

Introduction To Web Programming I

(CSC 211)

Lecture Note 1

The World Wide Web (WWW)

2nd January, 2020

How the web application operates

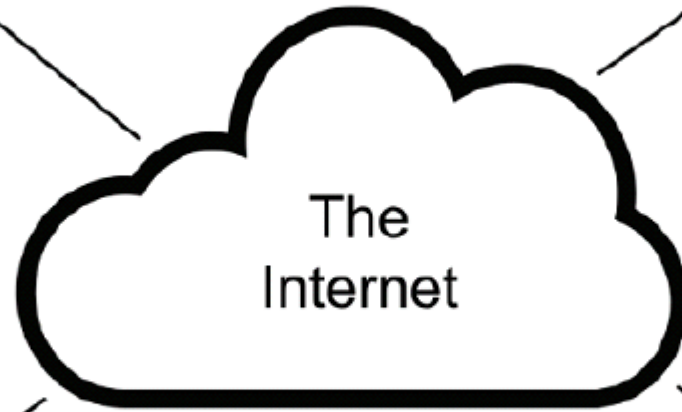
- ▶ The world wide web, or web, consists of many components that work together to bring a web page your browser over the Internet. Before you create your own web pages, you need to have a basic understanding of how these components work together.
- ▶ The web application consists of clients, a web server, and a network. The clients use programs to known as web browsers to request web pages from the web server. The web server returns the pages that are requested to the browser.
- ▶ The local area network (LAN) directly connects computers that are near each other. This kind of network is often called an intranet.
- ▶ A Wide Area Network (WAN) consists of two or more LANs that are connected by routers. The routers route information from one network to another.
- ▶ The Internet consists of many WANs that have been connected at Internet Exchange Points (IXP). There are several dozen IXPs located throughout the world.
- ▶ An Internet Service Provider (ISP) owns a WAN and leases access to its network. It connects its WAN to the rest of the Internet at one or more IXPs



Desktop
Computer



Tablet



Web Server

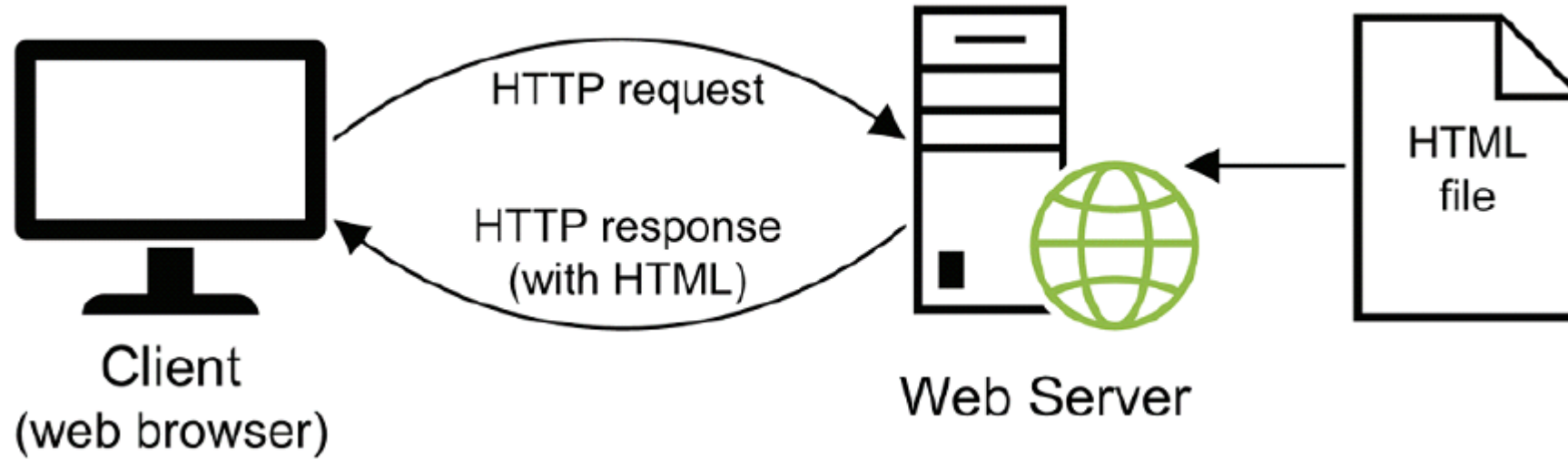


Smart Phone

- ▶ The figure above shows that web applications consists of clients that use the web applications. They access the web pages through programs known as the web browsers. the web server holds the files that make up a web application.
- ▶ A network is a system that allows clients and servers to communicate. the internet in turn is a large network that consists of many smaller networks. In a diagram like this, the "Cloud" represents the network or Internet that connects the clients and servers.
- ▶ **Types of Web Pages**
- ▶ There are two types of web pages: static web page and the dynamic web page.
- ▶ A static web page is web page that only changes when the web developer changes it. This web page is sent directly from the web server to the web browser when the browser requests it.
- ▶ The diagram below shows that when the user requests a static web page, the browser sends an HTTP request to the web server that includes the name of the file that is being requested.
- ▶ When the web server receives the request, it retrieves the HTML for the web page and sends it back to the browser as part of an HTTP response.
- ▶ When the browser receives the HTTP response, it renders the HTML into a web page that is displayed in the browser.

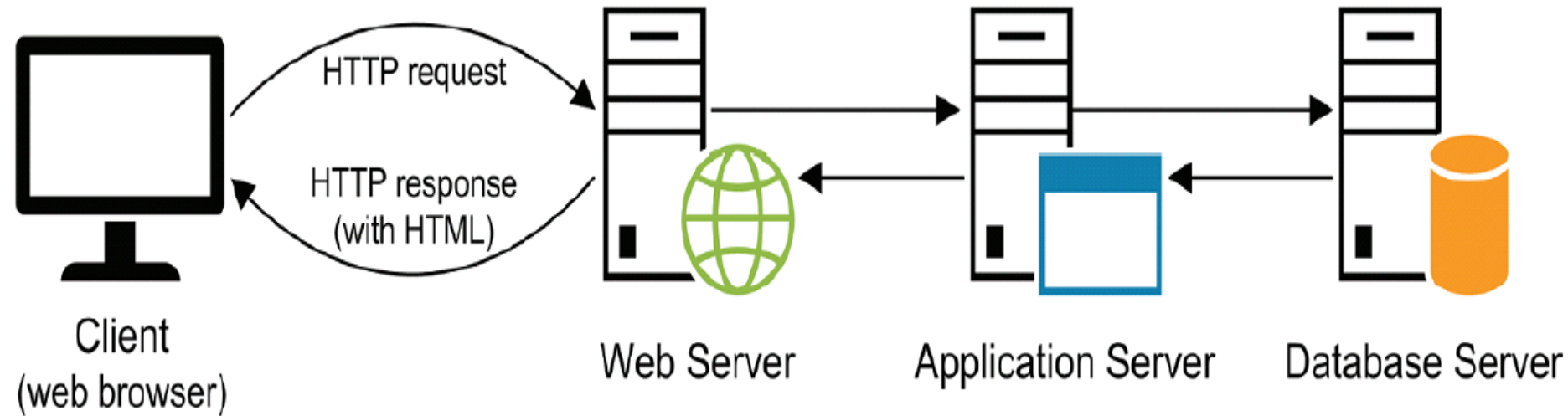
Static web pages have an extension of .htm or .html

This course will teach you all the necessary skills you require to build static web pages.



Dynamic Web Pages

- ▶ A dynamic web page is a web page that is created by a program or script on the web server each time it is requested. This program or script is executed by an application server based on the data that sent along with the HTTP request.



- ▶ A dynamic web page is a web page that is generated by a server-side program or script.
- ▶ When a web server receives a request for a dynamic web page, it looks up the extension of the requested file to find out which application server should process the request.
- ▶ When the application server receives a request, it runs the specified script. Often, this script uses the data that it gets from the web browser to get the appropriated data from a database server. this script can also store the data that it receives in the database.
- ▶ When the application server finishes processing the data, it generates the HTML for a web page and returns it to the web server. then, the web server returns the HTML to the web browser as part of an HTTP response.
- ▶ **Common Web Browsers**
- ▶ When you develop a website for general use, you need to test it on some common web browsers that are listed in the figure below:

Browser	Published by	Available on
Chrome	Google	All major operating systems
Internet Explorer	Microsoft	Windows
Firefox	Mozilla Corporation	All major operating systems
Safari	Apple	Macintosh and Windows
Opera	Opera Software	All major operating systems

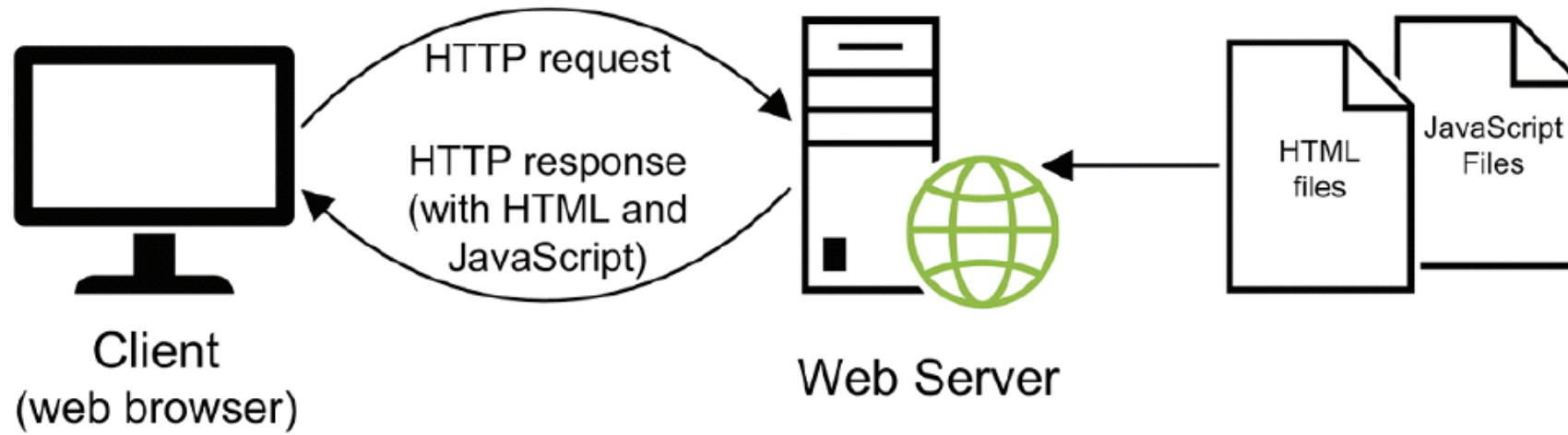
You can search the Internet to get more information about these common browsers. However, Google chrome would be used for testing codes in this course.

Common Server/Client-side Scripting Languages

- ▶ To develop dynamic web pages, you use a server-side scripting language like ASP.NET, JSP, or PHP.
- ▶ The scripting languages are designed to run on specified web servers. The two most popular web servers are Microsoft IIS (Internet Information Services), Tomcat and Apache.
- ▶ To develop static web pages, you use HTML (Hypertext Markup Language), CSS (Cascading Styles Sheet) and JavaScript. HTML and CSS are not a scripting languages. JavaScript is a client-side scripting language. This course will teach how and where JavaScript fits in web design.

How client-side JavaScript fits into web development

- ▶ In contrast to the server-side processing that is done for dynamic web pages, JavaScript is a scripting language that provides for client-side processing.
- ▶ When the browser requests an HTML page that contains JavaScript or a link to a JavaScript file, both the HTML and the JavaScript are loaded into the browser.
- ▶ Because JavaScript runs on the client, not the server, it provides functions that do not require a round trip back to the server. This can help web applications to run more efficiently.



The figure above depicts the HTML for a web page followed by a browser that shows how the page is displayed in the Chrome browser.