Coding and Logic

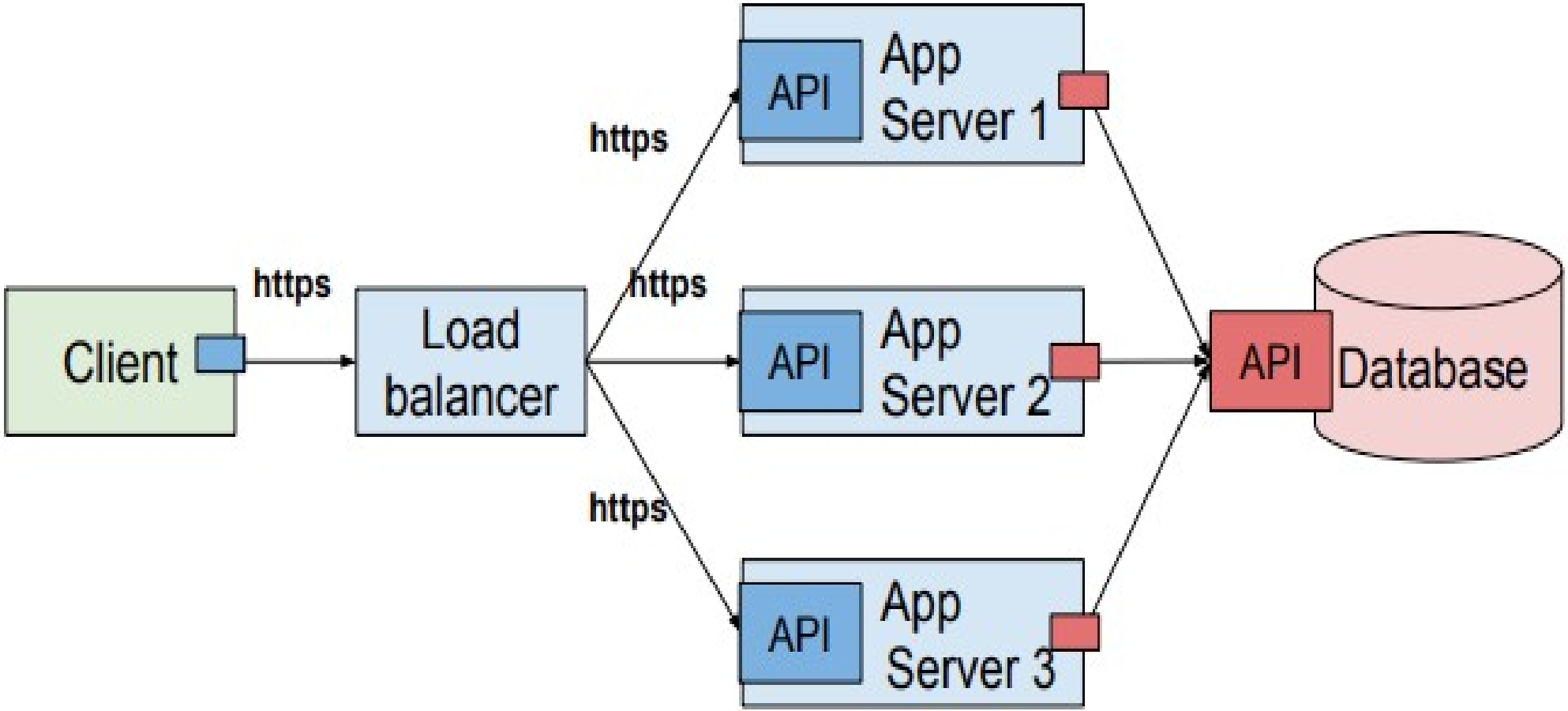
Recognise the fundamental elements of website development

Client Server Architecture

- Service Requesters – Clients
- Service Providers – Servers
- Client and Server are on separate hardware
  - Development takes place in a “sandbox”
  - Deployment – servers not always co-located
- Communication over a network
- Message Exchange
  - Requests
  - Responses

Client-Servers Network Model

Load Balancing and Databases



Basic Web Pages - HTML

- Hyper Text Markup Language
- HTML files are:
  - text-based file that describes how content contained within is structured.
  - Sent to a client (browser) upon request.
  - The HTML tells the web browser how to display the text, images and other multimedia on the screen

Simple HTML file

- Can use notepad
- Notepad++ good free alternative
  - https://notepad-plus-plus.org
- File extension .htm or .html

Exercise

- Navigate to https://www.w3schools.com/html/default.asp
- Read and complete:
  - HTML Basic
  - HTML Elements
  - HTML Attributes
  - HTML Headings
  - HTML Paragraphs

CSS – Cascading Style Sheets

- CSS describes how HTML elements are to be displayed on screen, paper, or in other media.
- CSS saves a lot of work by controlling the layout of multiple web pages
- CSS can be added to HTML elements in 3 ways:
  - Inline - by using the style attribute in HTML elements
  - Internal - by using a <style> element in the <head> section
  - External - by using an external CSS file
- The most common way to add CSS, is to use external CSS files.
- External files use a .css extension
- For a complete tutorial see https://www.w3schools.com/css/default.asp

CSS Exercise

- https://www.w3schools.com/html/default.asp
- Read and complete:
  - HTML CSS

XML

- XML stands for eXtensible Markup Language.
- Designed to store and transport data.
- Both human and machine-readable
- Used for distributing data over the Internet
- Plain text file with .xml extension
- First line must be
  <?xml version="1.0" encoding="UTF-8"?>
- See https://www.w3schools.com/xml/default.asp

Javascript

- Makes HTML pages interactive
- Client Side Scripting
- Common uses:
  - image manipulation
  - form validation
  - dynamic changes of content.
- Uses files with a .js extension
- For a complete tutorial see https://www.w3schools.com/js/default.asp

jQuery

- Easier than Javascript
  - although Javascript understanding essential
- jQuery is a lightweight, "write less, do more", JavaScript library
  - Most popular library from many 1000’s
- jQuery takes a lot of common tasks that require many lines of JavaScript code to accomplish, and wraps them into methods that you can call with a single line of code
- jQuery simplifies a lot of the complicated things
  - Includes browser compatability as jQuery will run exactly the same in all major browsers

PHP - Server Side Scripting

- PHP is a server scripting language
  - Executed on the server
- makes web pages dynamic and interactive
- Free Download
- Various Platforms (Windows, Linux, Unix, Mac OS X, etc.)
- Compatible with almost all servers used today (Apache, IIS, etc.)
- Supports a wide range of databases
- Facebook built with PHP

PHP

- PHP files have an extension of .php
- PHP can create, open, read, write, delete, and close files on the server
- PHP can collect HTML form data
- PHP can add, delete, modify data in your database
- PHP can be used to control user-access
- PHP can encrypt data
- With PHP you are not limited to output HTML. You can output images, PDF files, text files (XHTML, XML etc), and even Flash movies.
- Easy to learn https://www.w3schools.com/php/default.asp

Content Management Systems (CMS)

- allows users to manage (add, edit, delete) the content of a website
- No HTML/CSS/JS knowledge required
- Many built on PHP
- Most Common:
  - Drupal
  - Joomla
  - Wordpress
  - Moodle
- Allows maintenance of a complete web site
- Consistent look and feel of the website
- Easier to maintain a complete website

CMS

- Create and publish content in a standard format without needing to know HTML or other languages;
- Co-ordinate the work of teams of authors and editors (e.g. by ensuring that only one person is editing any individual content item at any one time);
- Control the branding and quality of content (e.g. by ensuring that the correct style sheets are applied, and that changes to the content are approved before they are published);
- Reuse the same content item in multiple different sites and formats.
- Simple Maintenance. e.g. Backups of the website

More CMS

- http://www.beginnertuts.com/Tutorials/Beginner_info/CMS.php
- https://www.tutorialspoint.com/wordpress/wordpress_tutorial.pdf

Web Security

- https://www.youtube.com/watch?v=SJJmoDZ3il8
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