

Chapter 1

Introduction to web development and PHP

Objectives

Applied

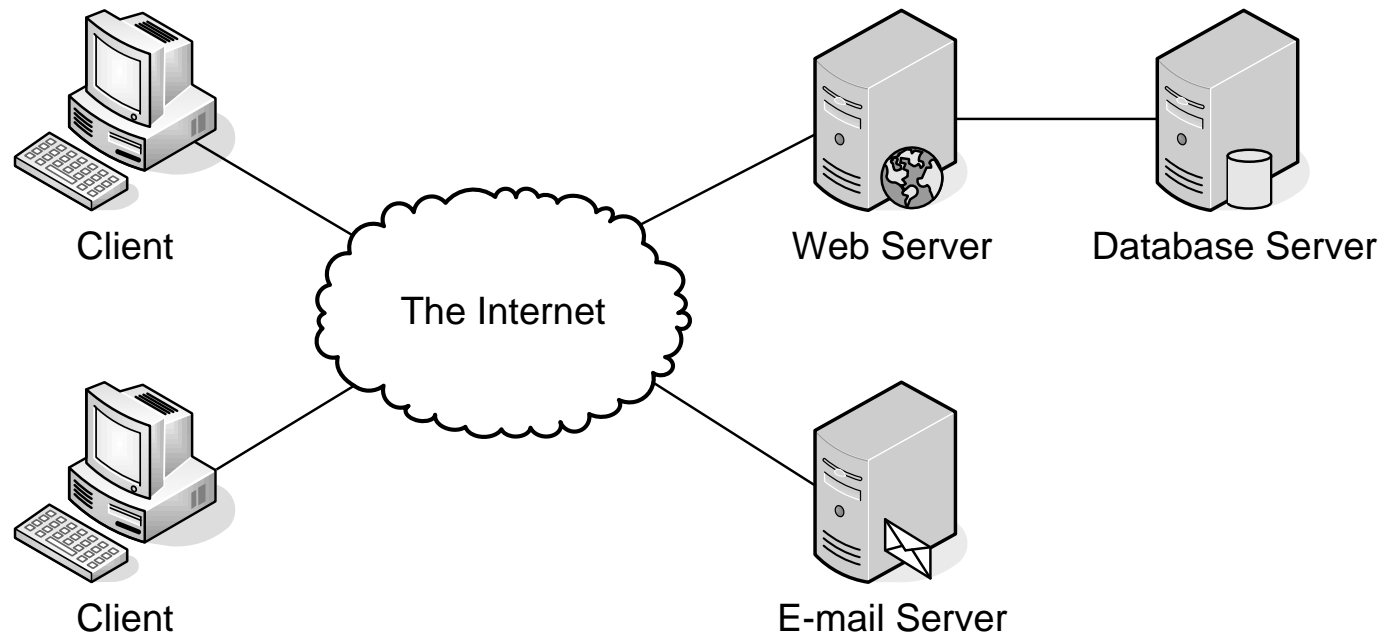
1. Use the XAMPP control panel to start or stop Apache or MySQL when it is running on your own computer.
2. Deploy a PHP application on your own computer.
3. Run a web application that's on your own computer (1) by entering its URL into the address bar of a browser or (2) by getting and using an index of the applications that are on the web server.
4. View the source code for a web page in a web browser.

Objectives (continued)

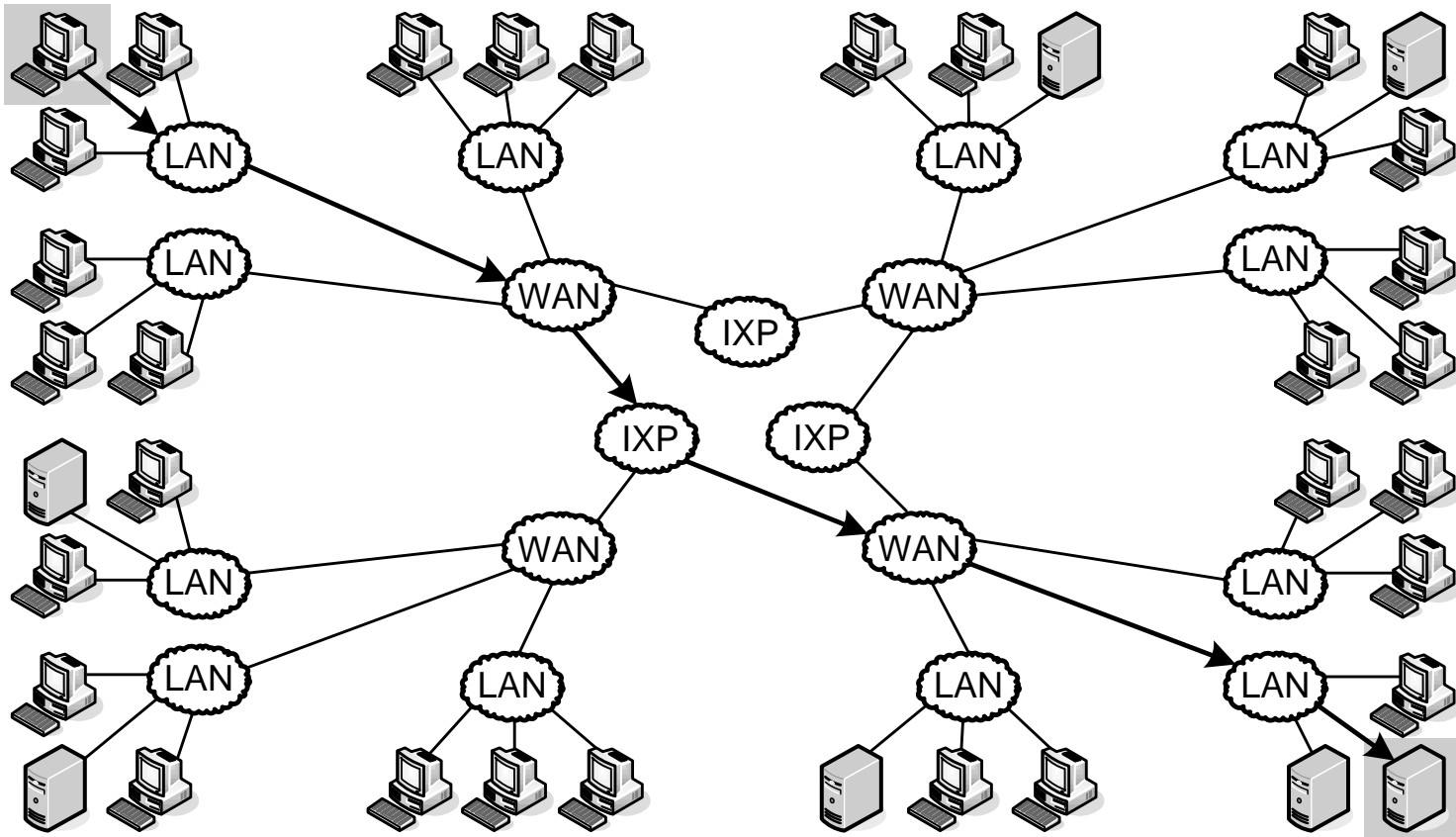
Knowledge

1. Describe the components of a client-server architecture.
2. Describe HTTP requests and responses.
3. Distinguish between the way a web server processes static web pages and dynamic web pages.
4. Explain what these software components do as a web application runs: Apache, PHP, Firefox, and MySQL.
5. Describe the way a PHP application is deployed on your own computer or on an Internet server.
6. Describe the components of an HTTP URL.
7. Describe what happens if you omit one or more parts of a URL when you try to run an application or if you code a URL that specifies a directory that doesn't contain a default page.
8. Describe the benefits of using an IDE like NetBeans for application development.

The architecture of a web application



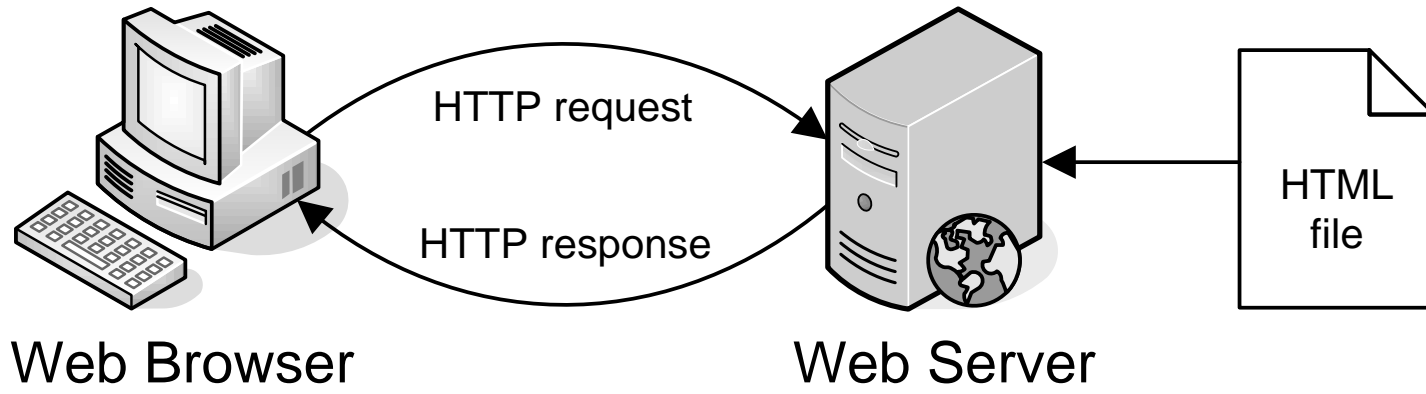
The architecture of the Internet



Key terms

- server
- client
- network
- router
- Local Area Network (LAN)
- Wide Area Network (WAN)
- Internet
- Internet Exchange Point (IXP)
- Internet Service Provider (ISP)

How static web pages are processed



A simple HTTP request

GET / HTTP/1.1

Host: www.example.com

A simple HTTP response

HTTP/1.1 200 OK

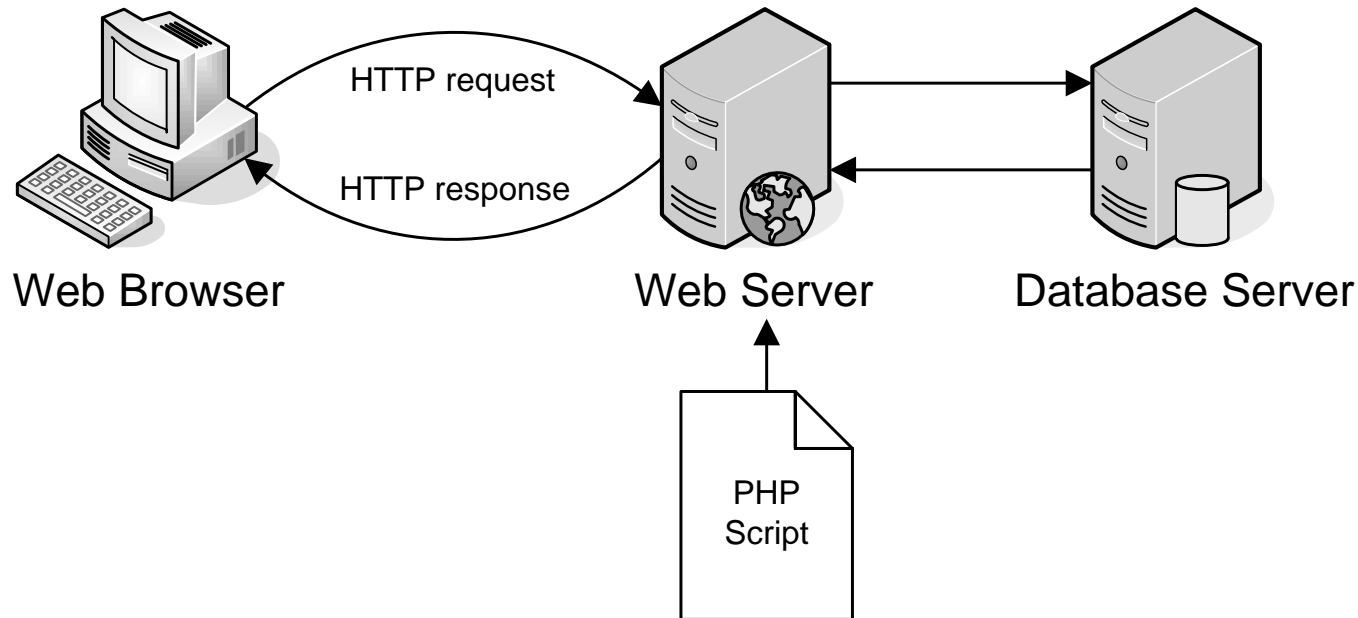
Content-Type: text/html

Content-Length: 136

Server: Apache/2.2.3

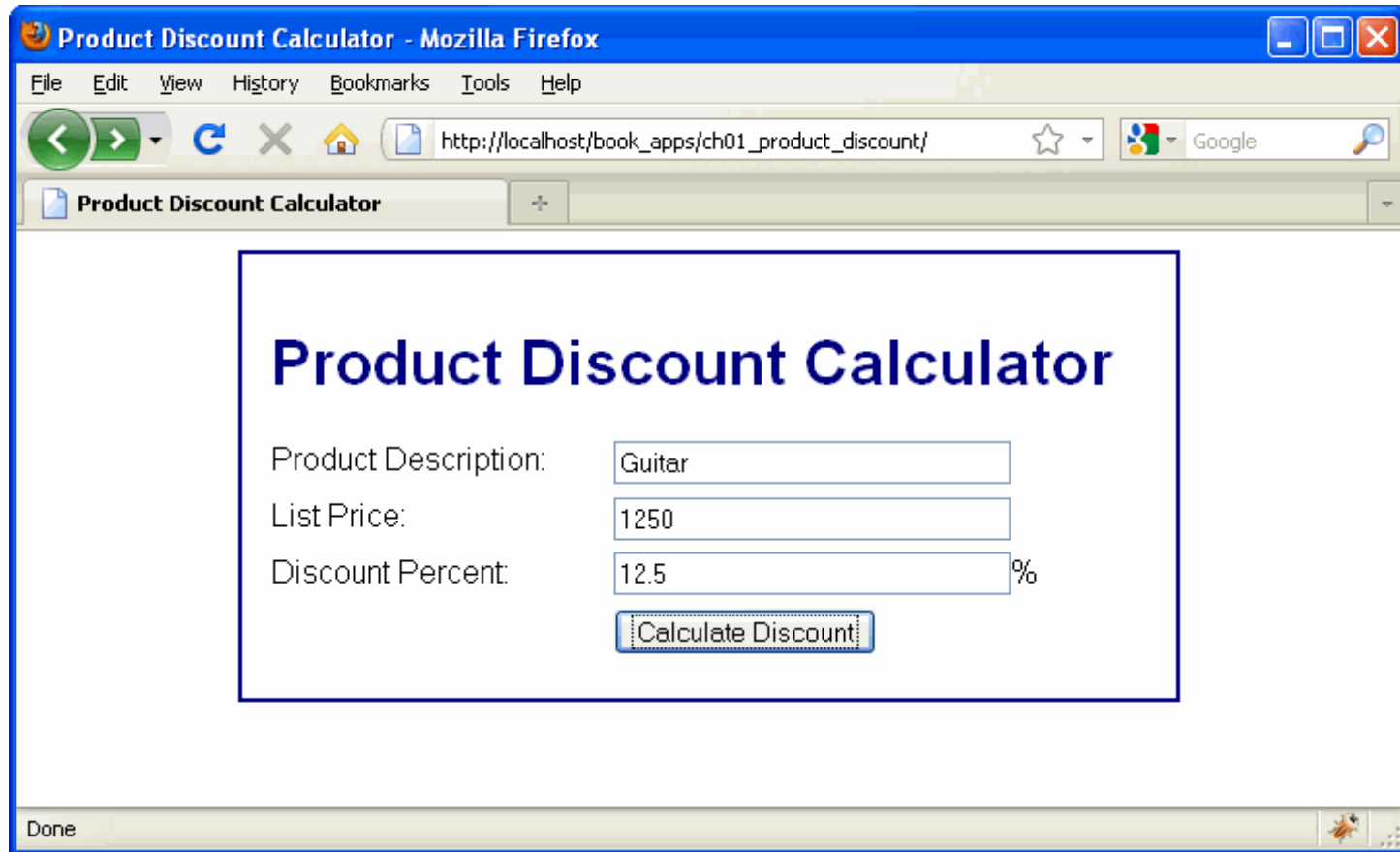
```
<html>
<head>
  <title>Example Web Page</title>
</head>
<body>
  <p>This is a sample web page</p>
</body>
</html>
```

How dynamic web pages are processed with PHP

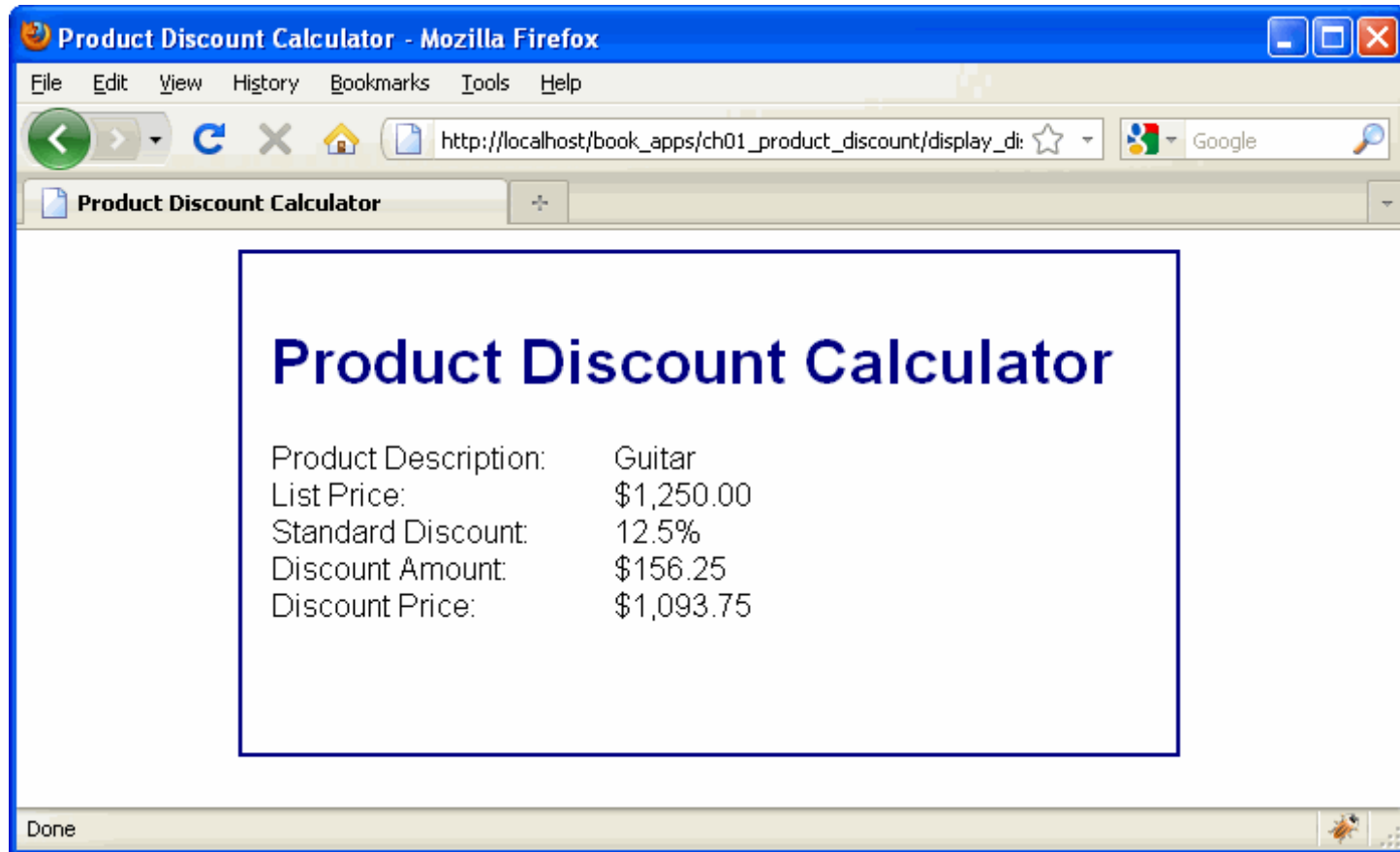


- For a php page, the web server forwards the request to the php *interpreter* which is running on the web server.
- The php interpreter executes the script along with any form data and generates a web page which is returned to the browser.

The first page of an application (index.html)



The second page (display_discount.php)



The HTML file (index.html)

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0
    Transitional//EN" ...>
<html xmlns="http://www.w3.org/1999/xhtml">

<head>
    <title>Product Discount Calculator</title>
    <link rel="stylesheet" type="text/css" href="main.css" />
</head>

<body>
    <div id="content">
        <h1>Product Discount Calculator</h1>
        <form action="display_discount.php" method="post">

            <div id="data">
                <label>Product Description:</label>
                <input type="text" name="product_description"/>
                <br />
            </div>
        </form>
    </div>
</body>
</html>
```

The HTML file (index.html) (continued)

```
<label>List Price:</label>
<input type="text" name="list_price"/><br />
<label>Discount Percent:</label>
<input type="text" name="discount_percent"/>%<br />
</div>

<div id="buttons">
  <label>&nbsp;</label>
  <input type="submit" value="Calculate Discount" />
  <br />
</div>

</form>
</div>
</body>
</html>
```

The CSS file (main.css)

```
body {  
    font-family: Arial, Helvetica, sans-serif;  
}  
  
#content {  
    width: 450px;  
    margin: 0 auto;  
    padding: 0px 20px 20px;  
    background: white;  
    border: 2px solid navy;  
}  
  
h1 {  
    color: navy;  
}  
  
label {  
    width: 10em;  
    padding-right: 1em;  
    float: left;  
}
```

The CSS file (main.css) (continued)

```
#data input {  
    float: left;  
    width: 15em;  
    margin-bottom: .5em;  
}
```

```
#buttons input {  
    float: left;  
    margin-bottom: .5em;  
}
```

```
br {  
    clear: left;  
}
```

The PHP file (display_discount.php)

```
<?php
    // get the data from the form
    $product_description = $_POST['product_description'];
    $list_price = $_POST['list_price'];
    $discount_percent = $_POST['discount_percent'];

    // calculate the discount
    $discount = $list_price * $discount_percent * .01;
    $discount_price = $list_price - $discount;

    // apply formatting to the dollar and percent amounts
    $list_price_formatted =
        "$".number_format($list_price, 2);
    $discount_percent_formatted = $discount_percent."%";
    $discount_formatted = "$".number_format($discount, 2);
    $discount_price_formatted =
        "$".number_format($discount_price, 2);
?>
```

The PHP file (display_discount.php) (continued)

```
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional
...>
<html xmlns="http://www.w3.org/1999/xhtml">

<head>
    <title>Product Discount Calculator</title>
    <link rel="stylesheet" type="text/css" href="main.css"/>
</head>

<body>
    <div id="content">
        <h1>Product Discount Calculator</h1>

        <label>Product Description:</label>
        <span><?php echo $product_description; ?>
        </span><br />

        <label>List Price:</label>
        <span><?php echo $list_price_formatted; ?>
        </span><br />
```


The PHP file (display_discount.php) (continued)

```
<label>Standard Discount:</label>
<span><?php echo $discount_percent_formatted; ?>
</span><br />

<label>Discount Amount:</label>
<span><?php echo $discount_formatted; ?>
</span><br />

<label>Discount Price:</label>
<span><?php echo $discount_price_formatted; ?>
</span><br />
</div>
</body>
</html>
```

How to deploy an application on an Internet server

- Use an FTP (File Transfer Protocol) program (such as Filezilla, Secure Shell SSH, or WinSCP) to upload the tested directories and files to the Apache web server.
- Our web server is `webdev.cislabs.uncw.edu`
- Files should be uploaded to your `public_html` file
- Permissions on this directory, subdirectories, and subfiles should be set at 755.
- The URL is `http://webdev.cislabs.uncw.edu/~abc1234`

The components of an HTTP URL

`http://www.murach.com/books/lists.htm`

protocol domain name path filename

What happens if you omit parts of a URL

- If you omit the protocol, the default of `http://` will be used.
- If you omit the filename, one of the default filenames for the Apache web server will be used: `index.htm`, `index.html`, or `index.php`.
- If you omit the filename and there is no default file, Apache will display an index of the files and directories in the path.

URLs for pages on an Internet web server

A request for a specific page

`http://www.murach.com/books/xhcss.htm`

A request for the default (home) page of a web site

`http://www.murach.com/`

URLs for applications on a local web server

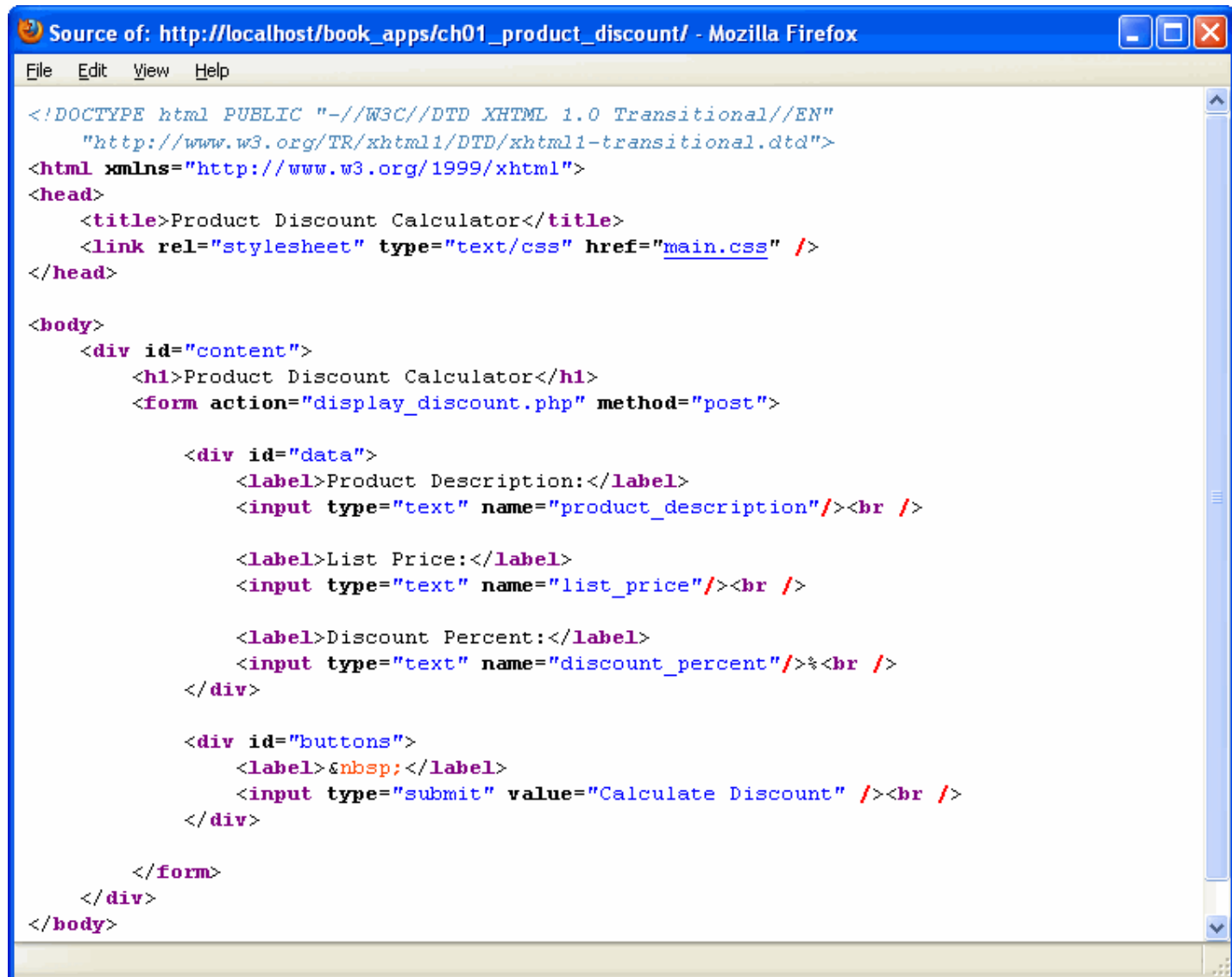
A request for the default page in an application directory

`http://localhost/book_apps/ch01_product_discount/`

A request for a directory with no default page

`http://localhost/book_apps/`

The source code for a PHP page



```
Source of: http://localhost/book_apps/ch01_product_discount/ - Mozilla Firefox
File Edit View Help

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
    "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
    <title>Product Discount Calculator</title>
    <link rel="stylesheet" type="text/css" href="main.css" />
</head>
<body>
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        <form action="display_discount.php" method="post">

            <div id="data">
                <label>Product Description:</label>
                <input type="text" name="product_description"/><br />

                <label>List Price:</label>
                <input type="text" name="list_price"/><br />

                <label>Discount Percent:</label>
                <input type="text" name="discount_percent"/>%<br />
            </div>

            <div id="buttons">
                <label>&nbsp;</label>
                <input type="submit" value="Calculate Discount" /><br />
            </div>

        </form>
    </div>
</body>
```

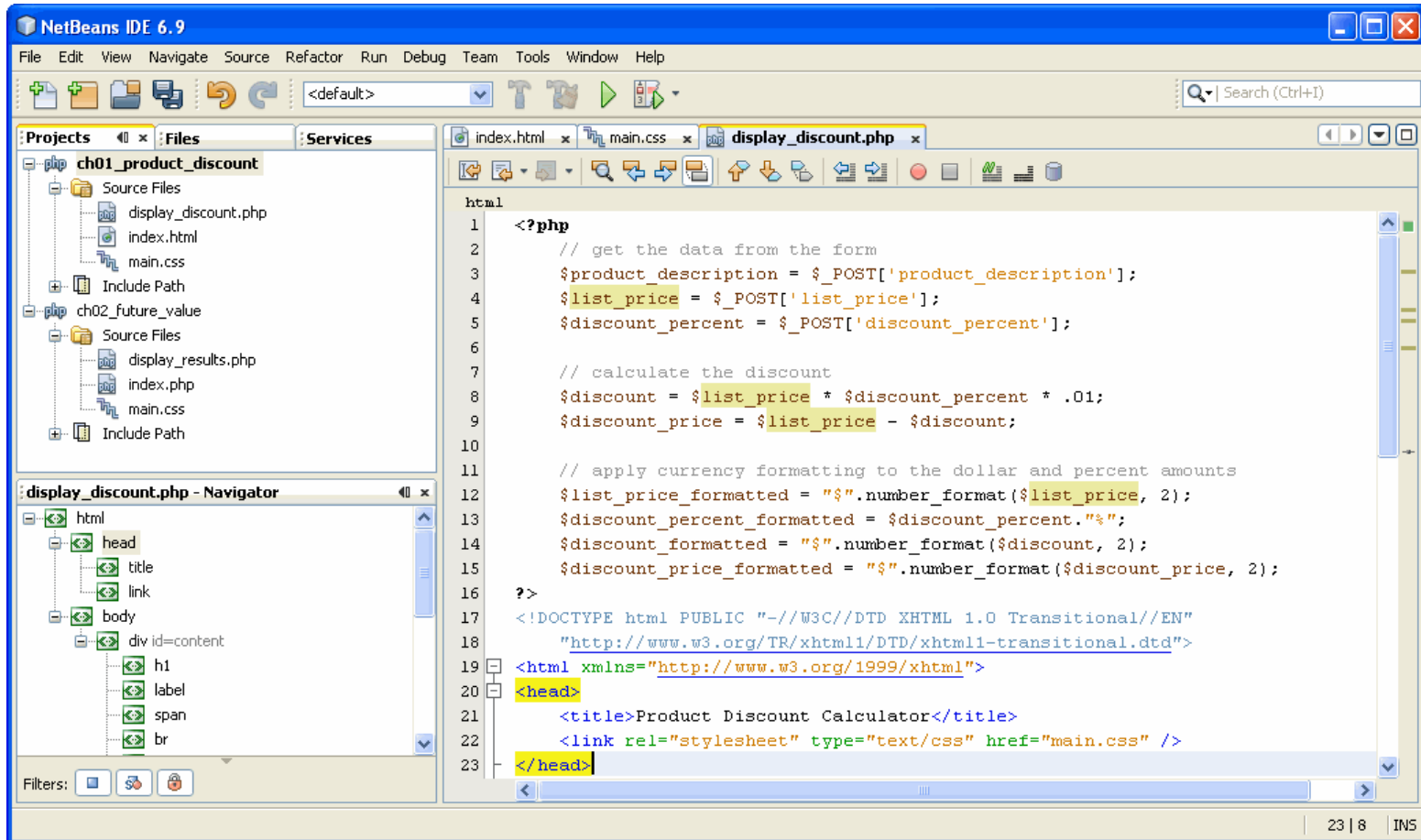
How to view the source code for a page in Firefox

- Use the View→Page Source command.

How to view the source code for a page in IE

- Use the View→Source command.

NetBeans with three files in the main project open



How to work with NetBeans projects

- To open a project, use the Open Project button in the toolbar.
- To start a new project, use the New Project button in the toolbar.
- To close a project, right-click on the project in the Projects tab and select the Close command from the resulting menu.
- To set the main project, right-click on the project in the Projects tab and select the Set As Main Project command from the resulting menu.

How to work with NetBeans files

- To open a file, use the Projects tab to navigate to the file and double-click the file.
- To start a new file, select the project and click the New File button in the toolbar.

About NetBeans

- NetBeans is an Integrated Development Environment (IDE) for developing PHP applications.
- NetBeans can make it easier to create, edit, and test the HTML, CSS, and PHP files that you need for a web application.

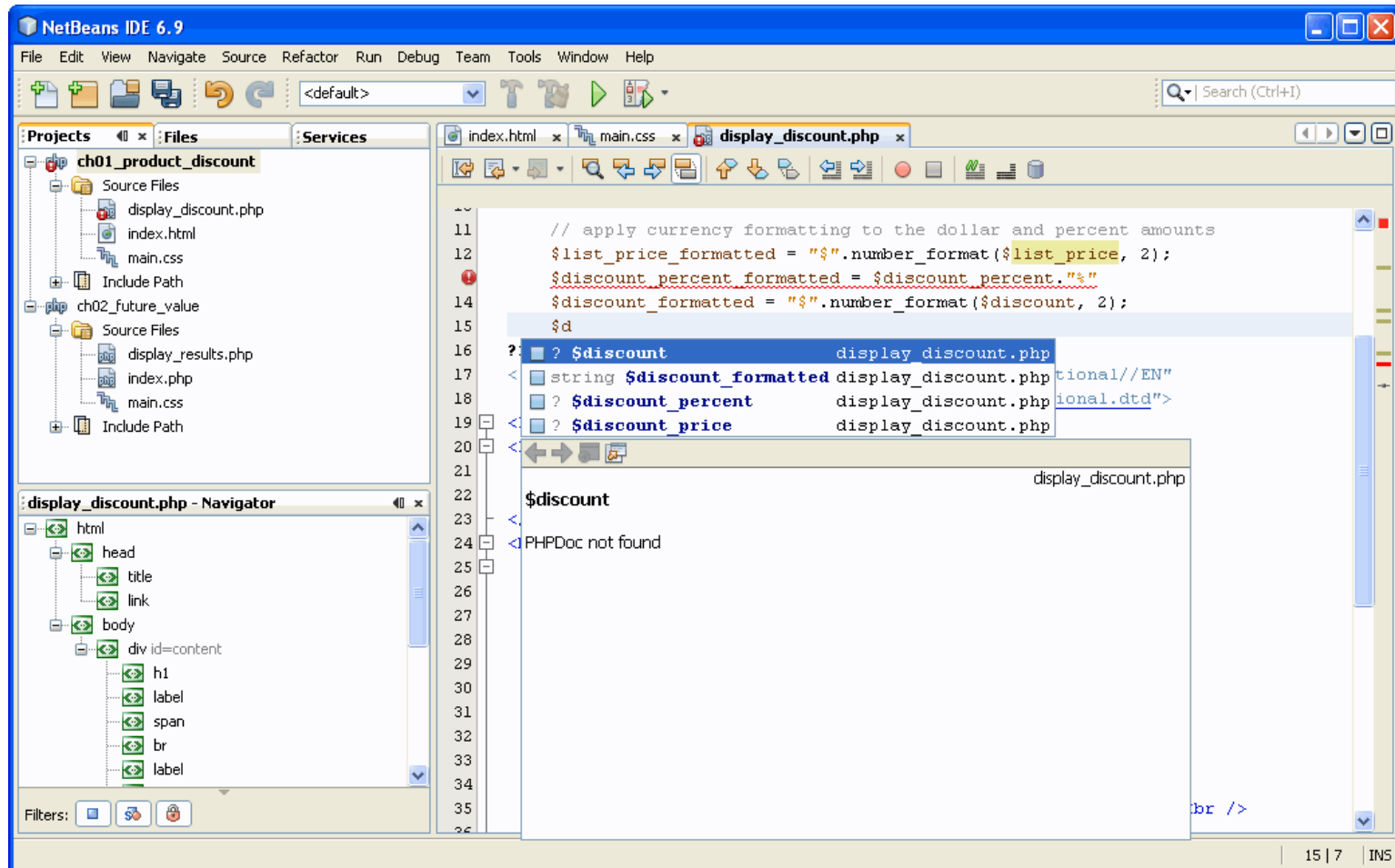
About NetBeans projects

- A NetBeans project consists of a top-level directory that contains the subdirectories and files for an application.
- When you create a NetBeans project, NetBeans adds an nbproject subdirectory that contains the extra files that NetBeans needs for managing the project.

Mac OS X note

- To enable right-clicking with Mac OS X, you can edit the system preferences for the mouse.

Auto-completion and error marking in NetBeans



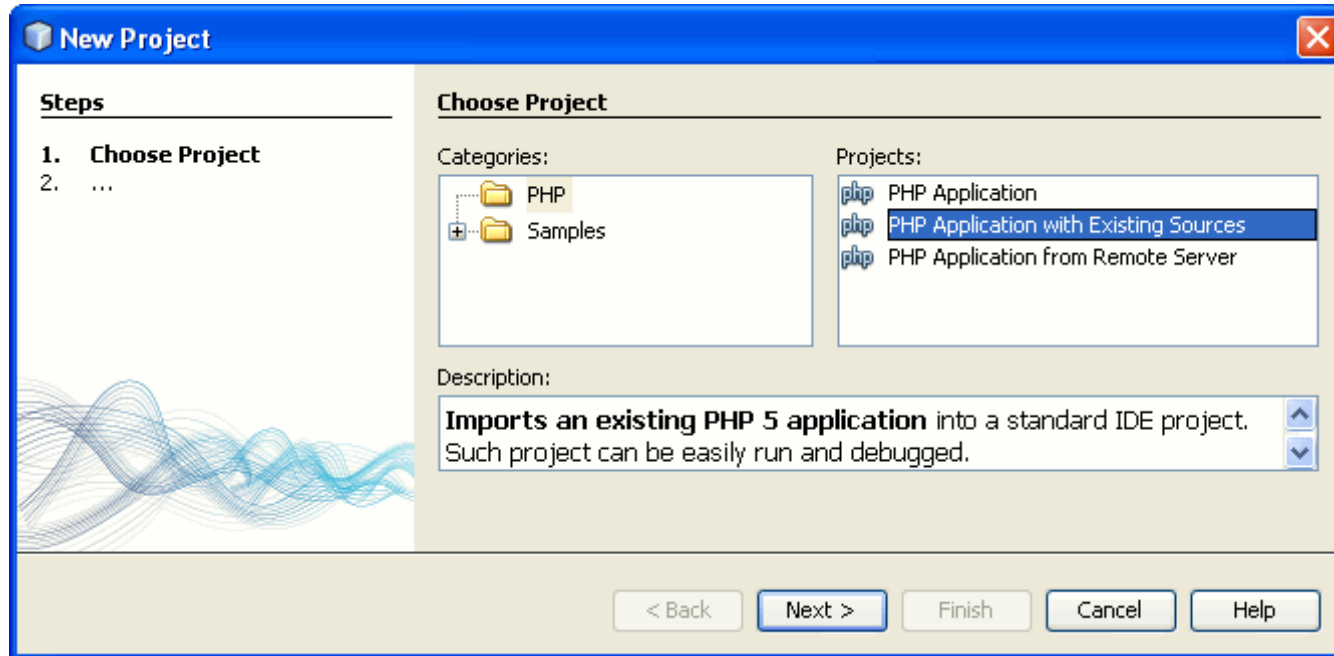
How to edit a PHP file with NetBeans

- Use normal editing techniques as you enter PHP code.
- When you see an auto-completion list, you can highlight an entry and press the Enter key to enter it into your code or you can double-click on it.
- If you see a red error icon at the start of a line that you have entered, you should fix whatever errors the line contains before you test the application.

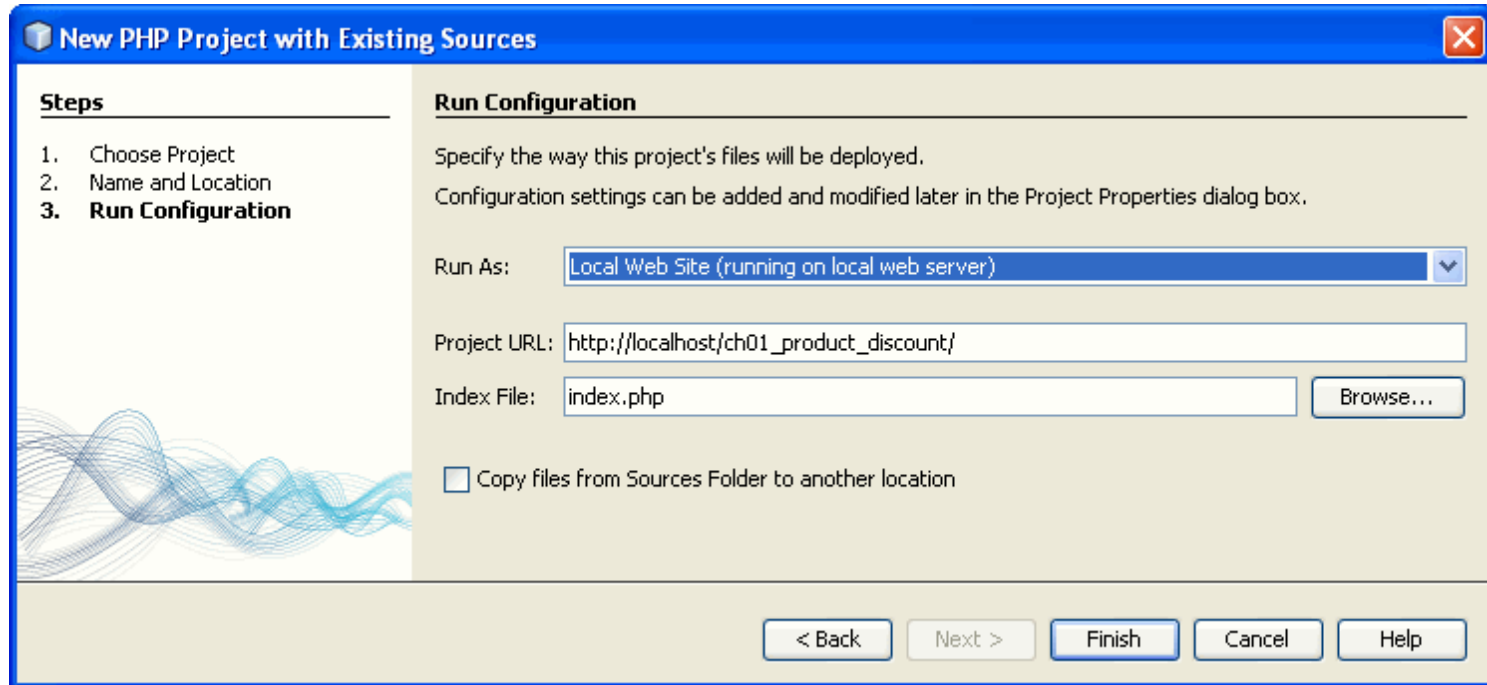
How to test a PHP application with NetBeans

- To run the main project, click on the Run Project button in the toolbar or press F6.
- To run other projects, right-click on the project and select the Run command.
- To run a file, right-click on the file and select the Run command.

The dialog box for starting a new project



The dialog box for configuring a project



How to check the run configuration for a project

- Right-click on a project in the Projects tab and select the Properties command.
- Then, click on Run Configuration in the Categories list and check the Project URL.

How to import a project

- Use the New Project command, but select PHP Application with Existing Sources in the Projects list.
- This will step you through the import procedure.
- In the third step, you are asked to check the run configuration. Here, you need to make sure the URL for running the project is correct.

Key terms

- HyperText Markup Language (HTML)
- static web page
- HTTP request
- HTTP response.
- dynamic web page
- PHP interpreter
- database server
- render
- round trip