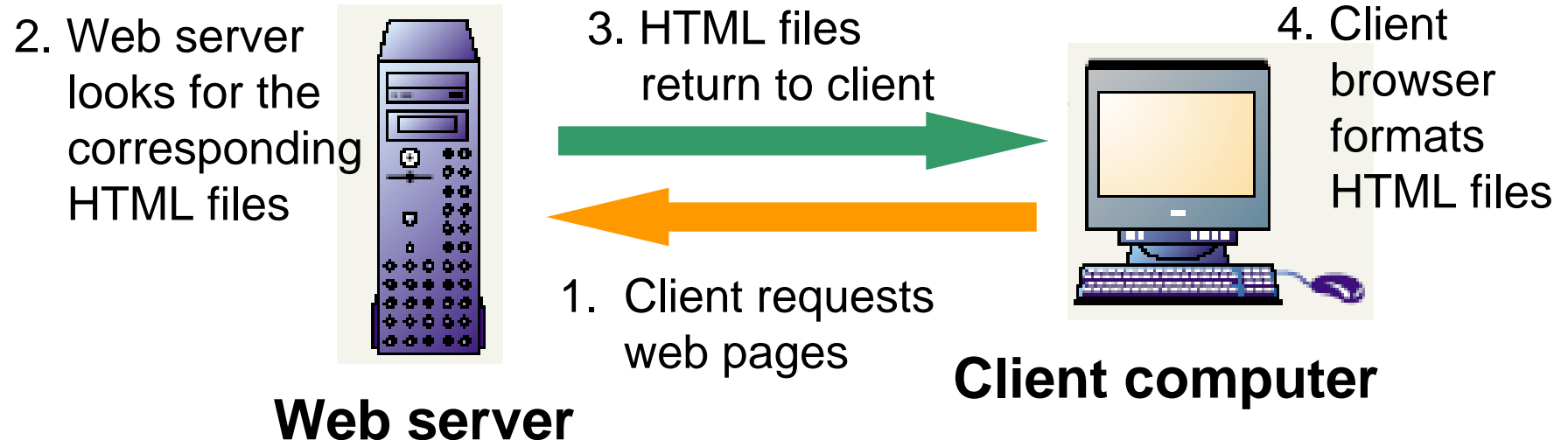# Introduction to Web Pages

Static Web Pages

Static Web Pages

✢Static web page

⌂A web page with contents that remain fixed and unchanged once it has been created by the author

2. Web server looks for the corresponding HTML files

3. HTML files return to client

4. Client browser formats HTML files

1. Client requests web pages

Web server

Client computer

Static Web Pages

⌘Static web page

```
<html>
<head>
<title>Hello world</title>
</head>

<body>
<h2><font face="Arial">Hello world!</font></h2>

</body>

</html>
```

Hello world!

Static Web Pages

⌘Static web page

  ⌃ Pages typically contain text, hyper links, photos, graphics
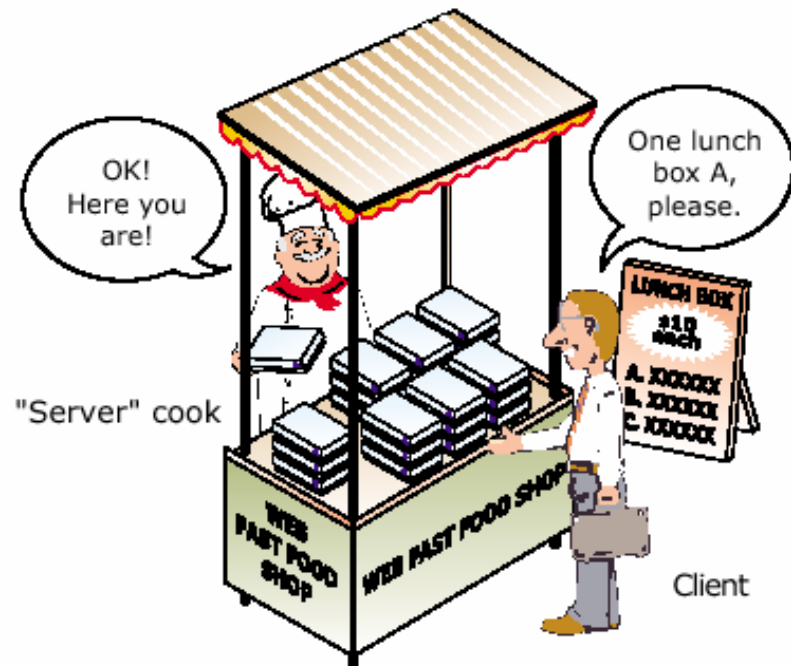
Dynamic Web Pages

Static Web Pages versus Dynamic Web Pages

⌘ **Dynamic web page**

⌃ A web page with contents generated "on-the-fly" by the server or the client computer according to clients' requests

⌃ e.g. return the system's current date and time to the surfer browser

Static Web Pages versus Dynamic Web Pages

Buying ready-made lunch boxes: browsing static web pages

Ordering noodles in a noodle stall: browsing dynamic web pages

	Static Web Pages	Dynamic Web Pages
Composing Process	Create each page separately by writing the HTML codes or using a WYSIWYG editor.	Require the creation of a general template first. With the template built, only the actual content for each page needs to be created.
Maintenance	Adding new content means creating new separate web pages. Any changes in the structure require manual update of each page.	New content is inserted into the structure template. Any changes to the structure mean updating the template only.
Workload on the server	Low workload. Web server loads static files from the disk.	Dynamic page is created on-the-fly with a use of additional software. This increases server's load.
Knowledge	Require basic HTML knowledge.	Require more programming knowledge.

Comparison between static and dynamic web pages

Client-Side Dynamic Web Pages versus Server-Side Dynamic Web Pages
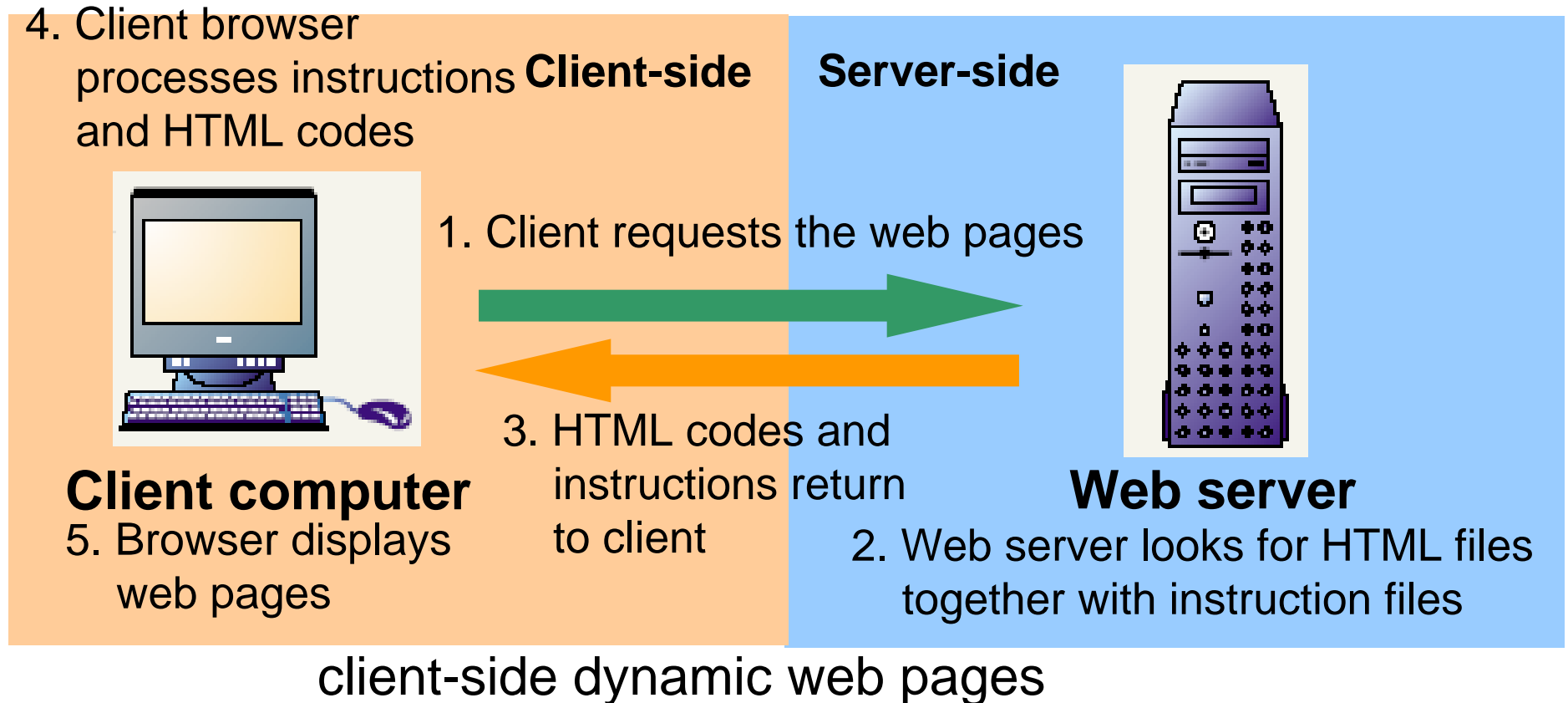
⌘ **Classification of dynamic web pages**

1. client-side dynamic web pages
   - ☒ the creation of the web pages takes place in the client computer

2. server-side dynamic web pages
   - ☒ the server is responsible for creating the web pages

Client-Side Dynamic Web Pages versus Server-Side Dynamic Web Pages

4. Client browser processes instructions **Client-side** and HTML codes

Server-side

1. Client requests the web pages

3. HTML codes and instructions return to client

Client computer

5. Browser displays web pages

Web server

2. Web server looks for HTML files together with instruction files

client-side dynamic web pages

Client-Side Dynamic Web Pages versus Server-Side Dynamic Web Pages

Client-side   **Server-side**

2. Web server looks for instruction files

1. Client requests the web pages

4. HTML codes return to client

3. Web server processes instructions and creates the necessary HTML codes

Client computer

5. Client browsers display the web pages

Web server
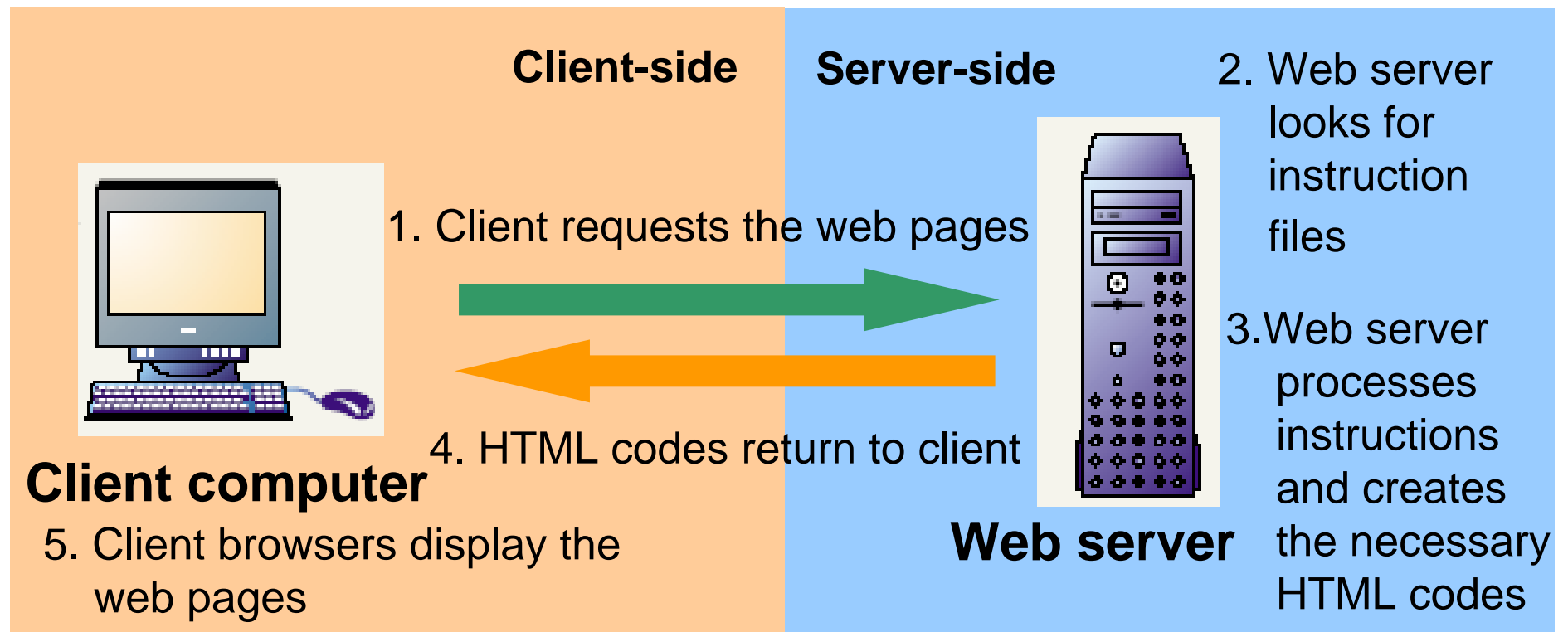
server-side dynamic web pages

Client-Side Dynamic Web Pages versus Server-Side Dynamic Web Pages

	Client-Side Dynamic Web Page	Server-Side Dynamic Web Page
Instruction codes revealed to user	Yes	No
Extra time required to download instruction codes in addition to HTML codes	Yes	No
Need to cater for browser differences	Yes	No
Accessibility to server resources (such as a database)	Low	High

Comparison between client-side and server-side dynamic web pages

Overview of Client-Side Processing Technologies

- JavaScript
  - Netscape worked with Sun Microsystems to develop JavaScript
  - designed to create small and efficient applications to add interactivity to web pages
  - Both Microsoft and Netscape browsers support JavaScript

Overview of Client-Side Processing Technologies

⌘ VBScript

- a browser scripting language developed by Microsoft

- based on Visual Basic

- help to create dynamic web pages easily

- can only run in Microsoft's browser

Overview of Client-Side Processing Technologies

- ⌘ **Java**
  - ⌃ a cross-platform fully functional programming language
- ⌘ **Java Applets**
  - ⌃ compiled Java programs in the form of applets can be easily inserted into web pages
  - ⌃ executed by the module Java Virtual machine (JVM)

Overview of Server-Side Processing Technologies

- ⌘ Active Server Pages (ASP)
  - ⌃ a server-side scripting language developed by Microsoft
  - ⌃ Rely on either JavaScript or VBScript Scripting language to create dynamic web pages
  - ⌃ The server with the ASP module processes the web pages before sending them back to the surfer browser

Overview of Server-Side Processing Technologies

- ⌘ **ASP and ASP.NET**
  - ⌃ ASP – Only lets you use scripting languages
  - ⌃ ASP.NET – Full potential of the .NET framework (VB.NET, C#, JScript.NET)

Overview of Server-Side Processing Technologies

- JSP (JavaServer Pages)
  - Developed by Sun Microsystems
  - Combine Java code and HTML(or XML) codes to generate dynamic web pages
  - Servlets: the small Java programs that run on the server
  - Run faster than ASP codes in general

Overview of Server-Side Processing Technologies

⌘ HyperText Preprocessor (PHP)

- ⌃ Another scripting language for creating dynamic web pages
- ⌃ Open-source

	JavaScript	VBScript	Java Applets	ASP	JSP	CGI	PHP
Processing takes place in	Client-side	Client-side	Client-side	Server-side	Server-side	Server-side	Server-side
Browser support (Netscape, I.E.)	Both	I.E. only	Both	Both	Both	Both	Both
Intruction codes disclosed to users?	Yes	Yes	No	No	No	No	No
Need to download instruction files in addition to HTML codes?	No	No	Yes (Applet)	No	No	No	No
Scripting or full-fledged programming language	Scripting only	Scripting only	Full prog. lang.	Scripting only	Full prog. lang.	Full prog. lang.	Full prog. lang.
Developer	Netscape & Sun Microsystems	Microsoft	Sun Microsystems	Microsoft	Sun Microsystems		

Comparison between Client-Side and Server-Side Processing Technologies