ITSE412 Advanced Internet Programming

برمجة الانترنت المتقدمة

Course Description

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Course Overview

In this course, students will study how to design and develop a dynamic websites using today's core techniques such as HTML5, CSS3, JavaScript, AJAX, jQuery, PHP, and MySQL.
Each technique will be explored separately, in addition to how integrate them to build a dynamic website by the end of the course.

Course Objectives:

1. Understand the web application development process.
2. Understand the state-of-the-art Web application development technologies
3. Create interactive web pages using JavaScript
4. Use Node.js to develop Web applications

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Prerequisites:

- High level of programming skill
- Knowledge of HTML, CSS and databases.

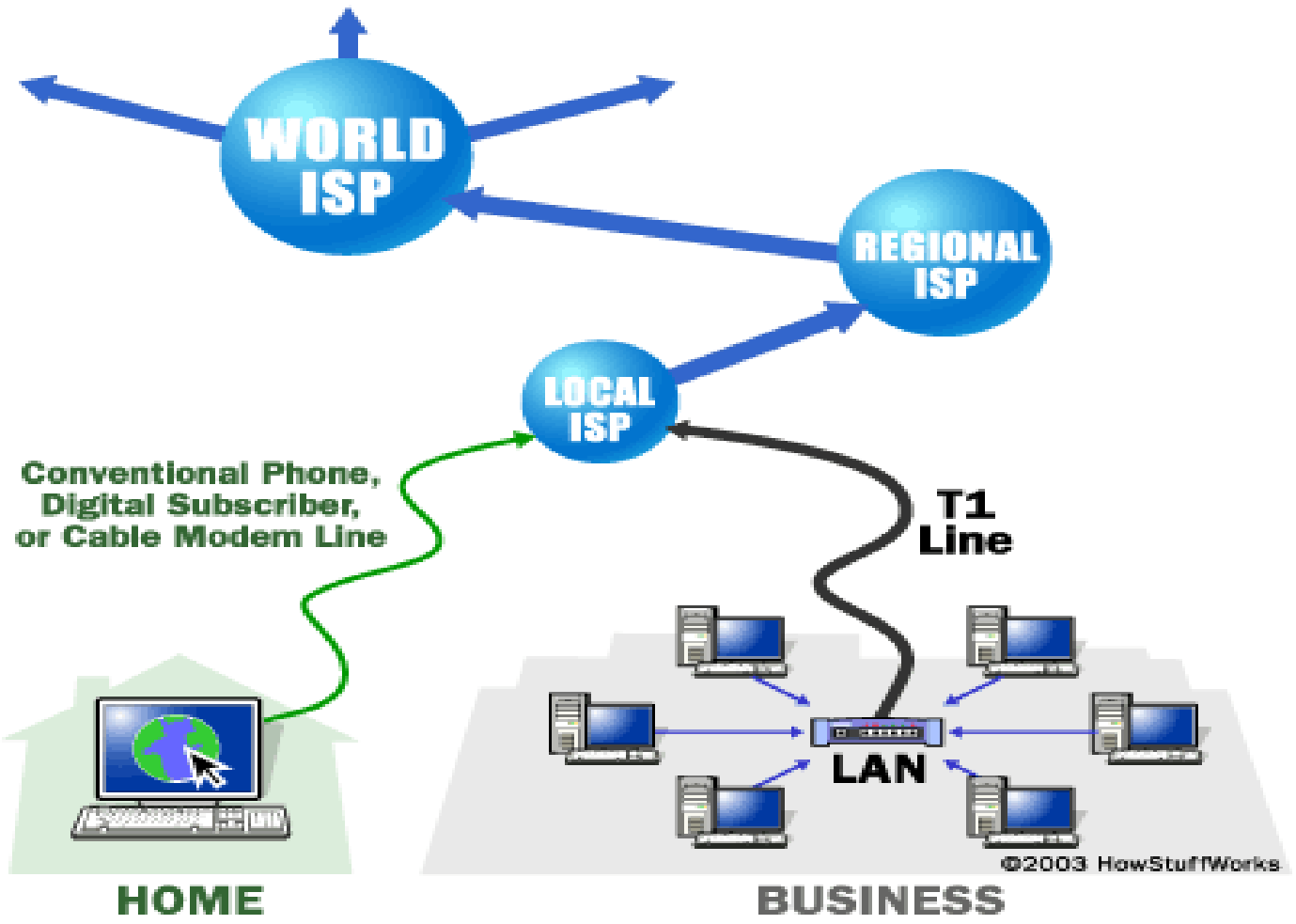
Lab Requirements

- VS Code
- Node.js
- SQLite

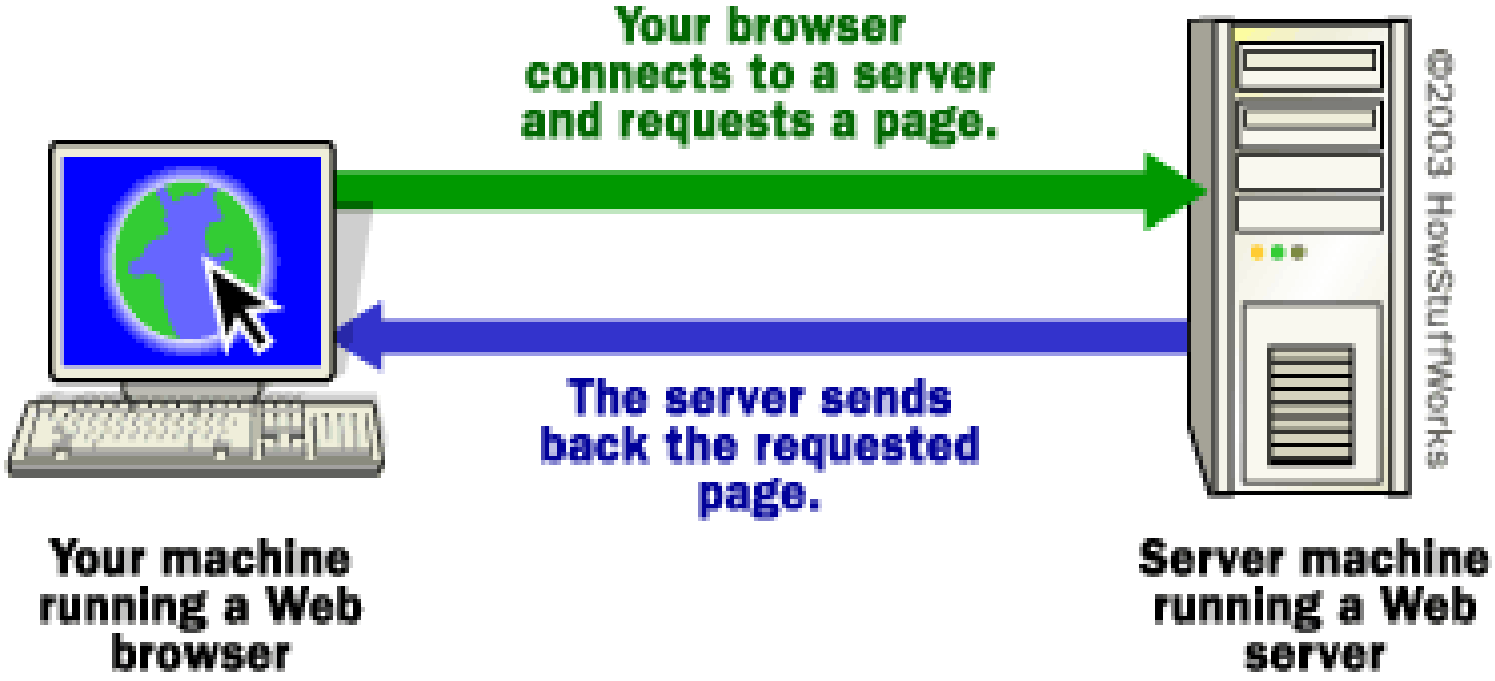
Web resources

- http://www.w3schools.com

The Internet



How does Internet work?



http://www.mywebpage.com/index.html

- The browser broke the URL (Uniform Resource Locator) into three parts:
  - The protocol (“http”)
  - The server name (‘WWW.mywebpage.com”)
  - The file name (“index.htm”)
- The browser communicated with a **name server** to translate the server name www.mywebpage.com into an IP address, which it uses to connect to the server machine.
- Following the HTTP protocol, the browser sends a GET request to the server, asking for the file index.htm
- The server sends the HTML web page to the browser.
- The browser read the HTML tags and display the formated page onto your screen.

The Web Server

- The Web server is not simply for “Storing files and Serving Clients”
- It is used for processing information and generating Web pages based on the specifics of the query
- Dynamic web pages are generated by software such as **CGI (Common Gateway Interface) scripts, PHP Scripts, Java, Python and JavaScript**
- Web server
  - Microsoft IIS (Internet Information Services)
  - Apache
  - Node.JS (JavaScript Runtime Environment)

The Browser

- There are different web browsers in the market.
- Mozilla – Firefox for Windows & Linux
- Microsoft - Internet Explorer for Windows
- Netscape for Windows
- Opera for mobile phones
- Safari for Apple

What is?

- Web Page: contain HTML coding.
- Web Site: a collection of web pages.
- Web server: A program that interpret HTTP requests and deliver the appropriate web page to your browser.
- Server-Side Programming: Programs that run on the server computer.
- Web Browsers: Program on the client computer that use to interpret and display web pages.
- Client-Side Programming: Programs that run on the client side.
- DNS (Domain Name Service): Convert Domain name into IP address.

What is?

- HTTP Requests: message from browser to server with method information (GET/POST) to request a web page.
- HTTP Responses: return from server to browser with status codes (200 – ok, 204 – no content, 401 – not authorized, 403 – forbidden, 404 – not found, etc…)
- HTML Forms: web page contain fields where you can enter information. (<form></form>, <input />, <select></select>, <option></option>, etc…)
- GET and POST Requests:
  - GET: encodes the message it sends into a query string, which is appended to the URL .
  - POST: sends its message in the message body of the request. (data is encoded and sent via an HTTP request).