Lecture 14

Robust UI Implementation

UNIVERSITY OF AUCKLAND

COMPSCI 345 / SOFTENG 350

Dr. Gerald Weber

https://auckland.zoom.us/j/96891941550?pwd=N2YrOTdMcFJVbk5wbHFZMUJEbGdGZz09

Learning Objectives

- Understand the role of semantic HTML for accessibility and robustness.
- Being able to apply semantic HTML in the interface
- Being able to build responsive web interfaces with CSS mediaquery
- Relate usability questions to robustness.

Mozilla MDN on accessibility

https://developer.mozilla.org/en-US/docs/Learn/Accessibility/What_is_accessibility

" Building accessible sites benefit everyone:

- Semantic HTML, which improves accessibility, also improves SEO, making your site more findable.
- Caring about accessibility demonstrates good ethics and morals, which improves your public image.
- Other good practices that improve accessibility also make your site more usable by other groups, such as mobile phone users or those on low network speed. In fact, everyone can benefit from many such improvements.
- Did we mention it is also the law in some places? "

Semantic HTML

- Plain Old Semantic HTML(POSH): original HTML
- <p>
- <h1>, <h2> …
-
- Semantic HTML5 additions.

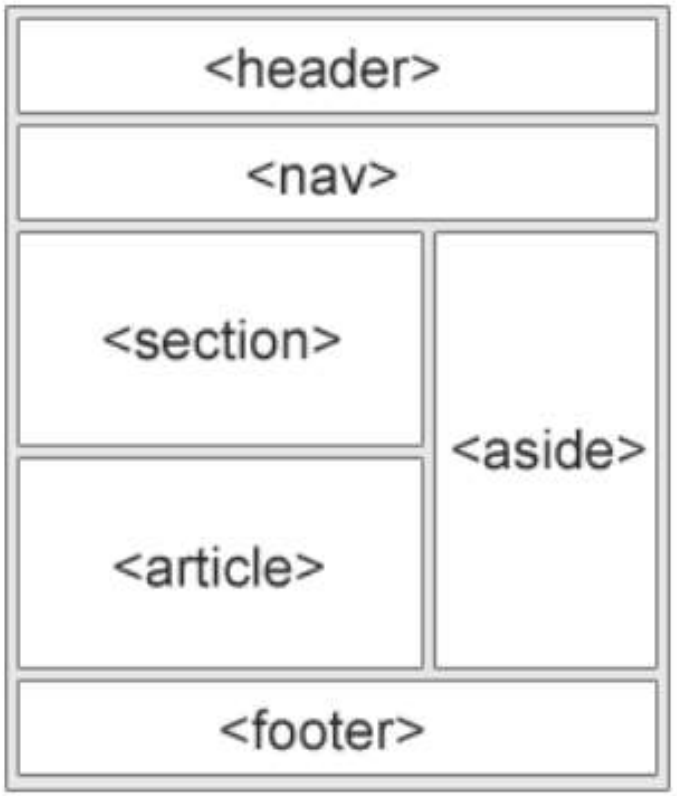
```
<body>
  <h1>italic</h1>

  <p>
    There is a fine line
    between <i>italic</i>
    and <em>emphasis</>.
  </p>
  <footer>
    CS345/SC350
    resources.
  </footer>
</body>
```

new semantic HTML 5

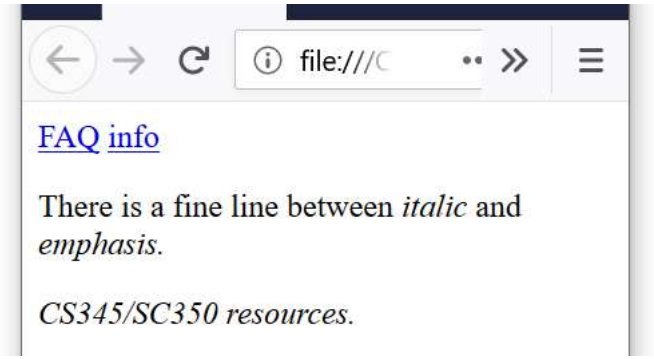
- https://www.w3schools.com/html/html5_semantic_elements.asp

- <article>
- <aside>
- <details>
- <figcaption>
- <figure>
- <footer>
- <header>
- <main>
- <mark>
- <nav>
- <section>
- <summary>
- <time>



Semantic HTML Example <nav>

- An element to include a navigation bar/group.
- Can be used by screen readers to read out navigation options.
- Can be given style information.




```
<body>
<nav>
<a href="faq.html">FAQ</a>
<a href="e">info</a>
</nav>
  <p>
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    between <i>italic</i>
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  </p>
  <footer> <a name="e" />
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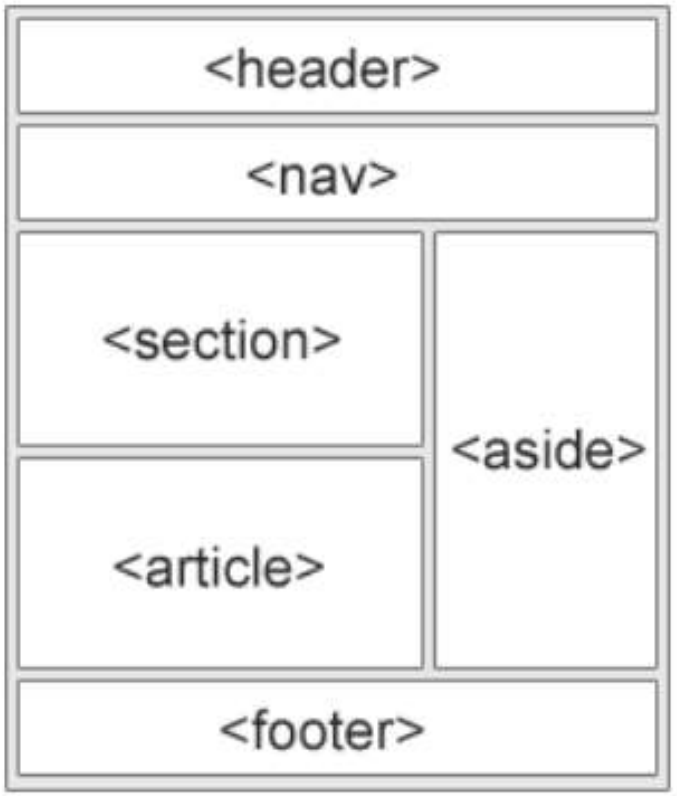
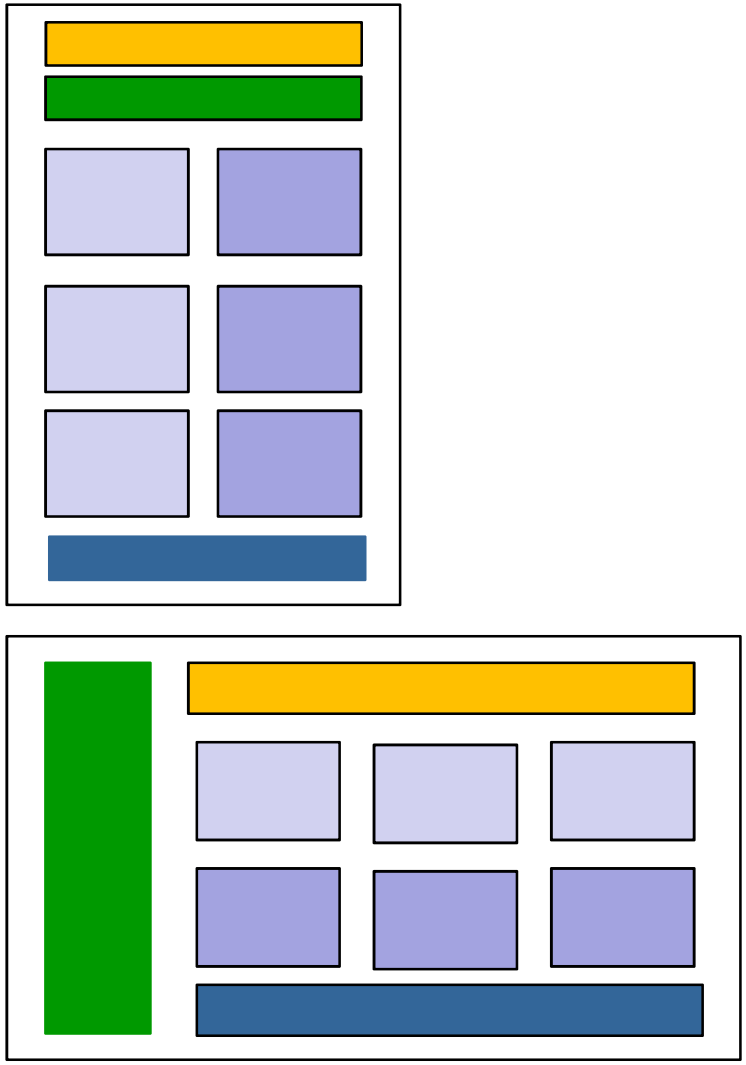


Responsive Design

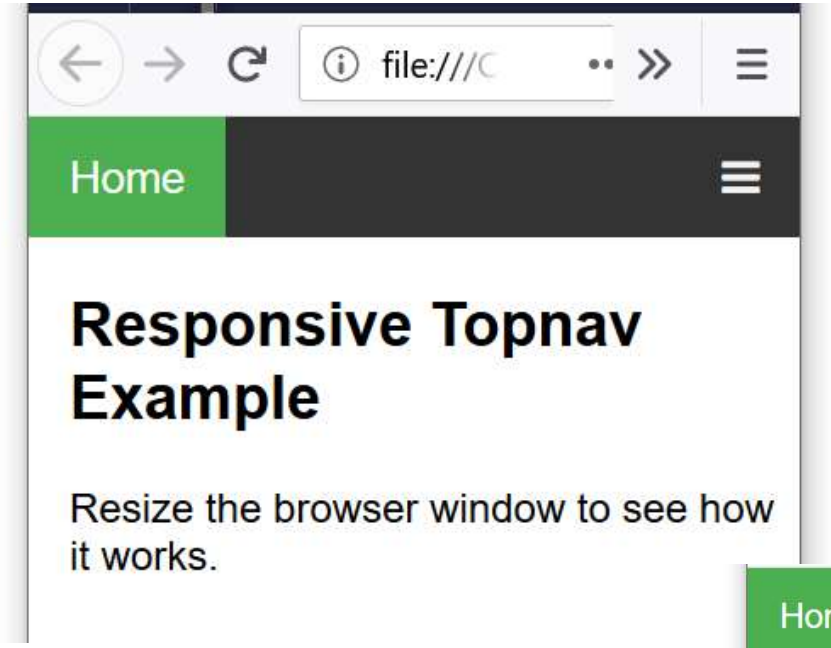
- Adapting Layout and visible content to form factor.
- CSS offers a first construct to set style information based on the screen dimensions:
- CSS media queries



CSS media queries

- A CSS feature for conditional style rules.

```
 /* When screen less than 400
pixels wide, hide all links,
except for the first
one("Home"). Show menu button */
@media screen and
      (max-width: 400px) {
  .topnav a:not(:first-child)
{display: none;}
  .topnav a.menu {
    float: right;
    display: block;
  }
```



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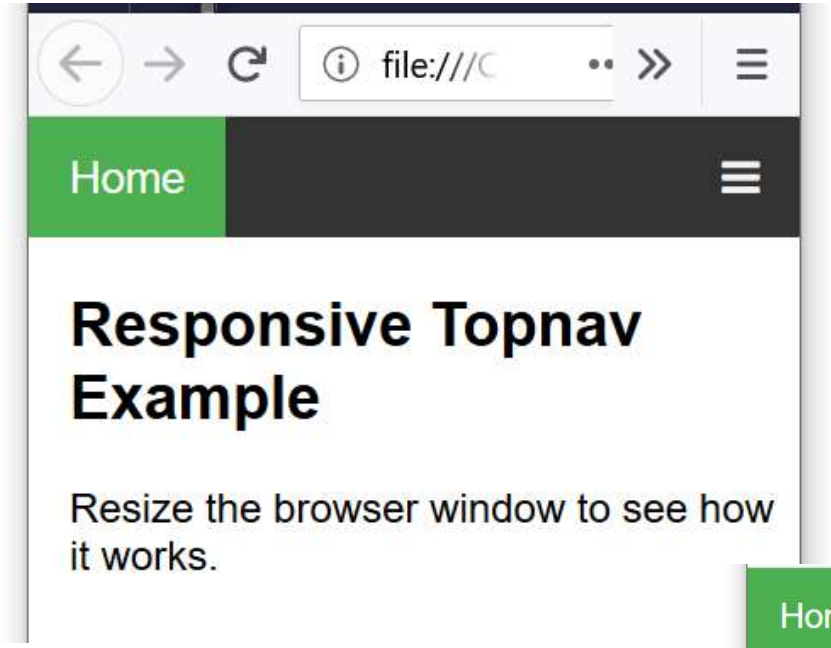

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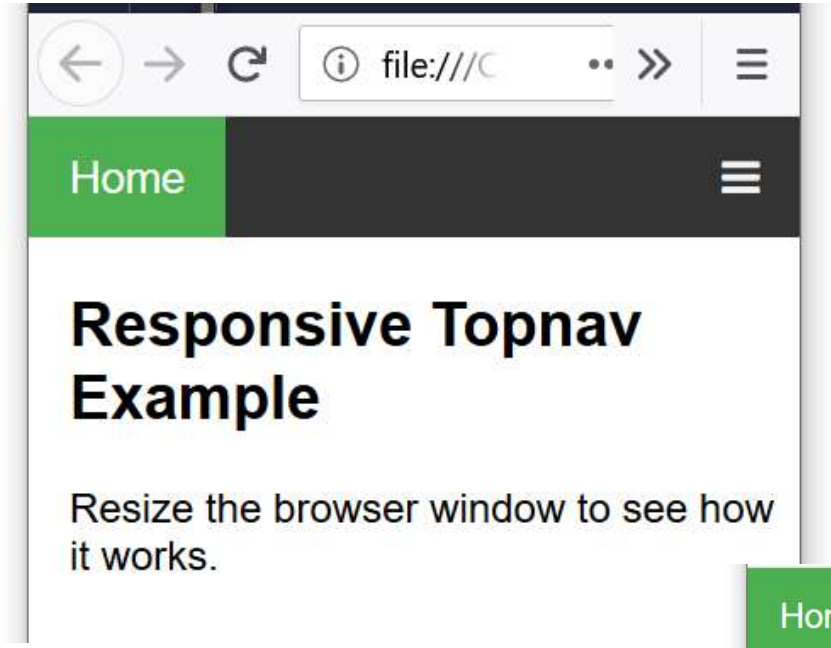

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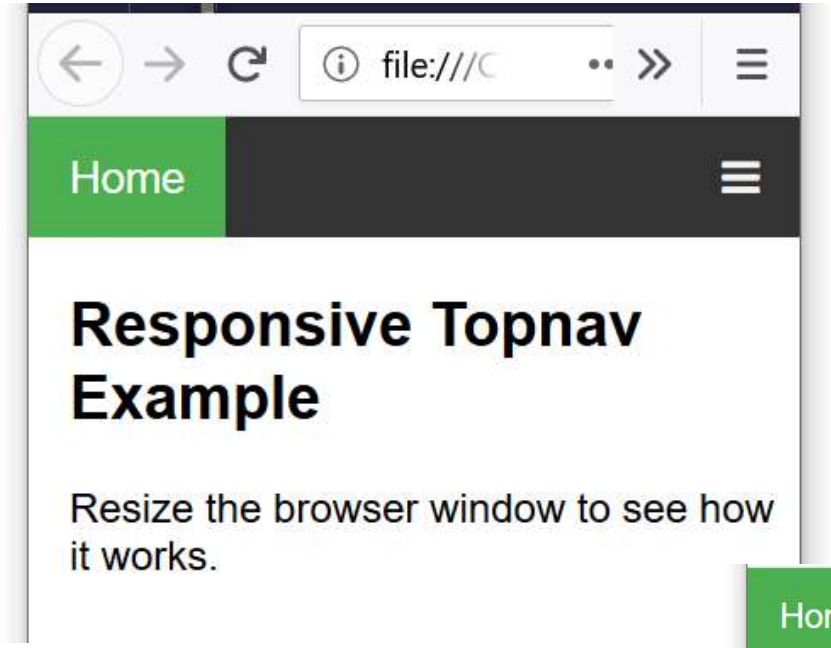

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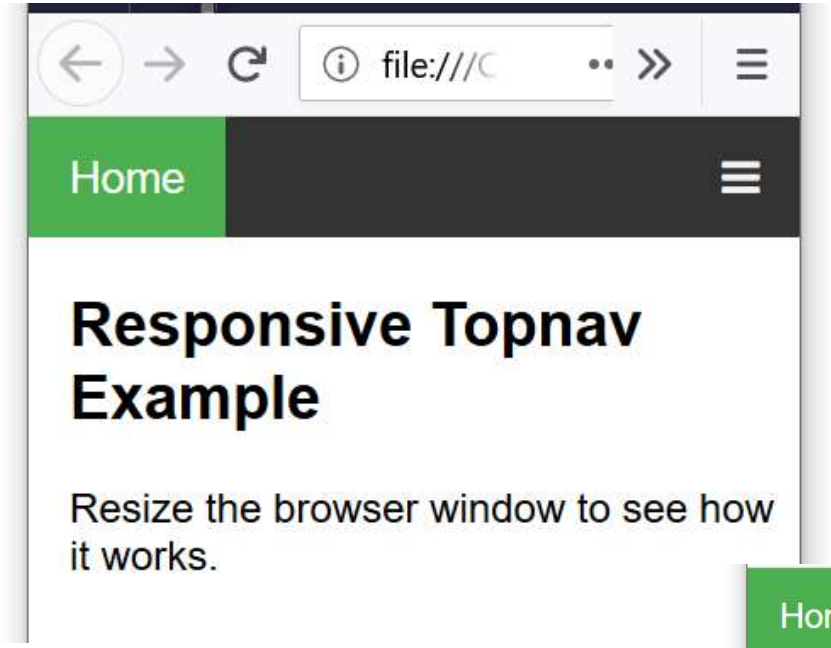

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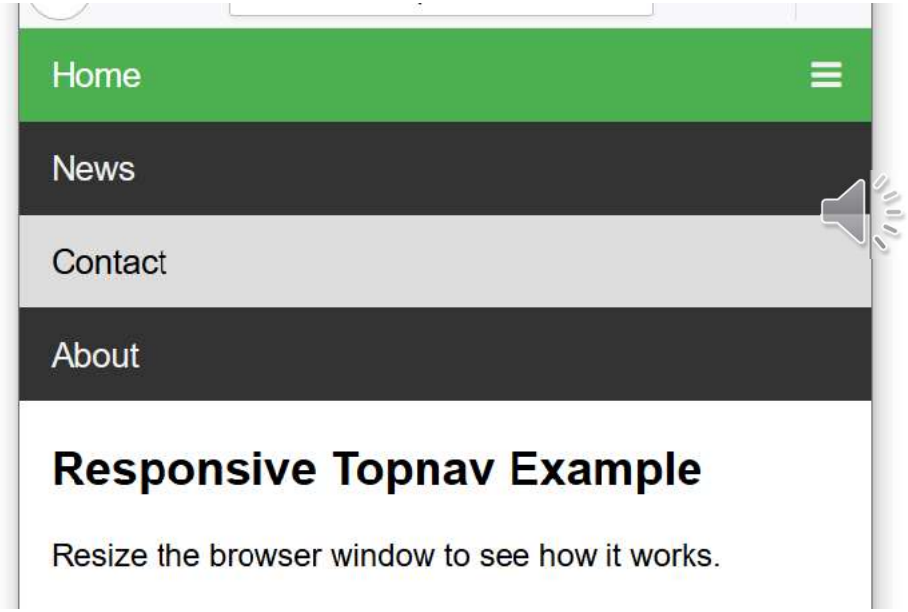
Responsive Design

- Use javascript to provide menu toggle.




```
<script>
function toggleMenu() {
  var x = document
    .getElementById
    ("myTopnav");
  if (x.className
          === "topnav") {
    x.className
        += " responsive";
  } else {
    x.className = "topnav";
  }
}
</script>
```

https://www.w3schools.com/howto/howto_js_topnav_responsive.asp

Usability and Robustness

- Inform on state
- Inform on errors
- History, receipts
- No hard mental operations
- Conformance with expectations
- Nonmodal
- Reset, escape,
- save draft
- Confirm critical operations
- Configurability
- Customizability

Lecture notes

- Semantic HTML is important
- to support screen reader technology
- to enhance documentation of the system.

- Responsive design is an expectation for today's multi-platform robust user interfaces

- Web technologies support responsive design
- CSS enables some conditional behavior, and the specification of different user interface states.
- Javascript gives flexibility in implementing responsive design.

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