

5 | Getting More Out of the Internet (Lecture 08)



**Discovering the
Internet,
5th Edition**

Objectives

- Share files over the Internet
- Discuss server-side scripting and client-side scripting
- Describe Common Gateway Interface
- Identify scripting languages

Download and File-Sharing Sites

- Downloading paid content, such as music files, software, stock photos, and so forth, is one of the most popular Internet activities
- Freeware and shareware, including games or utilities, can be downloaded from a number of websites
- Transferring files between Internet-connected computers is widely used and convenient activity

Download and File-Sharing Sites

The screenshot displays the Rhapsody website's 'Classical' section. The top navigation bar includes 'Browse', 'Featured', 'My Music', and 'unRadio'. The 'Classical' page has tabs for 'Overview', 'Artists', 'Albums', 'Tracks', 'Radio', 'Listeners', and 'Posts'. The 'Overview' tab is active, showing a grid of classical music images and a list of top tracks. The right sidebar features a music player for 'Fur Elise' by Ludwig van Beethoven, a playlist titled 'Mixer' with various tracks, and a 'Featured on Rhapsody' section.

Rhapsody Browse Featured My Music unRadio Search

All Genres ▶ Classical ▶

Classical

Overview Artists Albums Tracks Radio Listeners Posts

Play All Top Tracks More +

- Shatter Me Featuring Lzzy Hale Lindsey Stirling +
- Crystallize Lindsey Stirling +
- Fur Elise Ludwig van Beethoven +

Description

Beginning in the middle ages, royalty and the church commissioned music to be written with very high standards using refined instruments and complex arrangements. Though the patronage and rules have changed, classical music is still

Featured on Rhapsody More

Mixer Save as Playlist Clear

- Movement Ludwig van Beethoven
- Rolling in the Deep The Piano Guys
- The Cello Song The Piano Guys
- Zi-Zi's Journey Lindsey Stirling
- Elements (Orchestral Verison) Lindsey Stirling
- Suite No2 in B Minor, BWV 1067: Sarabande Johann Sebastian Bach
- Fur Elise Ludwig van Beethoven

Download and File-Sharing Sites

➤ Download Websites

- **Freeware** is software that the author allows you to download and use without charge, but requires that you follow copyright laws and restrictions
- **Shareware** is software that you can download and try out but are expected to pay for if you decide to use on a permanent basis

The screenshot shows the Download.com website. At the top, there's a navigation bar with links like CNET, REVIEWS, NEWS, DOWNLOAD, CNET TV, HOW TO, and DEALS. A search bar is on the right. Below the navigation bar, there's a section for 'Mac Downloads'. The main content area features a 'FEATURED' section with a weather app 'Clear Day' and a 'Highly Recommended' section for 'DriverFinder'. On the left, there's a 'Find Software' sidebar with a search bar and platform filters (Windows, Mac, iOS, Android). At the bottom, there's a 'Popular Links' section with links like 'Vpn One Click', 'iBackup Viewer', and 'Videobox'. A table of 'Most Popular Mac Downloads' is also visible on the right.

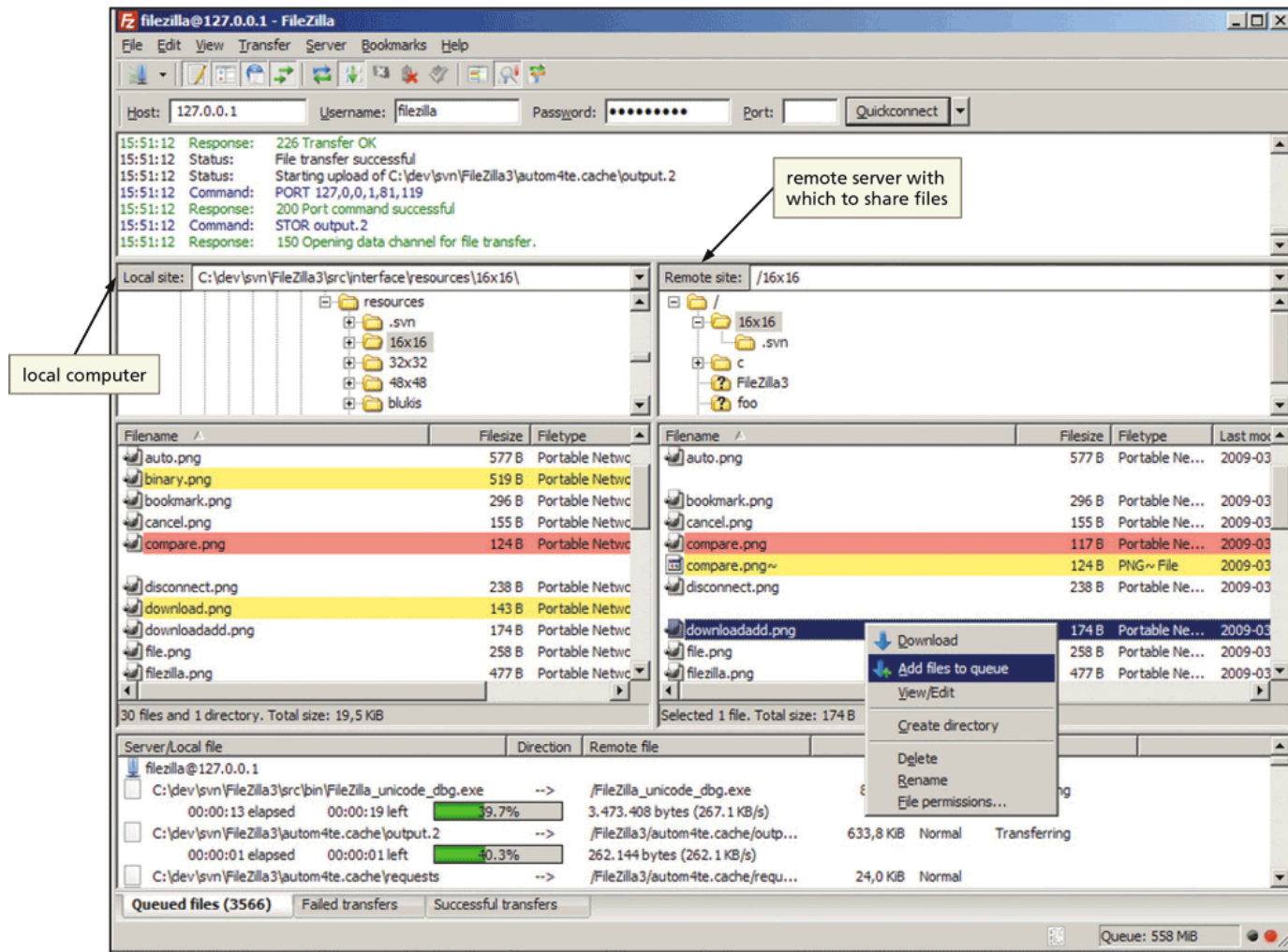
Most Popular Mac Downloads	
DOWNLOADS FOR LAST WEEK	
1. Microsoft Office 2011	17,777
2. Avast Free Antivirus	16,896
3. Adobe Photoshop CS6	11,660
4. VirtualDJ	9,756
5. VLC Media Player	9,211
6. YTD Video Downloader	8,068

Download and File-Sharing Sites

➤ File Transfer Protocol (FTP)

- Users can download and upload files located on a remote computer, called an **FTP website**
 - **Anonymous FTP websites** are public FTP websites that do not require a unique username
 - Private FTP sites restrict access by requiring a unique username and password
- Files can be downloaded or uploaded using an **FTP client** program, a browser, or your file management program

Download and File-Sharing Sites



Download and File-Sharing Sites

➤ P2P File-Sharing Networks

- A **peer-to-peer (P2P) file-sharing network** allows files to be transferred between individual personal computers located on the same local area network or between individual computers connected to the Internet
- Music and movie industries are working to stop piracy of copyrighted material over P2P file-sharing networks
- P2P sharing of copyrighted material accounts for job loss and revenue; also, potential litigation
- Commercial applications of P2P file-sharing include sharing product information and training materials

Programming

- A **program** is a list of instructions that are executed by the operating system or other software
- Sometimes the program is written into a text file called a **source file** and then assembled into a coded binary format called **object code**
- Object code is combined with utilities that it needs and then converted and stored into an **executable file**



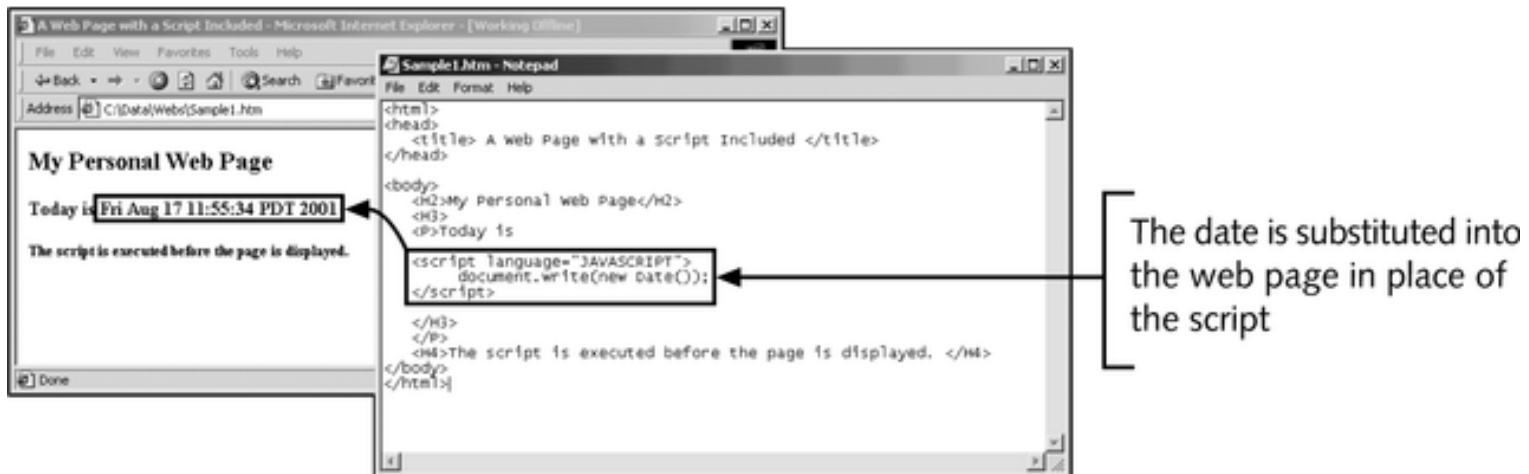
Chapter 5: Getting More Out of the Internet

Programming

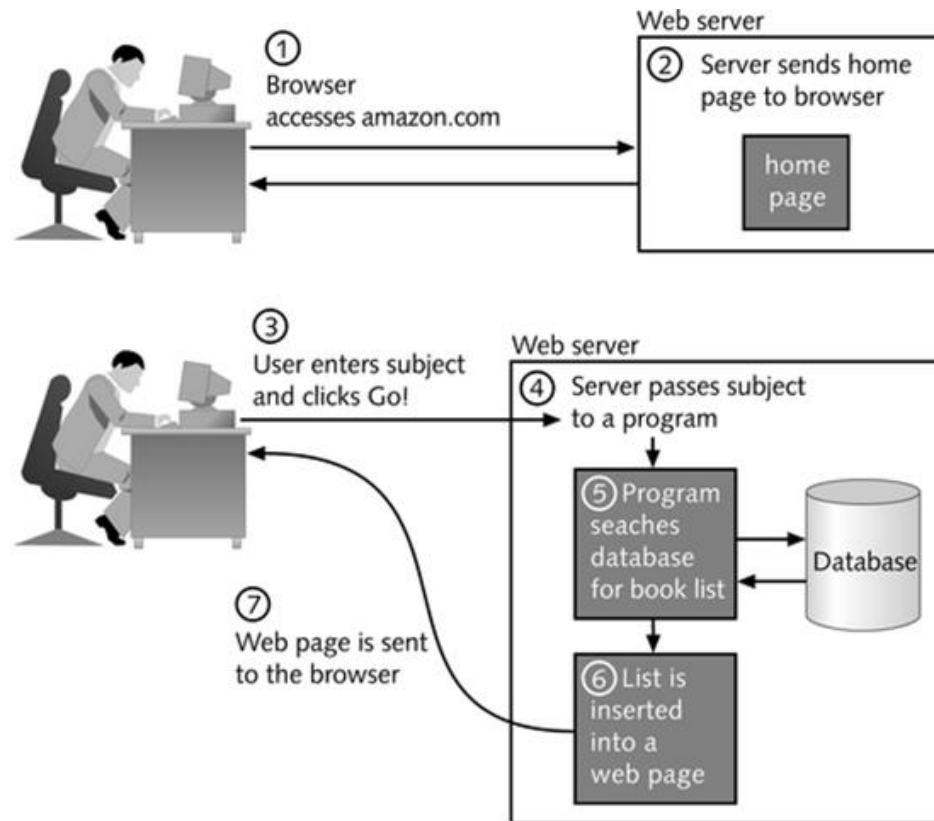
- **Compiling**
 - Process of translating programming code into binary code
- **Scripts**
 - Programs written as plain text and included in a document
- **Dynamic web pages (dynamic HTML or DHTML)**
 - Can change their content
- **Static web pages**
 - Do not change their content

Why Programming?

- Enables a browser to customize a web page based on user activity or the PC environment
- Enables a web server to customize a web page for a specific browser request
- Example:

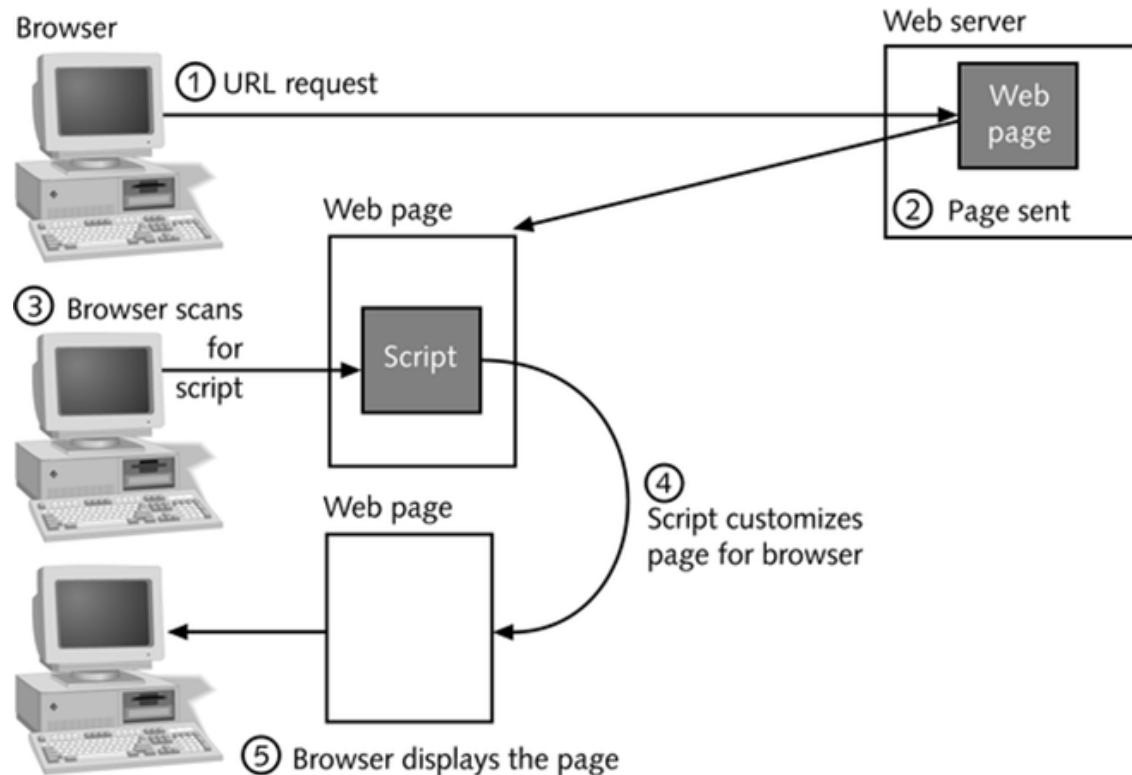


How a Web Site Displays Different Lists to the User



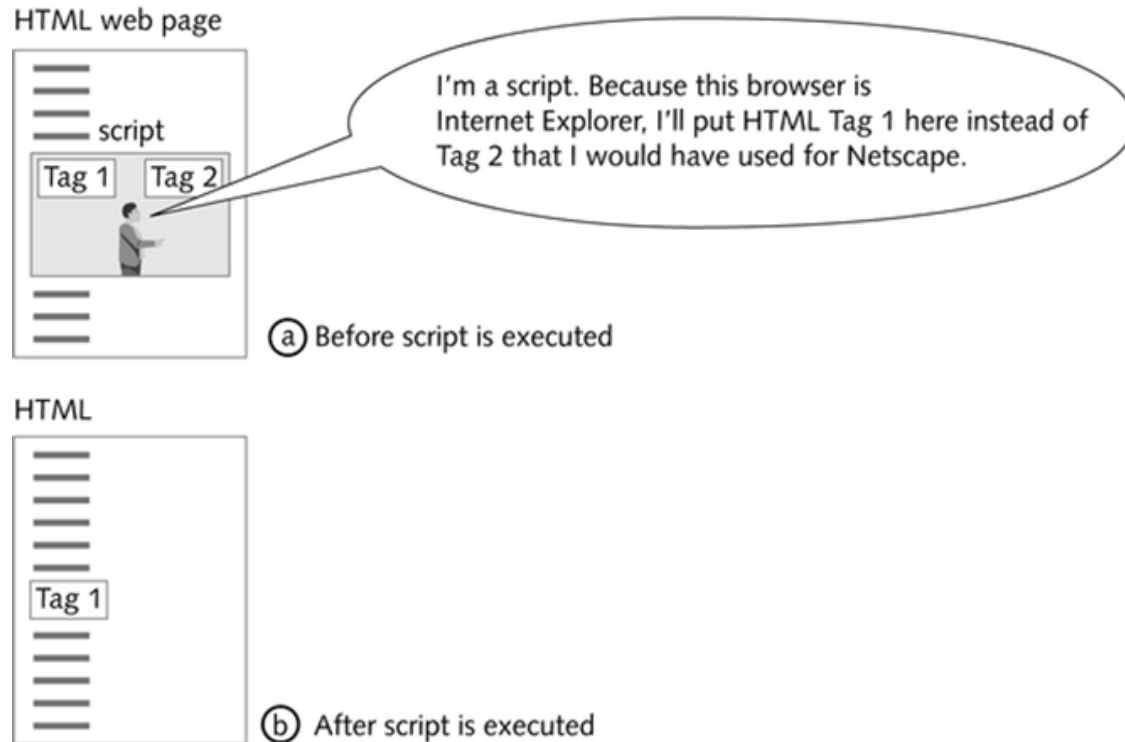
A program on the web server is responsible for changing the content of a web page based on information given by the user

How a Browser Can be Made Responsive to User Input



A common use of a client-side script is to customize a web page to meet the needs of a particular browser

How a Browser Can be Made Responsive to User Input



A browser executes a script; the script inserts HTML tags and text into the page, and then the browser displays the page

Two Kinds of Programs

➤ Server-side script

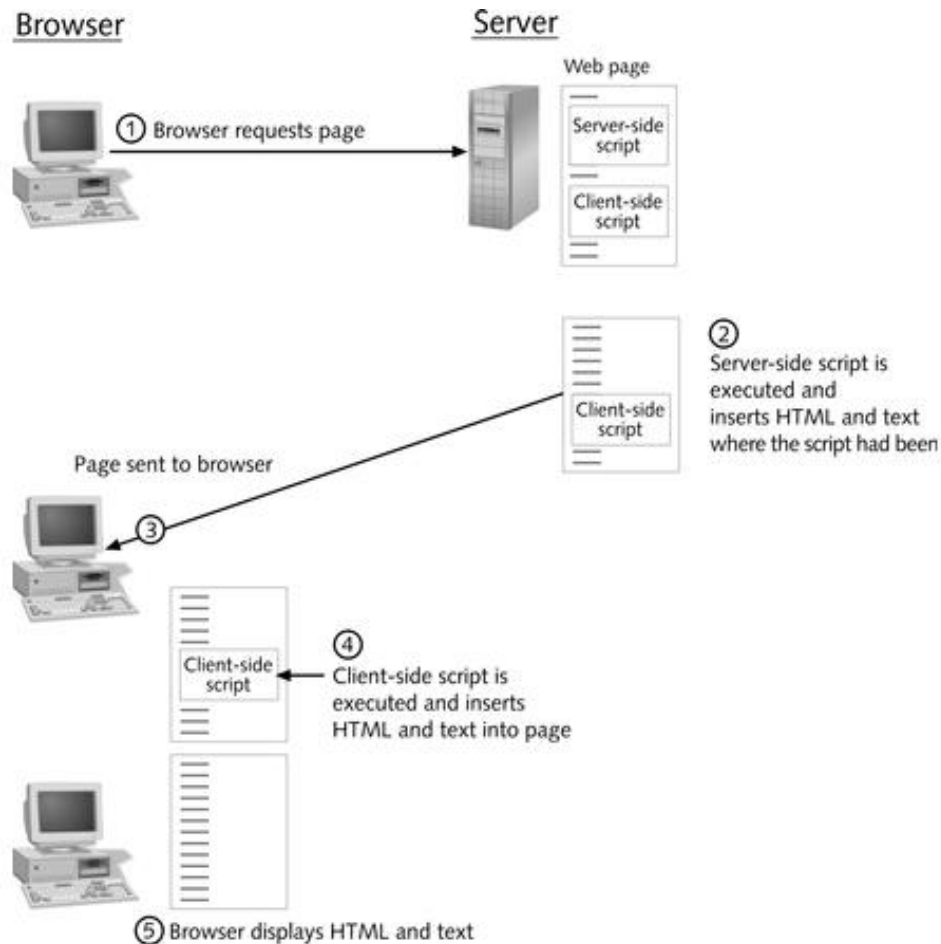
- Performed by the server before a web page is downloaded to the browser
- Can be stored alone in a CGI file or embedded in a web page

➤ Client-side script

- Performed by the browser either before the browser displays the page or when the user clicks a button or performs another action on the page
- Embedded in a web page

Common Gateway Interface – a set of specifications that defines how a web server passes a web user's input to an application program running on the server, receives a response, and passes data back to the user.

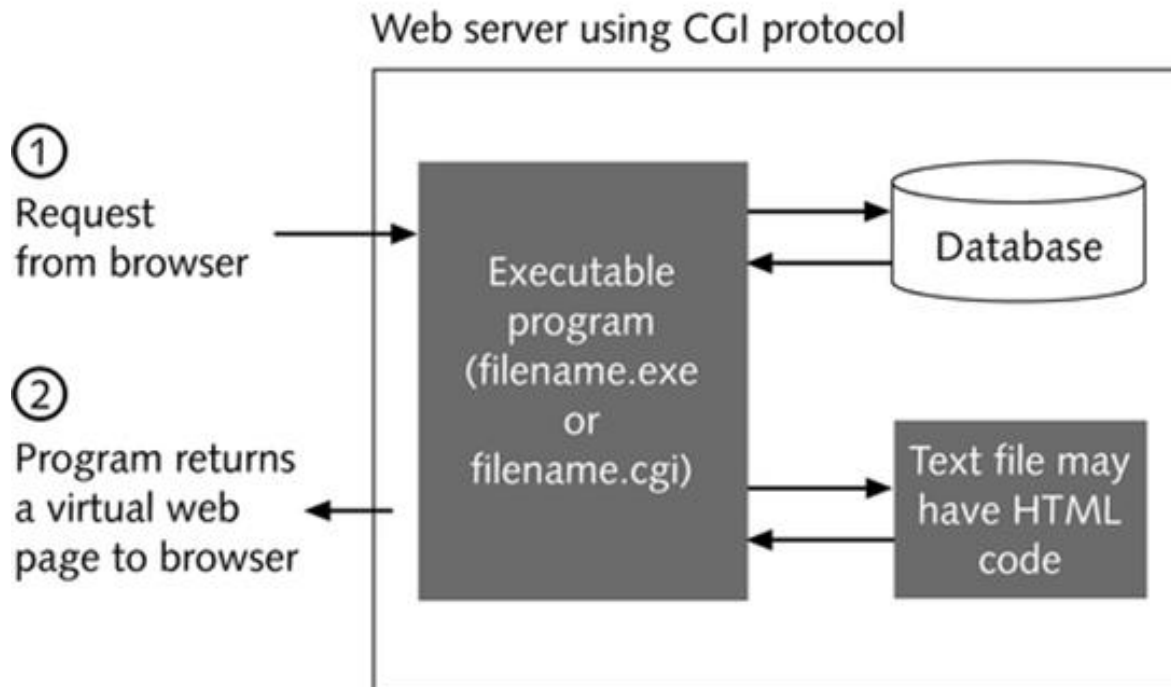
Server-side Vs Client-side Scripting



CGI (Common Gateway Interface)

- Originally developed for UNIX; first and still popular way for a program or script to interact with a Web server
- Browser points to a CGI program that generates a virtual web page using various elements on the server
- The web page is customized based on information sent to it by the browser
- Can work with many web servers; only needs rewriting when ported to a different OS platform
- Uses most any programming language

How the CGI Protocol Works



A CGI program or script constructs a web page from resources on the server

JSP (Java Server Pages)

- Developed by Sun Microsystems; similar to and competes with ASP ← **Active Server Pages**
- Allows Java programming segments (Java servlets) to be written into a web page and executed by the server before the page is downloaded to the browser
- JavaBean
 - Small Java object designed to work as a reusable component in many different situations

Programming Languages Used by Server and Client

- Popular languages used by CGI:
 - Perl (Practical Extension and Report Language)
 - C and C++
 - Java
 - PHP (Hypertext Preprocessing)
 - Visual Basic (VB)
 - VBScript, PerlScript, JavaScript, and JScript

Java

- An object-oriented programming language developed by Sun Microsystems
- Highly portable

Scripting Languages: VBScript, PerlScript, JavaScript, and JScript

- Commands are designed to be included on a web page and executed either by the web server or the web browser
- Not compiled; the commands, or source code, are readily available on the web page as text and can be easily edited

VBScript

- A subset of Visual Basic for Applications, which is a subset of Visual Basic
- Designed for writing scripts that can be inserted into web pages

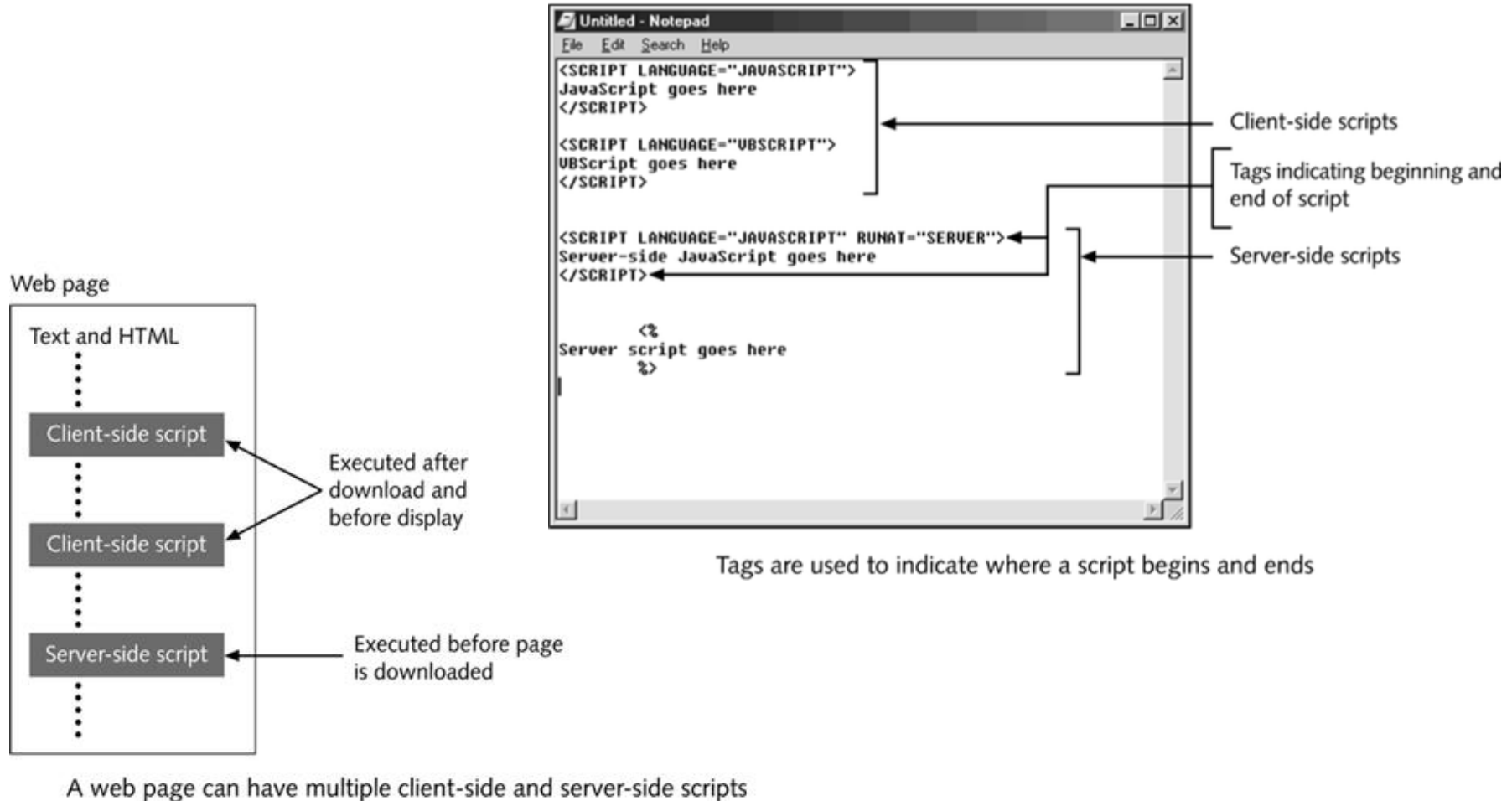
JavaScript

- Developed by Netscape for use with Netscape Navigator
- Can now be used by web servers as well as clients
- Scripting language of choice; can be interpreted by most browsers
- Easy to learn
- Jscript
 - Microsoft's version of JavaScript developed for use with Internet Explorer

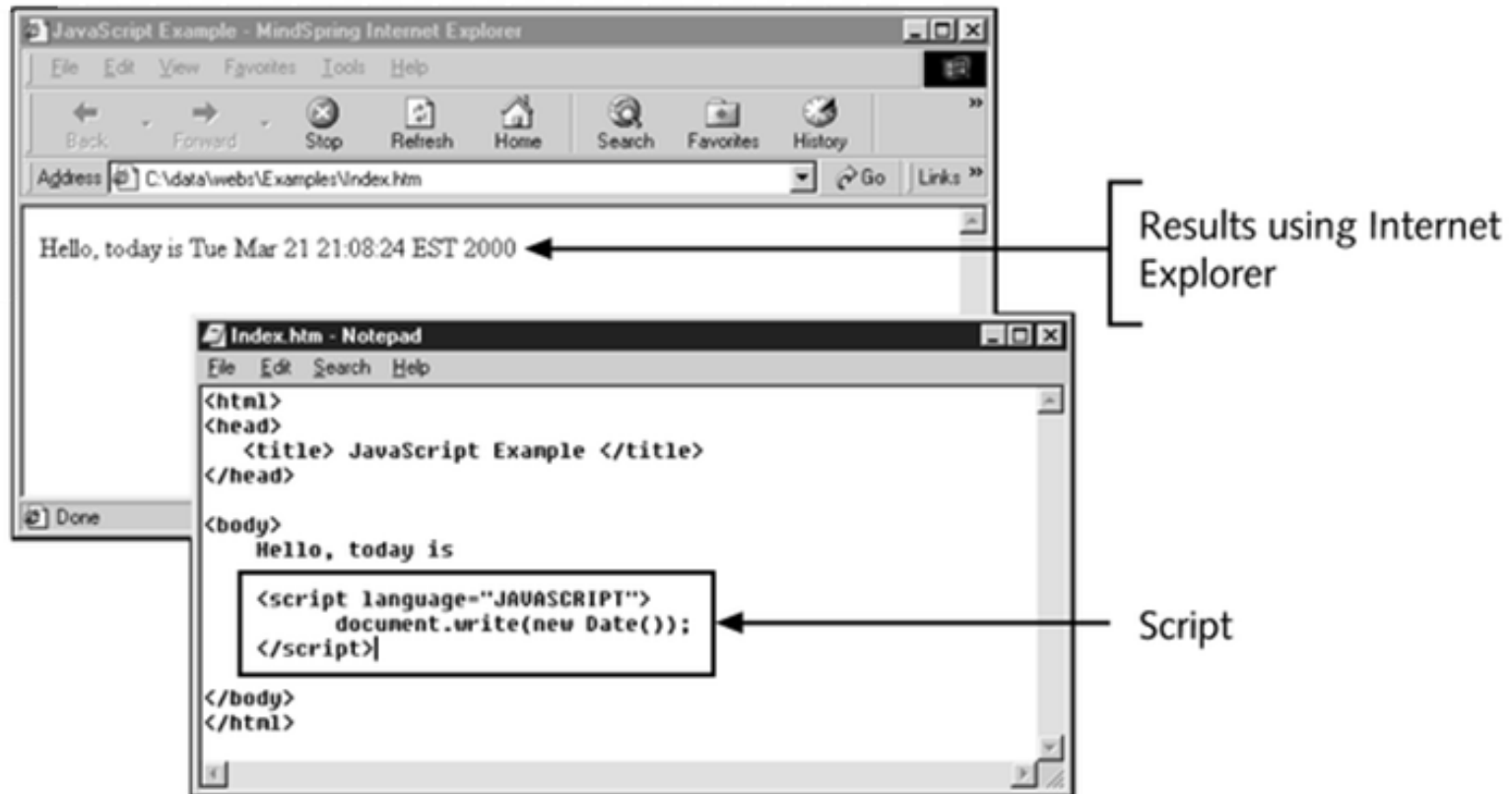
Learning to Use Scripts

- All you need to execute a client-side script is a browser
- Learning to use server-side scripts requires a web server to interpret the script
- To insert scripts in a web page, include tags to mark beginning and end of script
- Server and client scripts in HTML are marked using `<SCRIPT>` and `</SCRIPT>` tags
- A server script can also be marked using `<%` and `%>` tags

How Script Tags Are Entered in HTML Code



Example: Including the Date in a Web Page



A simple JavaScript that displays the system date

Server-Side Scripting

- Executed by server before Web page is downloaded to browser
- Receives information passed to it from the browser and from files and databases available to it on the server
- Maintains a conversation between a web browser and a web server
- Can be stored alone in a CGI file or embedded on a web page