



THINKING LIKE A SOFTWARE DEVELOPER

Gasim Gasimzada

@azcs101



AGENDA

- Outcome: Thinking like a software developer
 - Main question: *Why?*
- Expectations
 - Think critically
 - *Ask yourself: Why?*
 - Do not hesitate to ask questions!
- Concepts covered:
 - Web development basics — HTML, CSS
 - Data structures and algorithms — C++
 - Advanced web development concepts — Javascript
 - *Mobile development**
 - *Based on your progress!*



LOGISTICS

.....

- Website
 - Announcements
 - Schedule
 - Final Project (TBD)
 - azcs101.github.io
- Stride
 - Collaborative Chat Software
 - Asking questions outside the classroom
 - www.stride.com
 - Registration link is in the website!

INTRO



LANGUAGE

expression of thoughts

WHY?

To communicate our thoughts with others

WHAT DOES A LANGUAGE CONSIST OF?

- Grammar - Syntax!
- Vocabulary

MACHINE CODE

```
01010 1010101011101001010100010101010 10
010 1010101011101001010100010101010 1010
0100010101010 1010101011101001010100010
0101010 1010101011101001010100010101010
101010 1010101011101001010100010101010 1
010100010101010 10101010111010010101000
0010101010 10101010111010010101000101010
10101010 1010101011101001010100010101010
001010100010101010 101010101110100101010
00010101010 1010101011101001010100010101
010101010 10101010111010010101000101010
0001010100010101010 10101010111010010101
```

**Insanity*

TRANSLATORS

*Tools that translate human-readable language to
a language that a computer understands*

COMPILERS

Example

JAVA

Example

BROWSERS

Example

HTML

.....
The document



WHY?

- Displaying structure of the document
- The ONLY language to use in a browser.
- Machines can understand it — e.g Google
- *NOT FOR STYLING!*
- Accessibility

EXAMPLE

```
<!doctype html>
<html>
  <head>
    <meta charset="utf-8" />
    <title>Hello world</title>
    <link rel="stylesheet" href="/styles.css" />
  </head>

  <body>
    <nav role="navigation" class="sidebar">
      <ul>
        <li>
          <a href="/" class="active">Home</a>
        </li>
        <li>
          <a href="/about">About</a>
        </li>
        <li>
          <a href="/projects">Projects</a>
        </li>
        <li>
          <a href="/contact">Contact</a>
        </li>
      </ul>
    </nav>
    <main role="main">
      <h1>Welcome to AZCS101!</h1>
      
    </main>
    <script src="/scripts.js"></script>
  </body>
</html>
```

SYNTAX

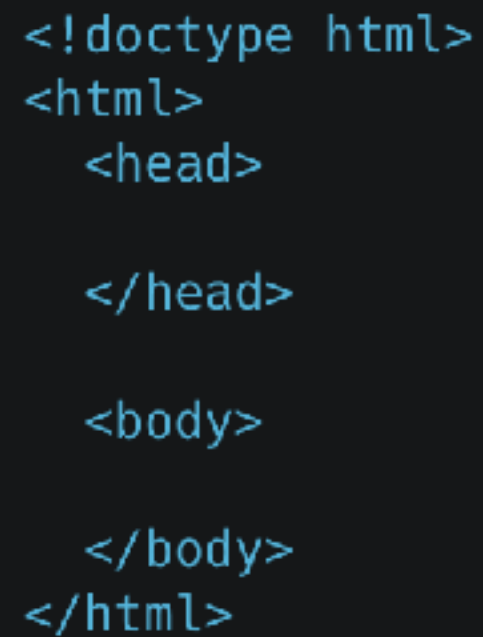


TAG

```
<tagname>Content</tagname>
```

```
<tagname attribute1="value1" attribute2="value2">  
    Content  
</tagname>
```

SYNTAX: MINIMAL STRUCTURE

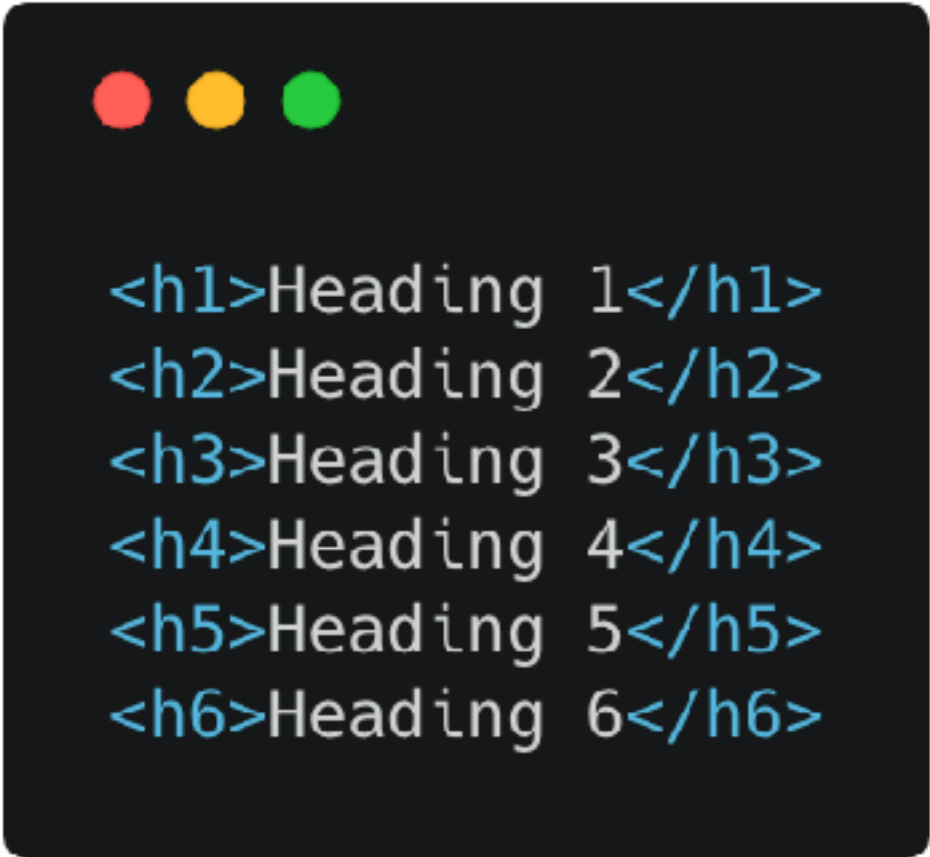


```
<!doctype html>  
<html>  
  <head>  
  
  </head>  
  
  <body>  
  
  </body>  
</html>
```


DEMO

HEADINGS

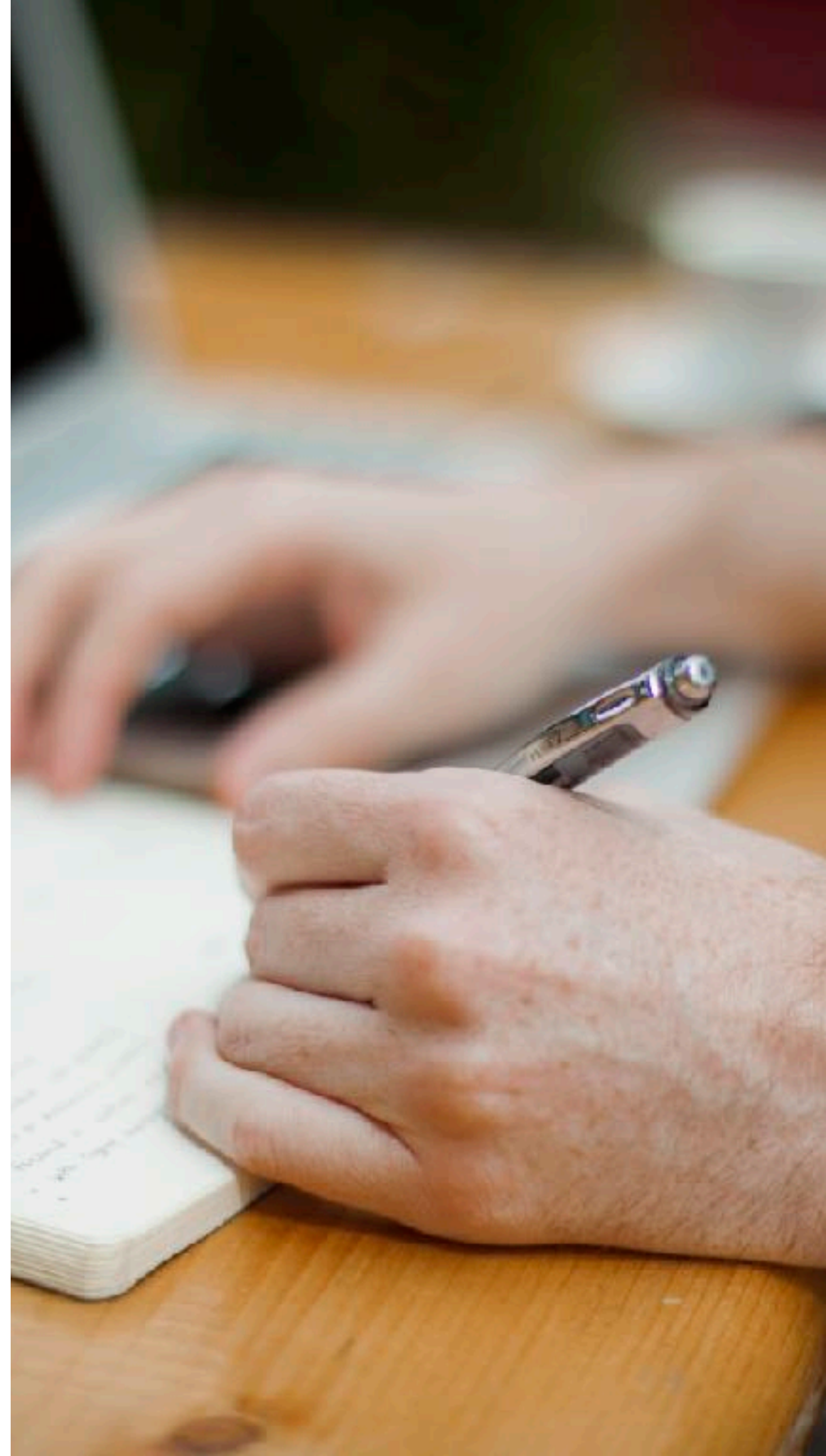
Denote importance



```
<h1>Heading 1</h1>  
<h2>Heading 2</h2>  
<h3>Heading 3</h3>  
<h4>Heading 4</h4>  
<h5>Heading 5</h5>  
<h6>Heading 6</h6>
```

TEXT

.....
p, em, strong, i, b, small, span



PARAGRAPHS



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


STRESS EMPHASIS

- Emphasis in pronunciation
- Call a doctor *now*!
 - Emphasis calling the doctor immediately
- Call a *doctor* now!
 - Emphasis on calling the doctor, i.e not a nurse



```
Call a doctor <em>now!</em>  
Call a <em>doctor</em> now!
```

STRONG EMPHASIS

- Represents importance, urgency, seriousness



```
<strong>BEWARE OF DOG!</strong>
```

ATTENTION WITHOUT IMPORTANCE!

- i.e Focus attention of the reader on a part of text without providing an importance.
- For example: **Hello**, World! (Do you see any need for importance of “Hello” in that sentence?)
- Personal view: It is used extremely rarely (almost never)



```
<b>Look at me but I am not important! :(</b>
```


ALTERNATIVE VOICE OR MOOD

- Technical terms in a sentence
- Term in another language in a sentence
- Example:
 - *Compilers* were explained in previous slides
 - Last night's *fillet mignon* was delicious.



```
<i>Compilers</i> were explained in previous slides.
```

```
Last night's <i lang="fr">Fillet mignon</i> was delicious.
```

SMALL PRINT

- Disclaimers, legal restrictions, copyrights etc.
- Example:
 - Breakfast not included (on hotel website)
 - Dominos Pizza Ad: “2 Pizzas for 1AZN* Buy one and get next one for 1AZN”
 - Copyright (c) 2018



```
<small>Copyright (c) 2018</small>
```

SPAN

If non of the above, use span



```
<span>Hello World</span>
```


LISTS

ul, ol, li



UNORDERED LISTS

- Lists that do not have an order
 - Bullet points
- Order does not change the meaning of the list
- Example:
 - Grocery List
 - Site navigation



```
<ul>
  <li>Bananas</li>
  <li>Pineapples</li>
  <li>Apples</li>
  <li>Oranges</li>
</ul>
```

`` = List Item


ORDERED LISTS

1. Numbered lists

A. Numbers, letters, roman numerals

2. Example:

- a. Cooking instructions
- b. Driving Navigation



```
<ol>
  <li>Cover 4 plates with lettuce</li>
  <li>Top with all remaining ingredients except dressing</li>
  <li>Drizzle with dressing just before serving</li>
</ol>
```



BLOCKS

*main, article, section, header,
footer, nav, aside, div*



MAIN

- Represents the main content of the website
- Typically, everything except for navigation and footer is stored in main



```
<body>
  <main>
    <h1>Welcome to our class!</h1>
  </main>
</body>
```

ARTICLE

- An independent block in a page whose content makes sense regardless the context.
- Forum Post
- Blog Entry
- User comment
- News Article

```
<article>
  <h2>Binary Code</h2>
  <p>A binary code represents text, computer processor instructions...</p>
</article>
```

https://en.wikipedia.org/wiki/Binary_code

SECTIONS

- A block that represents relatable content
 - Must be identified by a heading (h1-h6)
-

```
<section>
  <h2>News regarding Apples</h2>
  <article>
    <h3>Red Apples</h3>
    <p>...</p>
  </article>
  <article>
    <h3>Green Apples</h3>
    <p>...</p>
  </article>
</section>
```

Section containing articles

```
<article>
  <h2>Apples</h2>
  <p>...</p>
  <section>
    <h3>Botanical Information</h3>
    <p>...</p>
  </section>
  <section>
    <h3>History</h3>
    <p>...</p>
  </section>
  <section>
    <h3>Society and Culture</h3>
    <p>...</p>
  </section>
</article>
```

Article containing sections

HEADER

- Introductory content to a section
- Contains a group of introductory or navigational aids
- Example:
 - Main page header (Logo + Navigation + other stuff)
 - Article/Section header (Title + Author + Published Date)

```

<body>
  <header>
    <h1>Website Title</h1>
  </header>
</body>

```

```

<article>
  <header>
    <h2>Random article written by me</h2>
    <p>Published date: 04/28/2018</p>
  </header>
  <p>...</p>
</body>

```

FOOTER

- Footer to a section
- Contains a information such as author, copyright data, Facebook likes etc.

```
<body>
  <footer>
    <ul>
      <li>Careers</li>
      <li>Contact us</li>
    </ul>
    <p>Google Map here</p>
    <p>
      <small>Copyright (c) 2018</small>
    </p>
  </footer>
</body>
```

```
<article>
  <h2>Random article written by me</h2>
  <footer>
    <p>Author: Gasim</p>
    <p>Facebook Likes: 10</p>
    <p>This article is licensed under some license</p>
  </footer>
</body>
```


NAV

- Represents primary navigation of the website
 - There can be only one primary navigation as the name suggests
-

```
<header>
  <h1>Baku City Circuit</h1>
  <nav>
    <ul>
      <li>Store</li>
      <li>Race Guide</li>
      <li>Azerbaijan</li>
      <li>Press Center</li>
      <li>About Us</li>
    </ul>
  </nav>
</header>
```

ANCHORS

- Links to other documents on the web
- Destination of the anchor is set by “href” attribute
- Anchors can be set to open the destination in a new window/tab (depends on browser)

```
<header>
  <h1>Baku City Circuit</h1>
  <nav>
    <ul>
      <li>
        <a href="store.html">Store</a>
      </li>
      <li>
        <a href="raceguide.html">
          Race Guide
        </a>
      </li>
      <li>
        <a href="az.html">
          Azerbaijan
        </a>
      </li>
    </ul>
  </nav>
</header>
```

ASIDE

- A block that is tangentially related to the section it is contained in

```
<body>
  <main>
    ...
  </main>
  <aside>
    <h2>Latest Tweets</h2>
    ...
  </aside>
</body>
```

```
<article>
  <h2>My random article</h2>
  <p>...</p>
  <aside>
    <h2>Related Articles</h2>
    <article>
      ...
    </article>
  </aside>
</article>
```

DIV

- Use DIV when none of the above fits
- DIVS have no semantic meaning
- Example:
 - Webpage Slider/Carousel
 - A block used only for visual purposes

```
<div>  
  <p>Some text here</p>  
</div>
```

QUESTIONS?



THANK YOU

Gasim Gasimzada
@azcs101

