ITU 07204: Fundamentals of Web Technologies

Lecture 2

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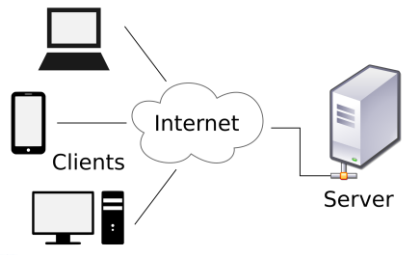
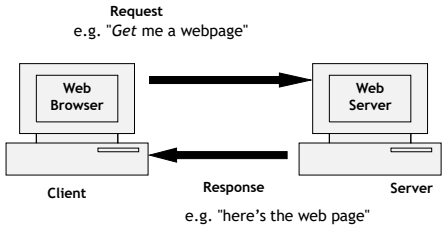
Agenda:

- Web Deployment Architectures
- Static Website Vs Dynamic Website
- Web Development Technologies

Client-Server Model



Client-Server Model

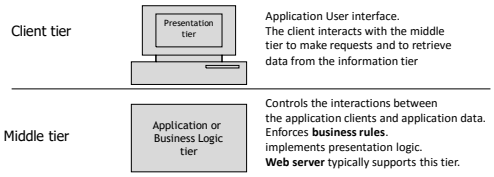


A Static Website

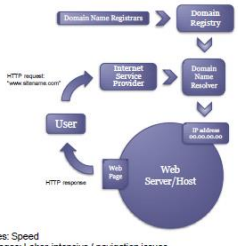
- A static Website is a collection of static Web pages.
- In this type of Websites, Web pages are delivered as stored on a Web server.
- Unless changed by a Web developer, content of Web pages do not change.
  - Users cannot input data to or search from a Website

Deployment Architecture

- 2-*tier* Architecture



Accessing a Static Website



Advantages: Speed
Disadvantages: Labor-intensive / navigation issues

Accessing a Static Website

- Browser sends a request to a Web server
- The server forwards the requested page to the browser
- The browser process the content of the forwarded HTML page, including any script.

A Dynamic Website

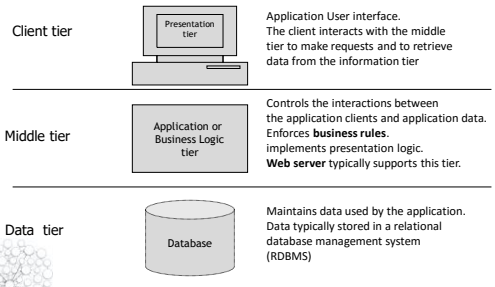
- A dynamic Website is a Website that has one or more dynamic Web pages.
- Dynamic Web pages are generated 'on the fly' or *dynamically*.
- Content of dynamic Web pages change without being changed by a Web developer, .
  - Users can input data to or search from a Website

Why Dynamic Website?

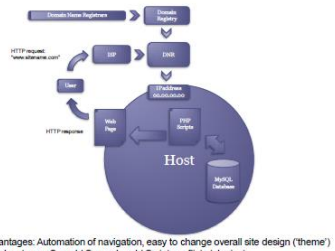
- New demands from users;
  - Users wanted to see pages based on their inputs.
  - The desire of users to upload their information.
  - The desire of users to dynamically change their information.
- New business opportunities;
  - new applications such as social media and news Websites that needs to be frequently updated

Deployment Architecture

- 3-*tier* Architecture



Accessing a Dynamic Website



Advantages: Automation of navigation, easy to change overall site design ('theme')
Disadvantages: Speed / Server Load / Script conflicts (plugins)

Accessing a Dynamic Website

- Browser sends a request to a Web server
- The server checks for scripts on the requested page
- The server activates an appropriate interpreter to interpret the script
- The result of the interpretation is sent back to the server
- The server forwards the requested page to the browser
- The browser process the content of the forwarded HTML page.

Web Development Technologies

- Markup Languages;
  - Hypertext Markup Language (HTML)
  - Extensible Hypertext Markup Language (XHTML)
  - Extensible Markup Language (XML)
- Cascading Style Sheet (CSS)
- Scripting languages
  - Client side scripting
  - Server side scripting

Client Side Scripting

- Code is executed by a Web browser.
- Scripting languages in this category include;
  - JavaScript
  - VBScript

Client Side Scripting

- These scripts are used for various purposes;
  - Validation of user inputs
  - Enhancing Web pages with ActiveX controls
  - Enhancing interactivity e.g. Graphics and buttons
  - Manipulating browser documents

Client Side Scripting

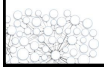
- Limitations of client side scripts;
  - Cannot implement functionality that returns customised information to the user – e.g. database search results
  - Client machine/device must be sufficiently powerful to carry out processing (problems of some handheld devices)
  - Need to ensure that the browser can support the client software
  - Source code is visible – may compromise security

Server Side Scripting

- Code is executed by a Web server.
  - Code executes because an interpreter has been installed and activated on the Web server.
- Scripting languages in this category include;
  - PHP: Hypertext Preprocessor (PHP)
  - Practical Extraction and Report Language (Perl)
  - Active Server Pages (ASP)
  - Phython
  - Ruby

Server Side Scripting

- These scripts are used for various purposes;
  - Browser detection
  - Database connectivity
  - File uploading and downloading
  - Creation and identification of Cookies



Server Side Scripting

- Advantages of server side scripting languages;
  - Users cannot view source codes
  - Provides programmers greater flexibility
  - Generates custom responses for clients
  - Contains greater programmatic capabilities than client-side equivalents
  - Has access to server-side software that extend server functionality