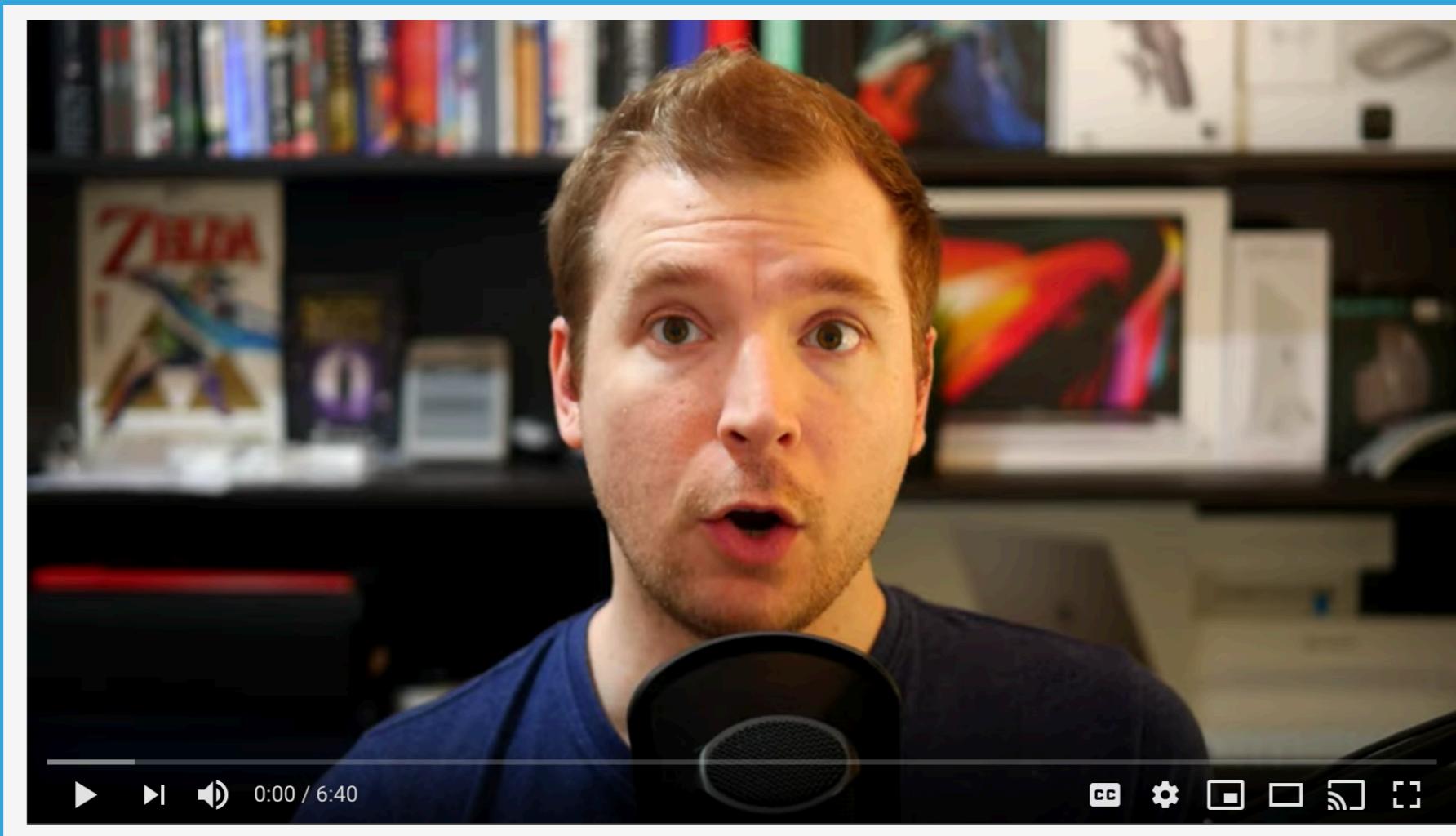
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Part Seven - Responsive Design Without
Media Queries?

RESPONSIVE DESIGN WITHOUT MEDIA QUERIES?

- ▶ modern technologies (like Flexbox and Grid for example) make **creating responsive websites and applications even easier**
- ▶ in some cases, **we may not even need to utilize media queries** in order to make our sites responsive and effective on all viewports.

RESPONSIVE DESIGN WITHOUT MEDIA QUERIES?



<https://www.youtube.com/watch?v=-TTBCxEBbfQ>



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Introducing CSS Challenge 4 (Last One!)

COMP1054 - CSS Challenge Nine / Ten

Lab Nine / Ten

In Week 11 & 12 we focused on mobile first and responsive design.

To Complete Lab Nine:

* This exercise taken from : https://developer.mozilla.org/en-US/docs/Learn/CSS/CSS_layout/rwd_skills#assessment_or_further_help

Download the start code. The start code files represent a user interface suitable for a mobile device. Your tasks is to create a DESKTOP version of this layout when there is enough screen width to accommodate it. Your final result should look like this. There are a number of ways that you could create the desktop layout, enjoy experimenting!

The image shows a screenshot of a website layout. At the top, there is a dark header bar with the text "My Website" on the left and three links labeled "Link 1", "Link 2", and "Link 3" on the right. Below the header, the main content area has a white background. It features a large heading "This is the main heading" on the left. In the bottom left corner of this area, there is some small text: "Veggies es bonus vobis, proinde vos postulo essum magis kohlrabi welsh onion daikon amaranth tatsoi tomatillo melon azuki bean garlic.". On the right side of the main content area, there is a dark sidebar with the text "Have you discovered all of the other excellent content on this website?".



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Course Project/CSS Challenge #4 Work Period

SOURCES

- ▶ [Using media queries](#)
- ▶ [What is Mobile First Design? Why It's Important & How To Make It?](#)
- ▶ [Mobile First Design Strategy: The When, Why and How](#)
- ▶ [How to Use CSS Breakpoints and Media Query Breakpoints for Responsive Design](#)
- ▶ [A primer to vestibular disorders](#)
- ▶ [prefers-reduced-motion](#)
- ▶ [MDN Web Docs @media](#)
- ▶ [Beginner's guide to media queries](#)