Intodruction to Web Platform

- Pengembangan Berbasis Platform -

World Wide Web

- The Web (World Wide Web) is just one of the ways information can be shared over the Internet.
- It allows documents to be linked to one another using hypertext links — thus forming a huge “web” of connected information.
- World Wide Web Communication (between web **clients** and web **servers)**
  - **Clients** are often browsers (Chrome, Edge, Safari), but they can be any type of program or device.
  - **Servers** are most often computers in the cloud.

World Wide Web

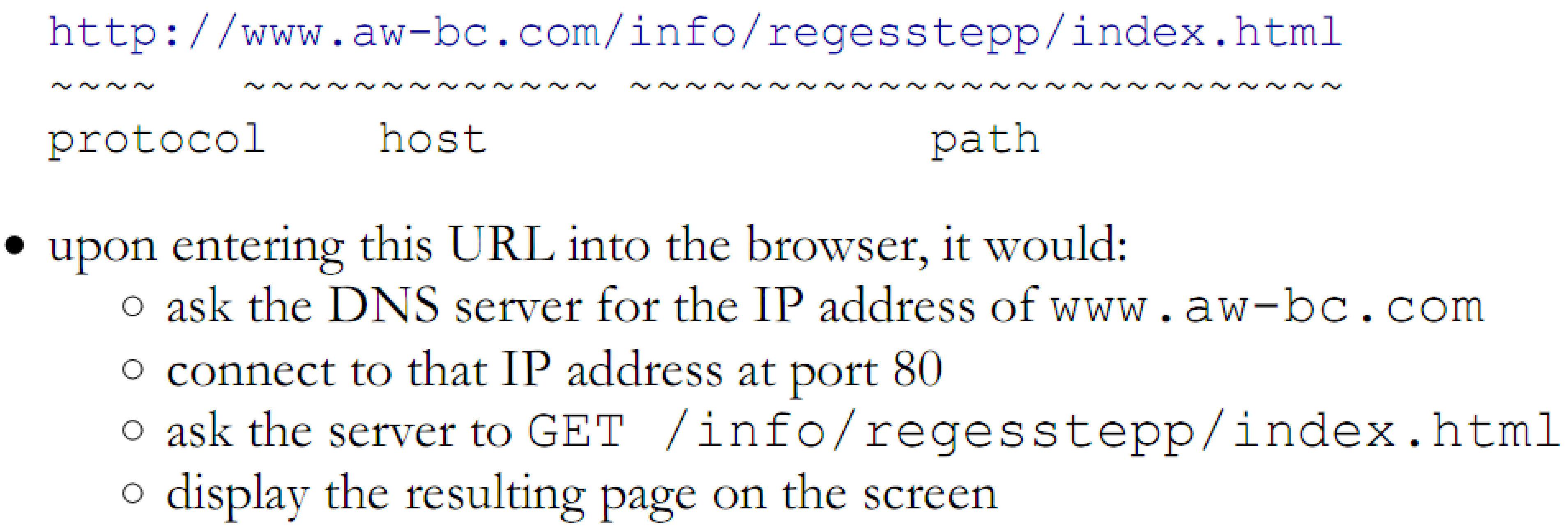
- World Wide Web Communication (between web **clients** and web **servers)**
  - **Clients**
    - Web browsers that gets and renders documents from servers.
    - Example: Chrome, Edge, Safari
  - **Servers**
    - Software that listens for Web page requests and serves up the requested pages.
    - Example:
      - Apache - http://www.apache.org
      - Microsoft Internet Information Server (IIS) - http://www.iis.net/
      - Express - https://expressjs.com
      - Phusion Passenger - https://www.phusionpassenger.com

HTTP

- The Web uses a protocol called HTTP (HyperText Transfer Protocol).
- HTTP is a **request-and-response** protocol that connects clients (web browser) and servers (web server).
  - A client (a browser) sends an **HTTP request** to the web
  - A web server receives the request
  - The server runs an application to process the request
  - The server returns an **HTTP response** (output) to the browser
  - The client (the browser) receives the response

Uniform Resource Locator (URL)

- Every page and resource on the Web has its own special address called a URL.

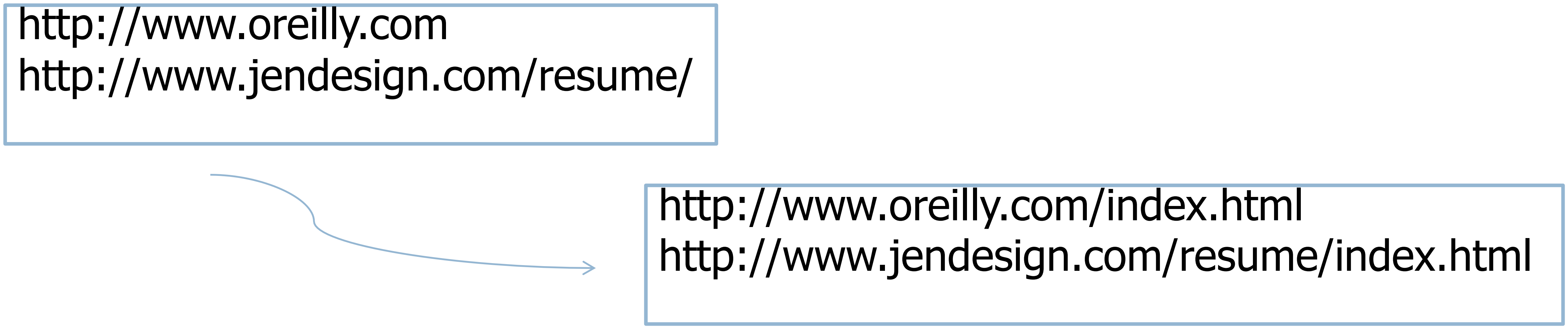


```
http://www.aw-bc.com/info/regesstepp/index.html
~~~~   ~~~~~~~~~~~~~ ~~~~~~~~~~~~~~~~~~~~~~~~~~~
protocol    host                 path
```

- upon entering this URL into the browser, it would:
  - ask the DNS server for the IP address of `www.aw-bc.com`
  - connect to that IP address at port 80
  - ask the server to `GET /info/regesstepp/index.html`
  - display the resulting page on the screen

Uniform Resource Locator (URL) (cont.)

- When a server receives a request for a directory name rather than a specific file, it looks in that directory for a default document, typically named index.html, default.html, index.php or etc depend on configuration of the web server.

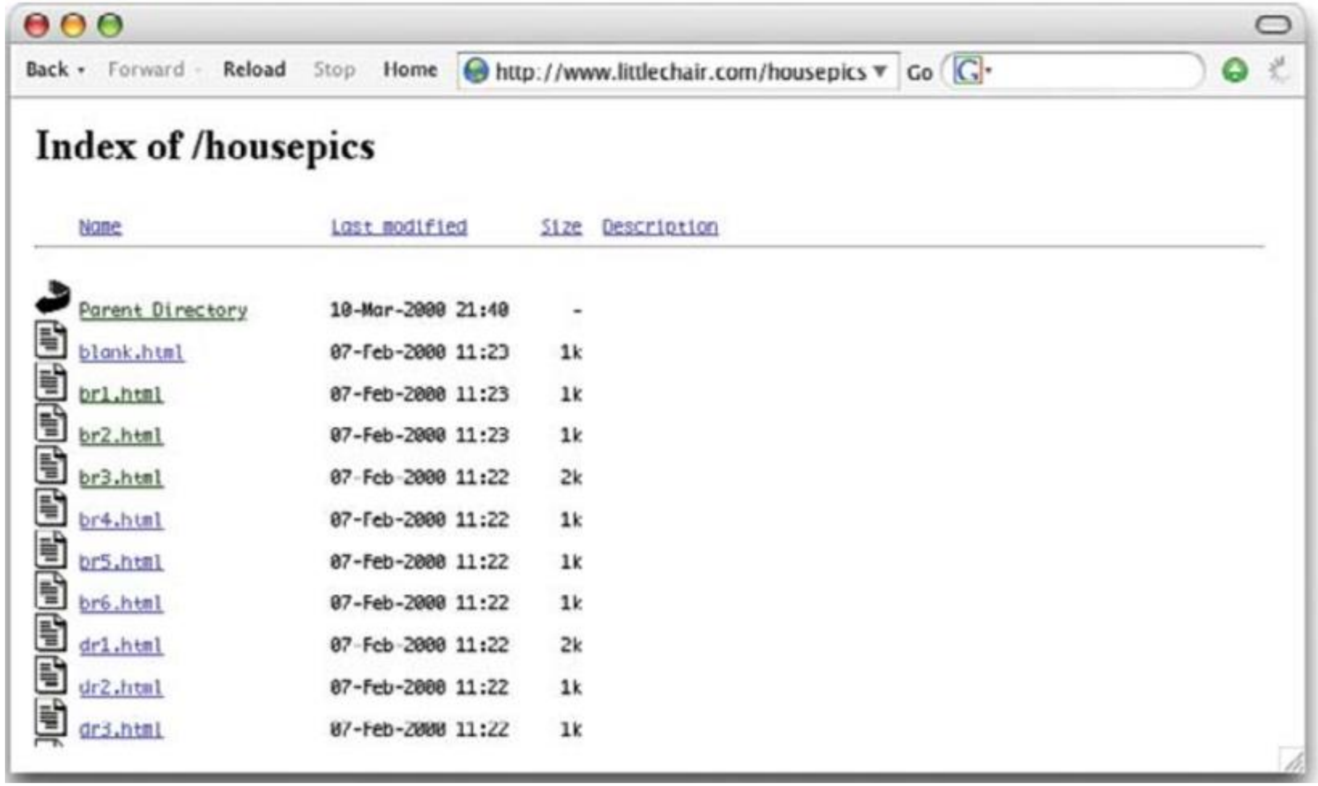


http://www.oreilly.com
http://www.jendesign.com/resume/

http://www.oreilly.com/index.html
http://www.jendesign.com/resume/index.html

Uniform Resource Locator (URL) (cont.)

- The index file is also useful for security. Some servers (depending on their configuration) display the contents of the directory if the default file is not found.



http://www.littlechair.com/housepics

Index of /housepics

```
Name                     Last modified      Size  Description

Parent Directory         10-Mar-2000 21:40     -
blank.html               07-Feb-2000 11:23    1k
br1.html                 07-Feb-2000 11:23    1k
br2.html                 07-Feb-2000 11:23    1k
br3.html                 07-Feb-2000 11:22    2k
br4.html                 07-Feb-2000 11:22    1k
br5.html                 07-Feb-2000 11:22    1k
br6.html                 07-Feb-2000 11:22    1k
dr1.html                 07-Feb-2000 11:22    2k
dr2.html                 07-Feb-2000 11:22    1k
dr3.html                 07-Feb-2000 11:22    1k
```

Uniform Resource Locator (URL) (cont.)

- Anchor: jumps to a given section of a page
  - Ex: http://en.wikipedia.org/wiki/HTML_element#Anchor
  - Fetches the HTML_element document, then jumps to the part of the page labeled Anchor
- Port: for web servers on ports other than the default port 80
  - Ex: http://portquiz.net:8080/index.php
- Query string: a set of parameters passed to a web application
  - Ex: http://www.google.com/search?q=miserable+failure&start=10
  - Parameter named q is set to value miserable+failure
  - Parameter named start is set to value 10

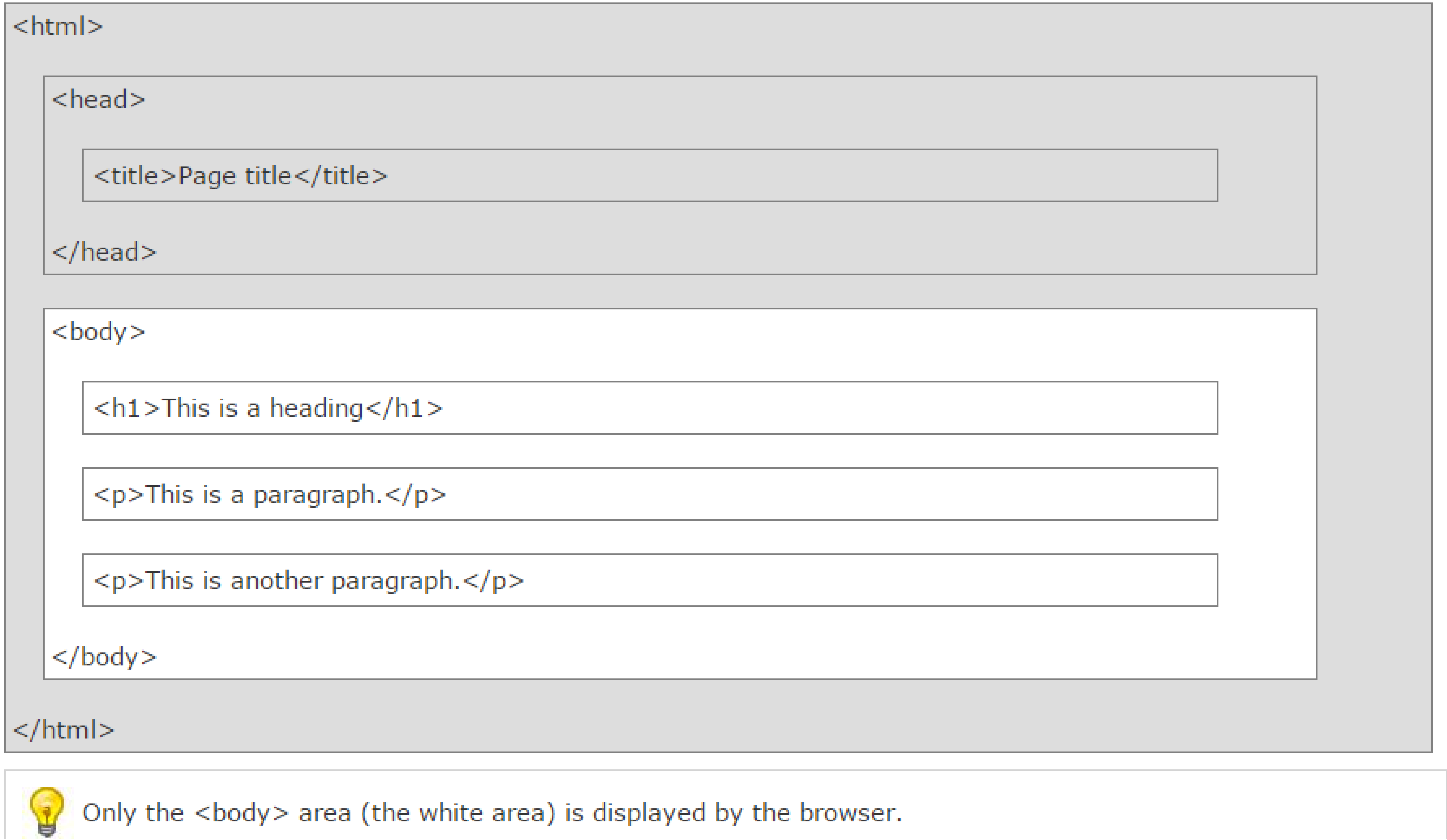
Web-related technologies

- Hypertext Markup Language (HTML)
- Cascading Style Sheets (CSS)
- JavaScript and DOM scripting
- Server-side programming and database management

Hypertext Markup Language (HTML)

- HTML is the standard markup language used to create web pages, the current version is HTML 5.
- HTML **elements** are the building blocks of HTML pages
  - HTML elements are represented by **<> tags**
  - Example: <h1>…</h1>   <p>…</p>   <table>…</table>
- HTML is not a programming language.
  - You don’t need programming to write HTML.
- The best way to learn HTML is to write out some pages by hand.

Hypertext Markup Language (HTML)

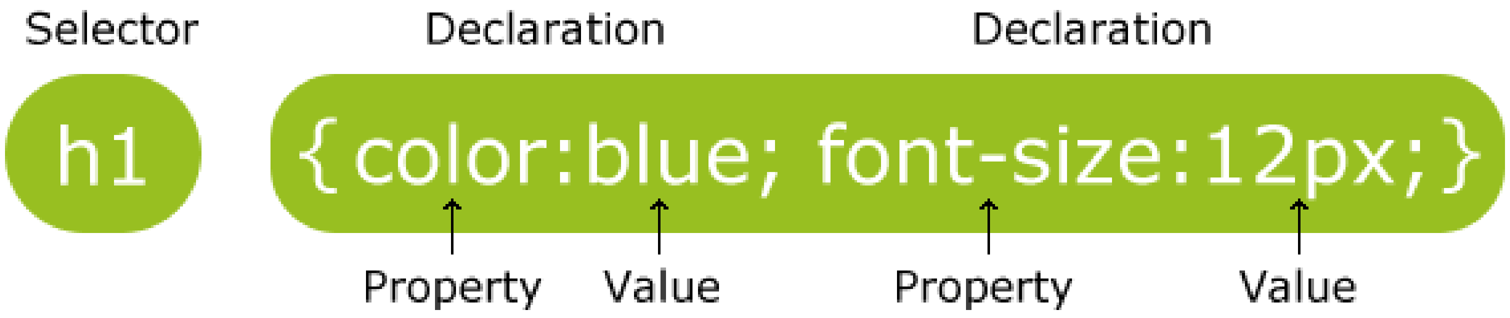


```
<html>

  <head>

    <title>Page title</title>

  </head>

  <body>

    <h1>This is a heading</h1>

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

    <p>This is another paragraph.</p>

  </body>

</html>
```

Only the <body> area (the white area) is displayed by the browser.

Cascading Style Sheets (CSS)

- CSS describe how that content should *look.*
  - Fonts, colors, background images, line spacing, page layout, and so on… all controlled with CSS.
- Style sheets are also a great tool for automating production.
  - We can change the way an element looks across all the pages in your site by editing a single style sheet document.
- CSS can be added into HTML by: inline, internal or external.



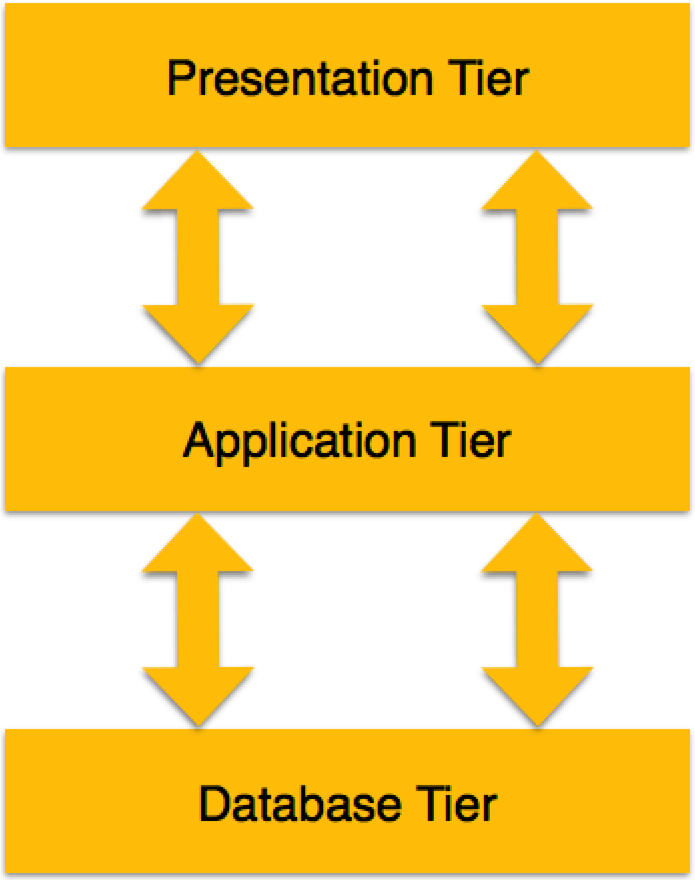
JavaScript and DOM scripting

- JavaScript is a scripting language that is used to add interactivity and behaviors to web pages, including:
  - Checking form entries for valid entries
  - Swapping out styles for an element or an entire site
  - Building interface widgets, such as expanding menus
- DOM (Document Object Model) refers to the standardized list of web page elements that can be accessed and manipulated using JavaScript (or another scripting language).

Server-side programming

- Most of commercial sites have more advanced functionality such as forms handling, dynamically generated pages, shopping carts, content management systems, databases, and so on.
- These functions are handled by web applications running on the server.
- There are a number of programming languages:
  - PHP
  - Python
  - Ruby
  - Java
  - ASP.Net, ...

Common Web Application Architecture



Presentation Tier

Application Tier

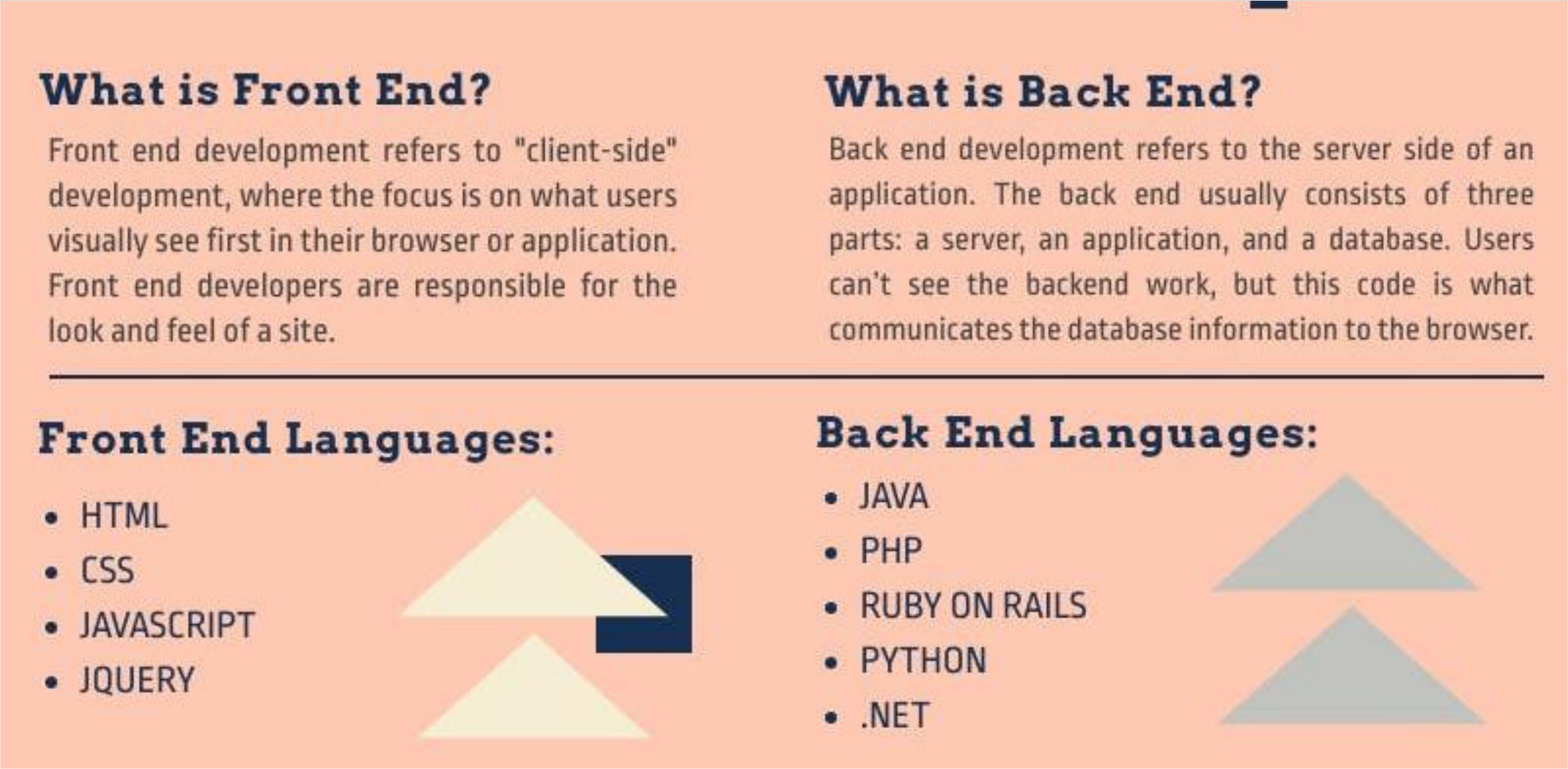
Database Tier

HTML, CSS, JavaScript

Server-side programming:
PHP, ASP, ...

DBMS: MySQL, Oracle, ...

Front-End vs Back-End Web Development



What is Front End?

Front end development refers to "client-side" development, where the focus is on what users visually see first in their browser or application. Front end developers are responsible for the look and feel of a site.

What is Back End?

Back end development refers to the server side of an application. The back end usually consists of three parts: a server, an application, and a database. Users can't see the backend work, but this code is what communicates the database information to the browser.

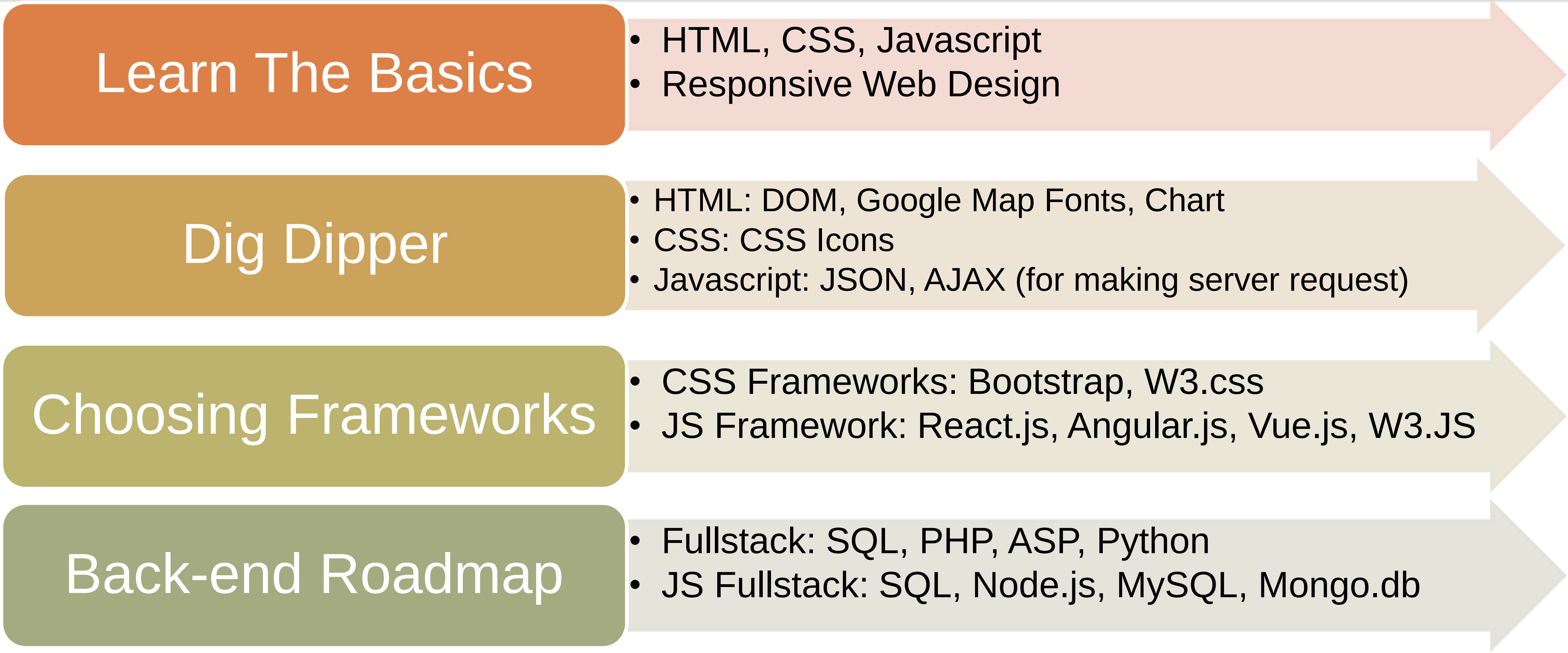
Front End Languages:

- HTML
- CSS
- JAVASCRIPT
- JQUERY

Back End Languages:

- JAVA
- PHP
- RUBY ON RAILS
- PYTHON
- .NET

Web Development Roadmap



Learn The Basics

- HTML, CSS, Javascript
- Responsive Web Design

Dig Dipper

- HTML: DOM, Google Map Fonts, Chart
- CSS: CSS Icons
- Javascript: JSON, AJAX (for making server request)

Choosing Frameworks

- CSS Frameworks: Bootstrap, W3.css
- JS Framework: React.js, Angular.js, Vue.js, W3.JS

Back-end Roadmap

- Fullstack: SQL, PHP, ASP, Python
- JS Fullstack: SQL, Node.js, MySQL, Mongo.db

References

□ https://www.coursereport.com/blog/front-end-development-vs-back-end-development-where-to-start

□ https://www.w3schools.com/whatis/default.asp

□ https://www.rose-hulman.edu/class/csse/csse280/201710/Slides/Intro-Internet.pdf