

Internet Basics

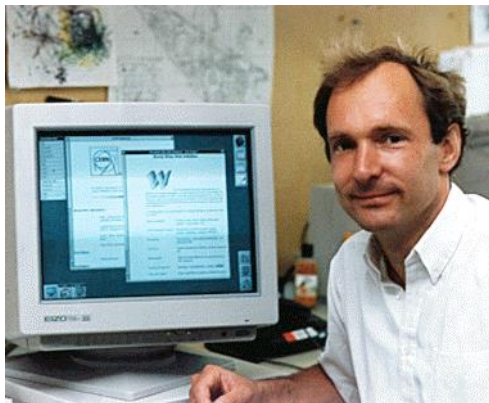
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Outline

- WWW and Internet
- Web Server and Web Clients
- How does the WWW work?
- Who defines the Web standards?
- Web Programming Languages
 - Markup Languages
 - HTML, WML, XML, XHTML
 - Client-side & Server-side Scripting
 - JavaScript, VBScript, Java Servlets, ASP, JSP

The World Wide Web

- Affectionately called “The Web”
- It is a collection of information stored on the networked computers over the world.
- The WWW was proposed in 1991 by Tim Berners-Lee at CERN.



Web or Internet?

- They are not the same things.
- The Internet is a collection of computers or networking devices connected together.
 - They have communication between each other.
 - Decentralized design that there is no centralized body controls how the Internet functions.
- The Web is a collection of documents that are interconnected by hyper-links.
 - These documents are accessed by web browsers and provided by web servers.

Internet Terminology

- **Client**
 - Any computer on the network that requests services from another computer on the network.
- **Server**
 - Any computer that receives requests from client computers, processes and sends the output.
- **Web Page**
 - Any page that is hosted on the Internet.
- **Web Development**
 - The process of creating, modifying web pages.

Web Browser (Web Client)

- It is a program that retrieves information from the Web.
 - Google Chrome, Mozilla Firefox, Microsoft Internet Explorer
 - Most commonly used browsers
 - Netscape, Mosaic
 - Many different computing platforms
 - Opera
 - The fastest browser on Earth
 - Lynx
 - Text based web client

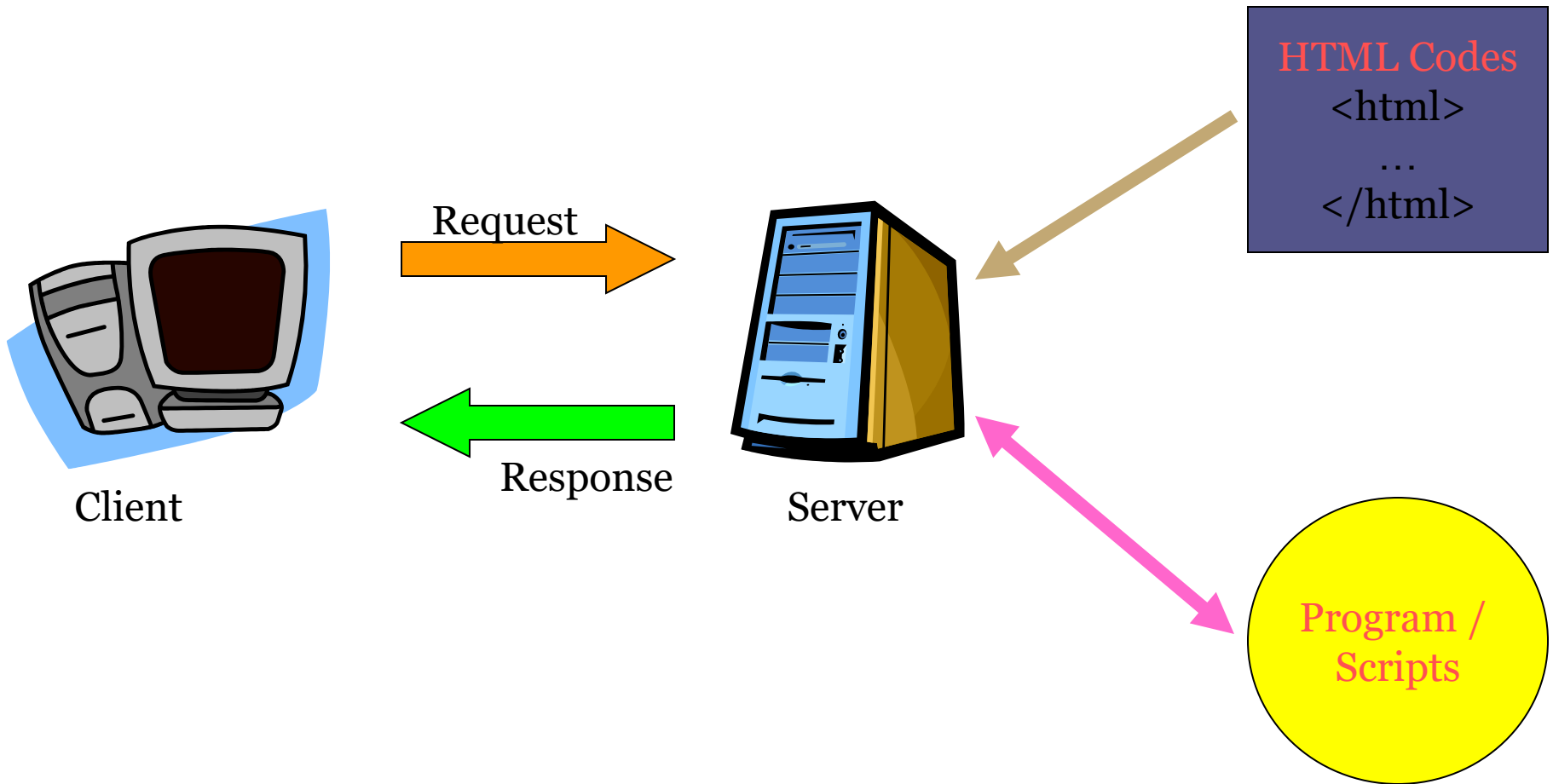
Web Server

- It is a program that waits for requests from the web browser.
- It provides four major functions
 - Serving web pages
 - Running gateway programs (CGI) and returning output
 - Controlling access to the server
 - Monitoring and logging all access
- E.g. Apache, IIS, Netscape Web server, ...

How does the Web work?

- The web information is stored in the Web pages.
 - In HTML format.
- The web pages are stored in the computers called Web servers.
 - In the Web server file system.
- The computer reading the pages is called web clients with specific web browser.
 - Most commonly Internet Explorer or Netscape.
- The web server waits for the request from the web clients over the Internet.
 - Internet Information Server (IIS) or Apache.

The HTTP Request/Response Model



HTTP

- HTTP (**H**ypertext **T**ransfer **P**rotocol)
 - protocol used to access data on the WWW.
 - uses one TCP connection on well-known port 80.
 - two types of http messages: *Request, Response*
 - transfer data in the form of plain text, hypertext, audio, video, and so on.

Who defines the Web standards?

- The Web standards are not defined or setup by the browser companies or Microsoft, but the World Wide Web Consortium ([W3C](#)).
- The specifications form the Web standards.
 - [HTML](#), [CSS](#), [XML](#), [XHTML](#), ...

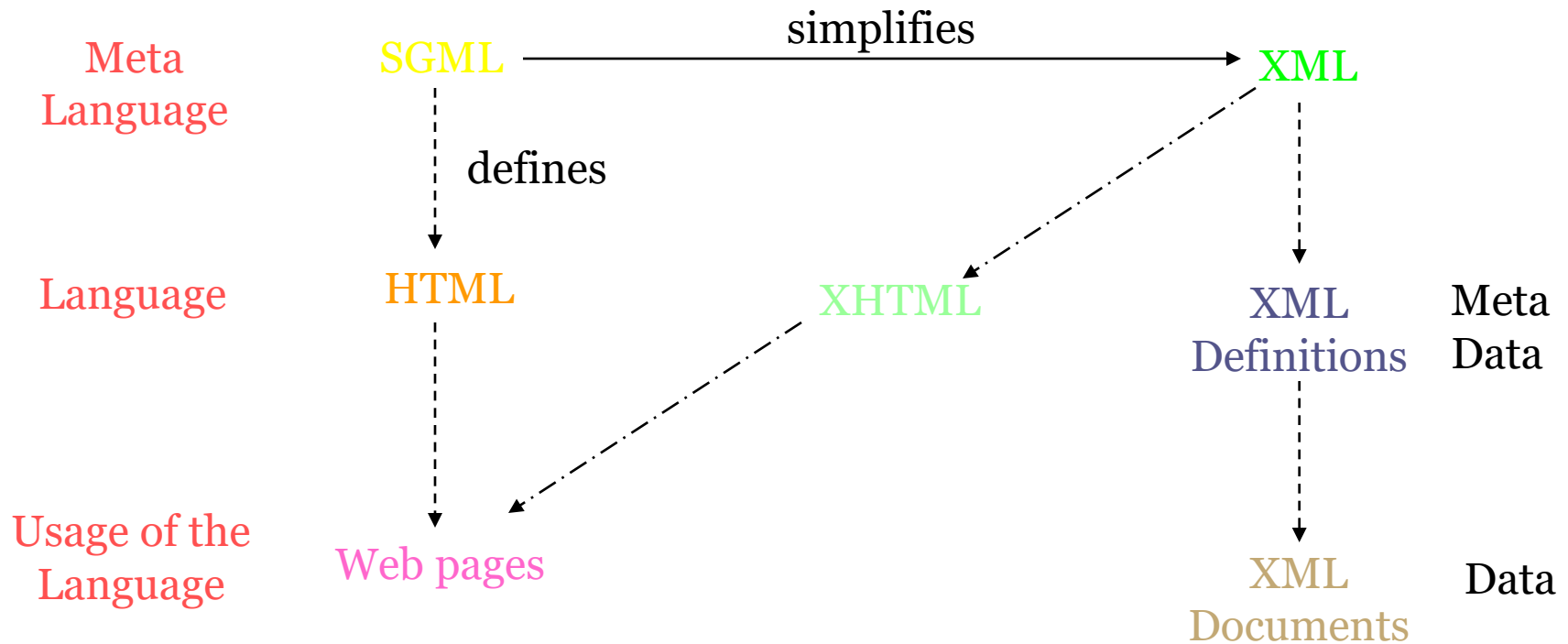
Web Programming Languages

- The Web is no longer just presenting information on a computer screen.
 - Many commercial sites include some methods of getting information from a browser to web servers.
 - How do you program your web site such that it can interact with people?
 - With XML, data from spreadsheets, reports or other applications can be easily displayed on the Web.
 - Can we learn XML without the understanding of HTML and other Web language?

The History of Markup

- In the early 1970s
 - GML (the Generalized Markup Language)
 - “:h1.The Content is placed here”
- Since the 1980s
 - SGML (the Standard GML)
 - HTML
- Currently
 - XML (eXtensible Mark-up Language)
 - Not intended to replace HTML!
 - XHTML does by providing better data description, ...

SGML, HTML and XML



HTML

- HyperText Markup Language
- It is not a programming language.
 - Cannot be used to describe computations.
 - Use to describe the general form and layout of documents to be displayed by the browser.
- Compose of “Content” and “Controls”

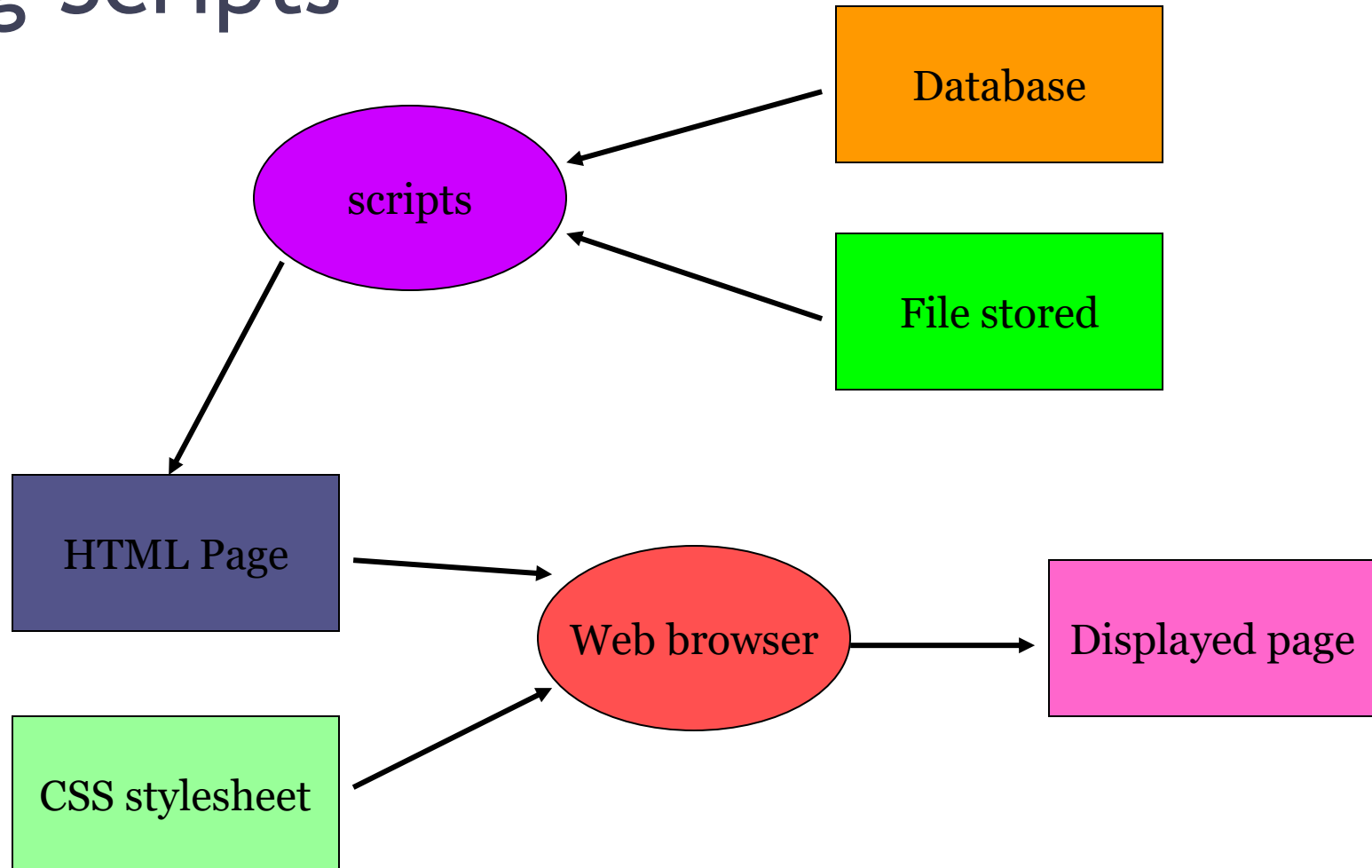
Client-Side and Server-side Programming

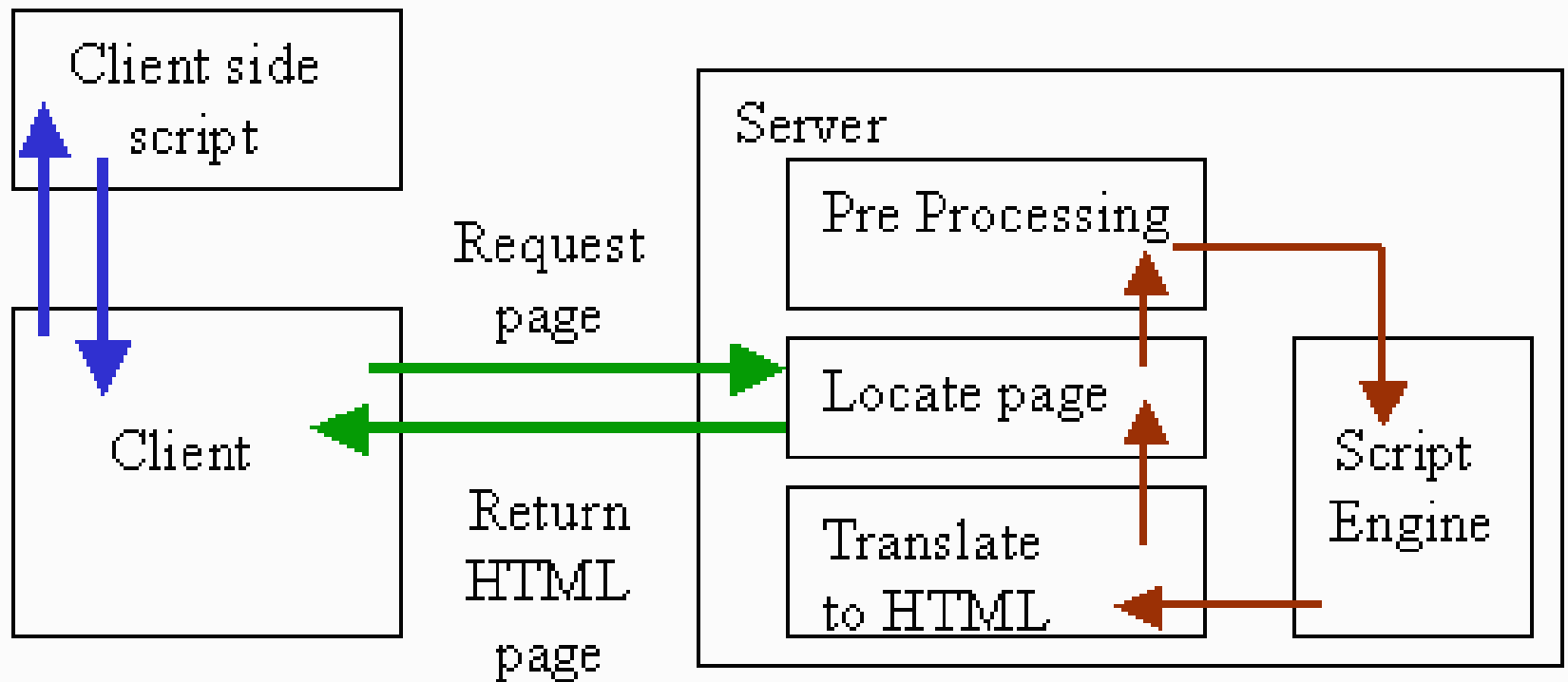
- Client-side code
 - ECMAScript
 - JavaScript, JScript – Microsoft
 - VBScript – Microsoft
 - Embedded in <script> elements and execute in the browser, provides immediate feedback to the user.
 - Reduces the load on a server, reduces network traffic.
- Server-side code
 - Execute on the server
 - CGI/Perl, ASP, PHP, ColdFusion, JSP
 - The code remains hidden from users, and browser independent.
- Can be combined with good results.

Client-side & Server-side Technologies

| Client-Side | Server-Side |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------|
| HTML, XML Cascading Style Sheets (CSS) Scripting languages - JavaScript, VBScript Java Applets ActiveX controls Plug-ins and Helpers application | CGI/Perl PHP ColdFusion Scripting Languages - Server-side JavaScript - ASP, JSP, Java Servlets ISAPI/NSAPI programs |

Using Scripts





References

- Internet and World Wide Web How to Program – Deitel, Deitel and Nieto