

Web Programming

Chapter 2. PHP Variables and HTML Input Forms

Objectives

- ◆ To learn how to store and access data in PHP variables
- ◆ To understand how to create and manipulate numeric and string variables
- ◆ To review how to create HTML input forms
- ◆ To learn how to pass data from HTML forms to PHP scripts

Content

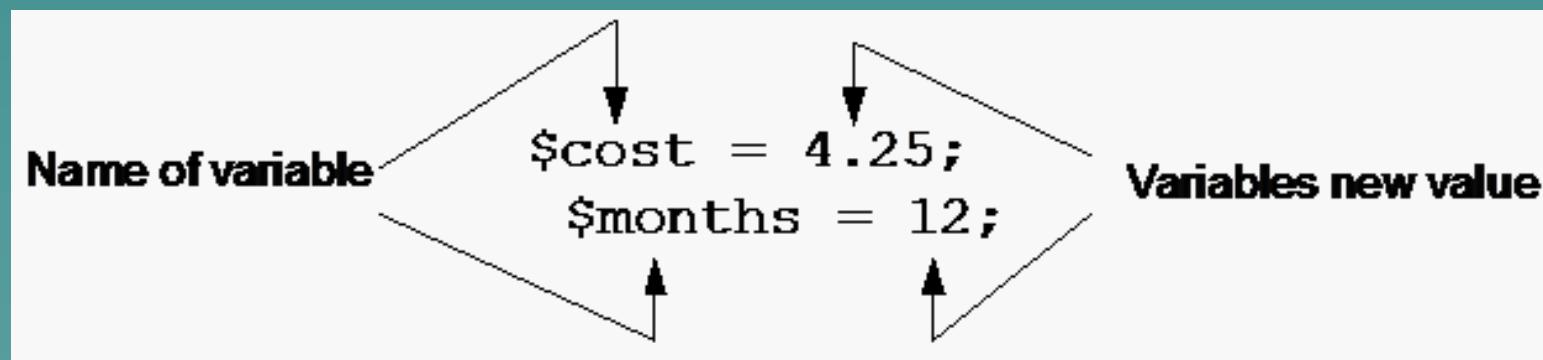
1. PHP Variables
2. Working with PHP String Variables
3. HTML Input Forms
4. HTML Input Forms and PHP Scripts

Content

- 1. PHP Variables
- 2. Working with PHP String Variables
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1. PHP Variables

- ◆ Variables are used to store and access data in computer memory.
- ◆ A variable name is a label used within a script to refer to the data.



1.1. Assigning New Values to Variables

- ◆ You can assign new values to variables:

```
$days = 3;
```

```
$newdays = 100;
```

```
$days = $newdays;
```

- ◆ At the end of these three lines, `$days` and `$newdays` both have values of 100.

Selecting Variable Names

- ◆ You can select just about any set of characters for a variable name in PHP, but they must:
 - Use a dollar sign (\$) as the first character
 - Use a letter or an underscore character (_) as the second character.
- ◆ Note: Try to select variable names that help describe their function. For example \$counter is more descriptive than \$c or \$ctr.

Combining Variables and the print Statement

- ◆ That is, to print out the value of \$x, write the following PHP statement:
 - `print ("$x");`
- ◆ The following code will output “Bryant is 6 years old”.

```
$age=6;  
print ("Bryant is $age years old.");
```

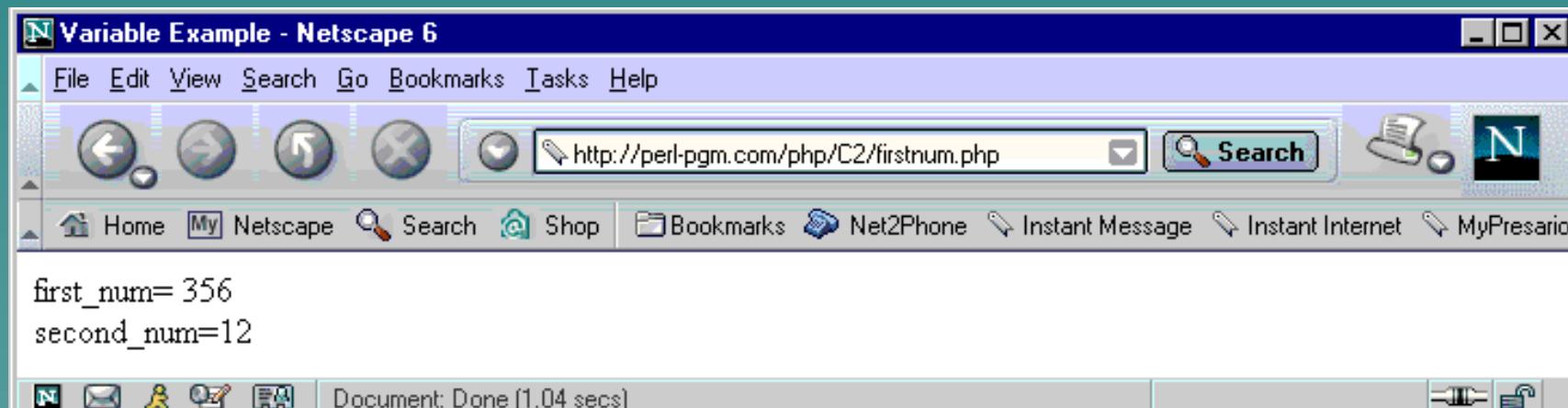
A Full Example ...

```
1. <html>
2.   <head> <title>Variable Example </title> </head>
3.   <body>
4.     <?php
5.       $first_num = 12;
6.       $second_num = 356;
7.       $temp = $first_num;
8.       $first_num = $second_num;
9.       $second_num = $temp;
10.      print ("first_num= $first_num <br>
11.                      second_num=$second_num");
    ?> </body> </html>
```

A Full Example ...

The previous code can be executed at

<http://webwizard.aw.com/~phppgm/C2/firstnum.php>



1.2. Using Arithmetic Operators

- ◆ You can use operators such as a plus sign (+) for addition and a minus sign (-) for subtraction to build mathematical expressions.
- ◆ For example

```
<?php  
$apples = 12;  
$oranges = 14;  
$total_fruit = $apples + $oranges;  
print ("The total number of fruit is $total_fruit");  
?>
```

- ◆ These PHP statements would output “The total number of fruit is 26.”

Common PHP Numeric Operators

Operator	Effect	Example	Result
+	Addition	<code>\$x = 2 + 2;</code>	\$x is assigned 4.
-	Subtraction	<code>\$y = 3; \$y = \$y - 1;</code>	\$y is assigned 2.
/	Division	<code>\$y = 14 / 2;</code>	\$y is assigned 7.
*	Multiplication	<code>\$z = 4; \$y = \$z * 4;</code>	\$y is assigned 16.
%	Remainder	<code>\$y = 14 % 3;</code>	\$y is assigned 2.

```
1. <html>
2. <head> <title>Variable Example </title> </head>
3. <body>
4. <?php
5. $columns = 20;
6. $rows = 12;
7. $total_seats = $rows * $columns;
8.
9. $ticket_cost = 3.75;
10. $total_revenue = $total_seats * $ticket_cost;
11.
12. $building_cost = 300;
13. $profit = $total_revenue - $building_cost;
14.
15. print ("Total Seats are $total_seats <br>");  

16. print ("Total Revenue is $total_revenue <br>");  

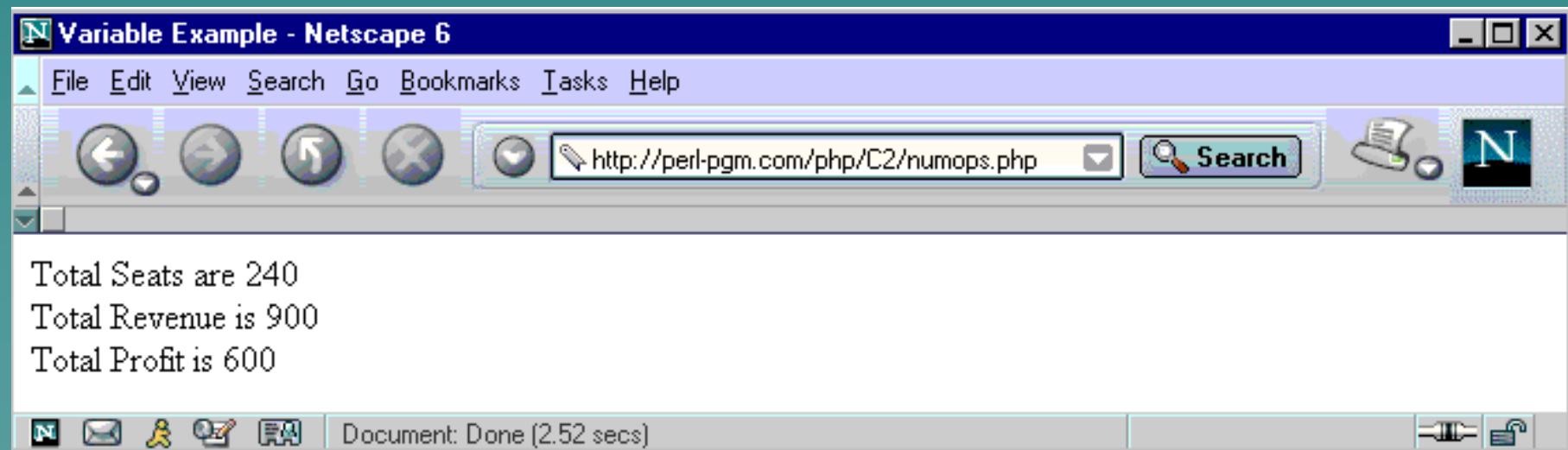
17. print ("Total Profit is $profit");
18. ?> </body> </html>
```

A Full Example

A Full Example ...

The previous code can be executed at

<http://webwizard.aw.com/~phppgm/C2/numops.php>



WARNING: Using Variables with Undefined Values

A variable that does not have a value assigned to it will have no value (called a null value).

When a variable with a null value is used in an expression PHP, PHP may *not* generate an error and may complete the expression evaluation.

```
<?php  
$y = 3;  
$y=$y + $x + 1; // $x has a null value  
print ("x=$x y=$y");  
?>
```

Output x= y=4

1.3. Writing Complex Expressions

- ◆ *Operator precedence rules* define the order in which the operators are evaluated. For example,

`$x = 5 + 2 * 6;`

- ◆ The value of `$x` is either 42 or 17 depending on order of evaluation.
- ◆ Since multiplication evaluated before addition operations, this expression evaluates to 17.

PHP Precedence Rules

- ◆ PHP follows the precedence rules listed below.
 - First it evaluates operators within parentheses.
 - Next it evaluates multiplication and division operators.
 - Finally it evaluates addition and subtraction operators.

PHP Precedence Rules

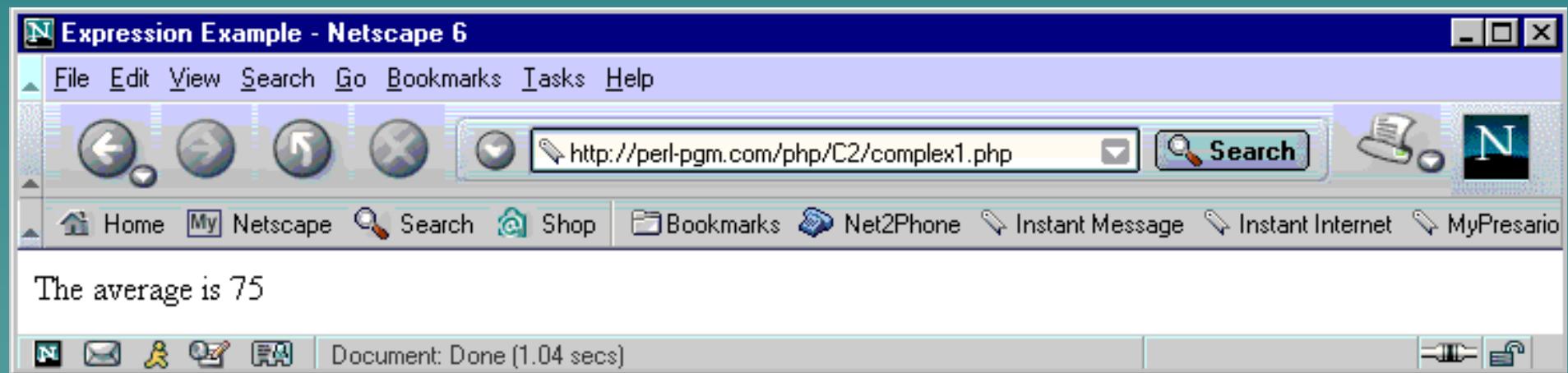
- ◆ For example, the first 2 statements evaluate to 80 while the last to 180.

```
-$x = 100 - 10 * 2;  
-$y = 100 - (10 * 2);  
-$z = (100 - 10) * 2;
```

A Full Example

```
1. <html>
2. <head> <title>Expression Example </title> </head>
3. <body>
4. <?php
5. $grade1 = 50;
6. $grade2 = 100;
7. $grade3 = 75;
8. $average = ($grade1 + $grade2 + $grade3) / 3;
9. print ("The average is $average");
10. ?> </body> </html>
```

A Full Example ...



Content

- 1. PHP Variables
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2. Working with PHP String Variables

- ◆ Character strings are used in scripts to hold data such as customer names, addresses, product names, and descriptions.
- ◆ Consider the following example.
 - `$name="Christopher";`
 - `$preference="Milk Shake";`
- ◆ `$name` is assigned “Christopher” and the variable `$preference` is assigned “Milk Shake”.

WARNING: Be Careful Not to Mix Variable Types

- ◆ Be careful not to mix string and numeric variable types.

```
<?php  
    $x = "banana";  
    $sum = 1 + $x;  
    print ("y=$sum");  
?>
```

- You might expect the following statements to generate an error message
- But they will output “y=1”.

Using the Concatenate Operator

- ◆ The concatenate operator combines two separate string variables into one.
- ◆ For example,
 - `$fullname = $firstname . $lastname;`
- ◆ `$fullname` will receive the string values of `$firstname` and `$lastname` connected together.
- ◆ For example,

```
$firstname = "John";  
$lastname = "Smith";  
$fullname = $firstname . $lastname;  
print ("Fullname=$fullname");
```

TIP: An Easier Way to Concatenate Strings

- ◆ You can also use double quotation marks to create concatenation directly,
- ◆ For example,
 - `$fullname2 = "$FirstName $LastName";`
 - This statement has the same effect as
 - `$fullname2 = $FirstName . " " . $LastName;`

The strlen() Function

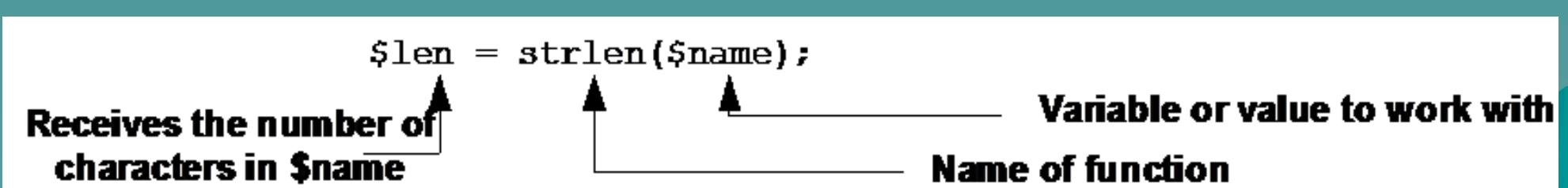
- ◆ Most string functions require you to send them one or more arguments.
- ◆ Arguments are input values that functions use in the processing they do.
- ◆ Often functions return a value to the script based on the input arguments. For example

```
$len = strlen($name);
```

Receives the number of characters in \$name

Variable or value to work with

Name of function



The strlen() Function Example

```
<?php  
    $comments = "Good Job";  
    $len = strlen($comments);  
    print ("Length=$len");  
?  
?
```

This PHP script would output “Length=8”.

The trim() Function

- ◆ This function removes any blank characters from the beginning and end of a string. For example, consider the following script:

```
<?php  
    $in_name = " Joe Jackson " ;  
    $name = trim($in_name) ;  
    print ("name=$name$name") ;  
?>
```

The `strtolower()` and `strtoupper()` Functions

- ◆ These functions return the input string in all uppercase or all lowercase letters, respectively.
- ◆ For example,

```
<?php  
    $inquote = "Now Is The Time";  
    $lower = strtolower($inquote);  
    $upper = strtoupper($inquote);  
    print ("upper=$upper lower=$lower");  
?>
```

- ◆ The above would output “upper=NOW IS THE TIME
lower=now is the time”.

The substr() Function

- Substr has the following general format:

```
$part = substr( $name, 0, 5);
```

Assign the extracted sub-string into this variable.

Extract from this string variable.

Starting position to start extraction from.

Number of characters to extract. (If omitted it will continue to extract until the end of the string.)

The substr() Function

- ◆ The substr() function enumerates character positions starting with 0 (not 1)
 - For example, in the string “Homer”, the “H” would be position 0, the “o” would be position 1, the “m” position 2, and so on
- ◆ For example, the following would output “Month=12 Day=25”.

```
<?php  
    $date = "12/25/2002";  
    $month = substr($date, 0, 2);  
    $day = substr($date, 3, 2);  
    print ("Month=$month Day=$day");  
?>
```

The substr() Function

- ◆ As another example, consider the following use of the substr() function
 - It does not include the third argument (and thus returns a substring from the starting position to the end of the search string)

```
<?php  
    $date = "12/25/2002";  
    $year = substr($date, 6);  
    print ("Year=$year");  
?>
```

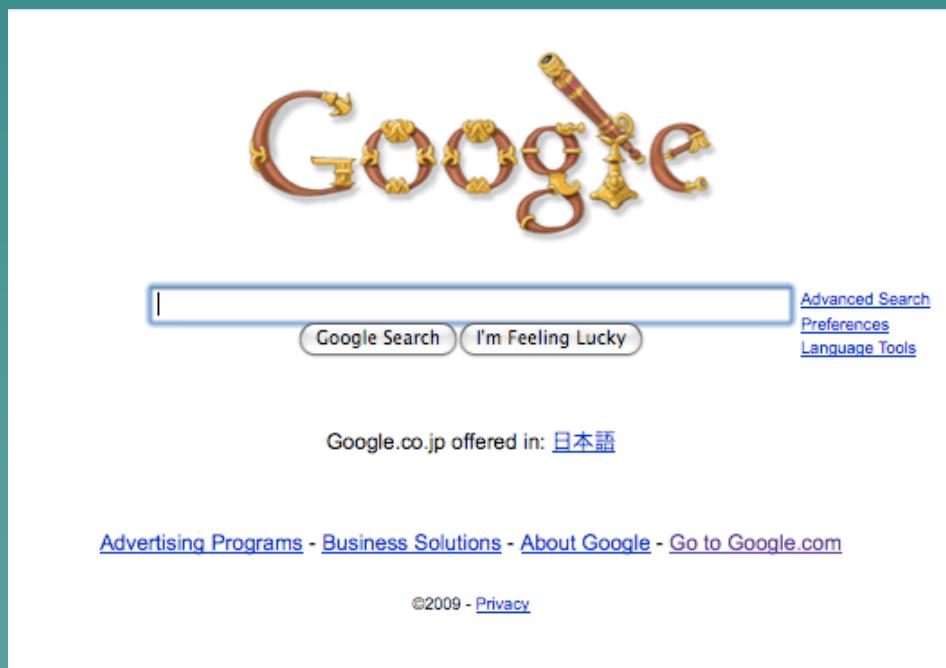
- ◆ → Output “Year=2002”

Content

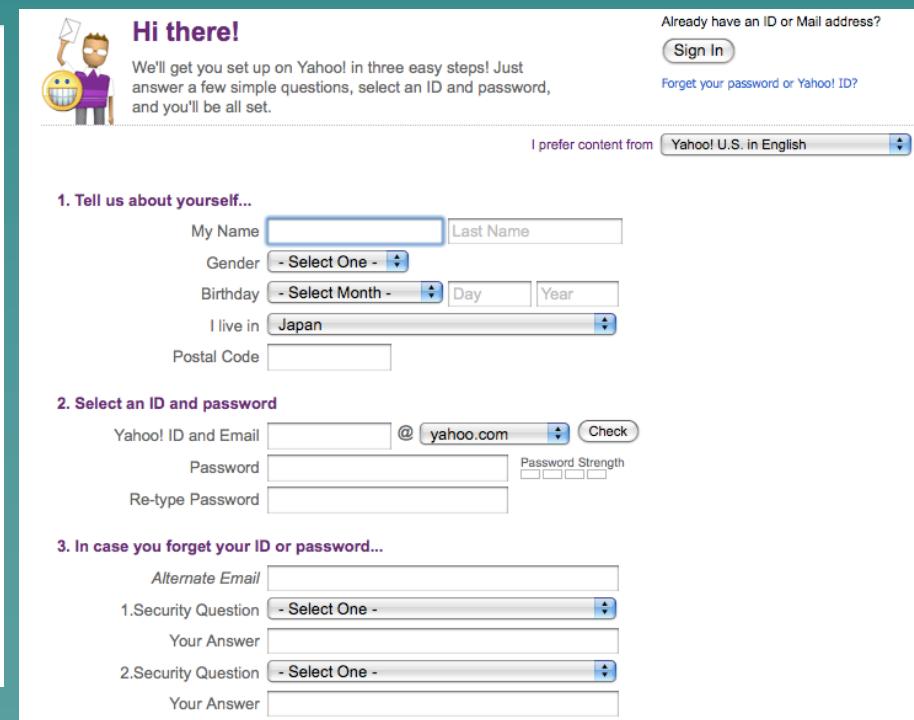
1. PHP Variables
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3. HTML Input Forms

- ◆ Controls for User Interaction in HTML
 - To enter information and submit to a server



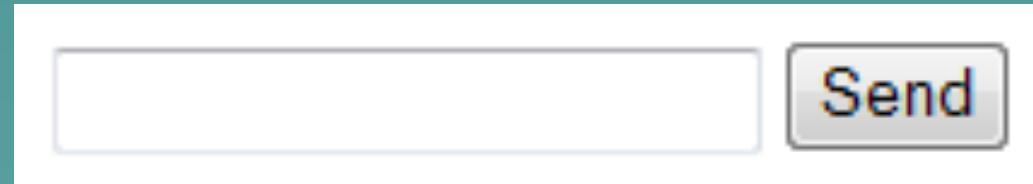
The image shows the Google search homepage. At the top is the iconic "Google" logo. Below it is a search bar with a blue outline. Underneath the search bar are two buttons: "Google Search" and "I'm Feeling Lucky". To the right of the search bar are links for "Advanced Search", "Preferences", and "Language Tools". Further down, there's a note about Google being offered in Japanese ("Google.co.jp offered in: 日本語"). At the bottom of the page are links for "Advertising Programs", "Business Solutions", "About Google", and "Go to Google.com". A copyright notice at the very bottom reads "©2009 - Privacy".



The image shows a Yahoo! sign-up or account setup page. At the top, there's a greeting "Hi there!" with a cartoon character icon. To the right are links for "Sign In", "Forgot your password or Yahoo! ID?", and a dropdown menu for "I prefer content from" set to "Yahoo! U.S. in English".
1. Tell us about yourself...
My Name: Last Name:
Gender: Birthday: Day: Year:
I live in: Postal Code:
2. Select an ID and password
Yahoo! ID and Email: @ Password: Password Strength:
Re-type Password:
3. In case you forget your ID or password...
Alternate Email:
1. Security Question: Your Answer:
2. Security Question: Your Answer:

3. HTML Input Forms - Example

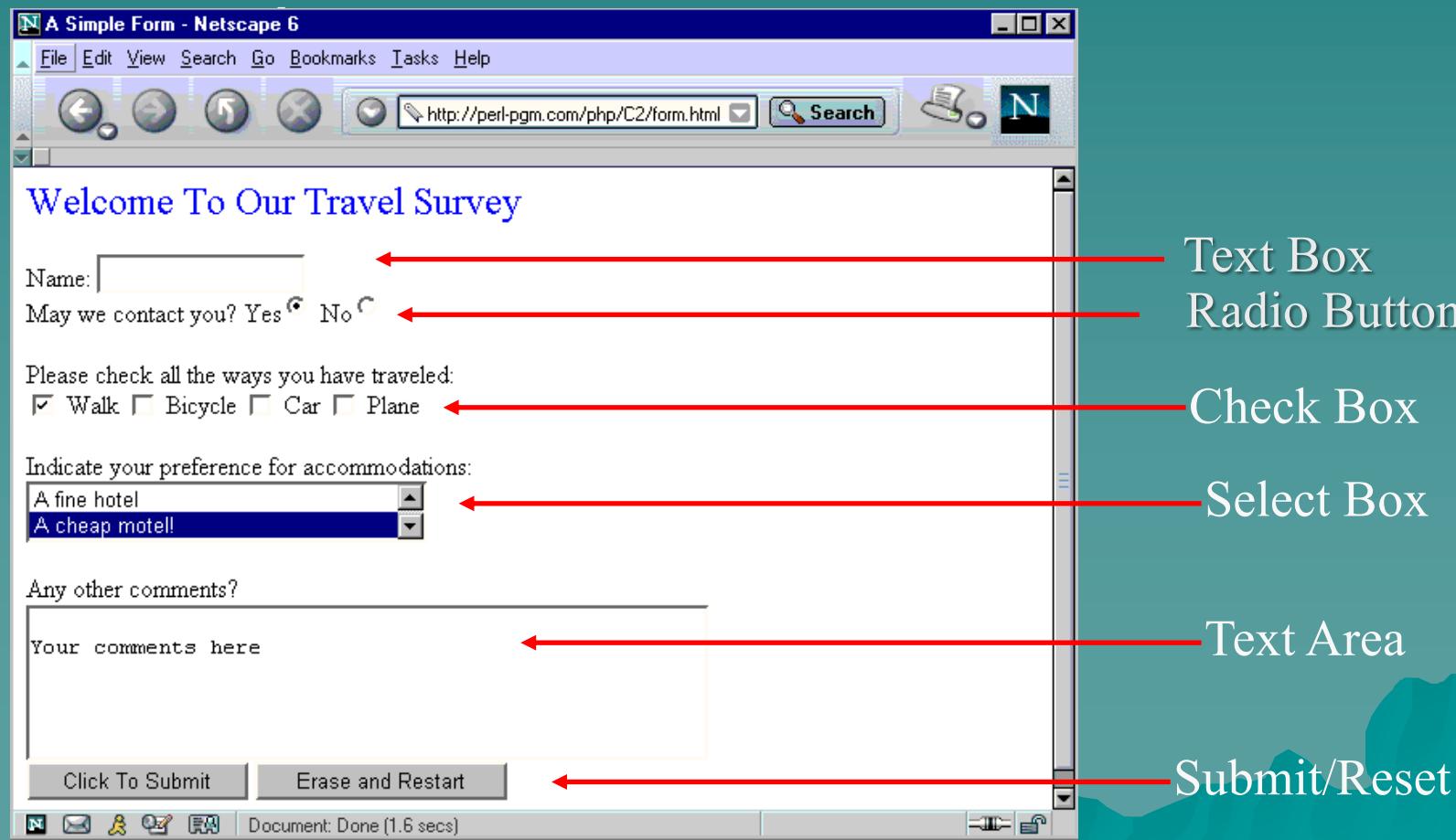
```
<form action="/test.php"  
      method="POST">  
  
<p><input type="text"  
        name="username">  
  
<input type="submit" value="Send"  
      ></p>  
  
</form>
```



A screenshot of a web browser displaying a simple HTML form. The form consists of a text input field and a submit button. A large green arrow points downwards from the word "Send" in the code to the submit button in the screenshot.

3. HTML Input Forms

- ◆ HTML Input Forms and not part of PHP language but important way to send data



3.1. Starting And Ending HTML Forms

- ◆ You can create HTML forms by using the HTML <form> and </form> tags

Program to start when form is submitted.

```
<form action="http://webwizard.aw.com/~phppgm/program.php"
      method="post">
```

Format to send data.

-
-
-

Place form elements between <form> and </form> tags.

```
</form>
```

Forms end with </form>

HTML Form

- ◆ **action attribute**

- URI Reference where you want to send data

- ◆ **method attribute**

- Data transfer method

- ◆ **GET**

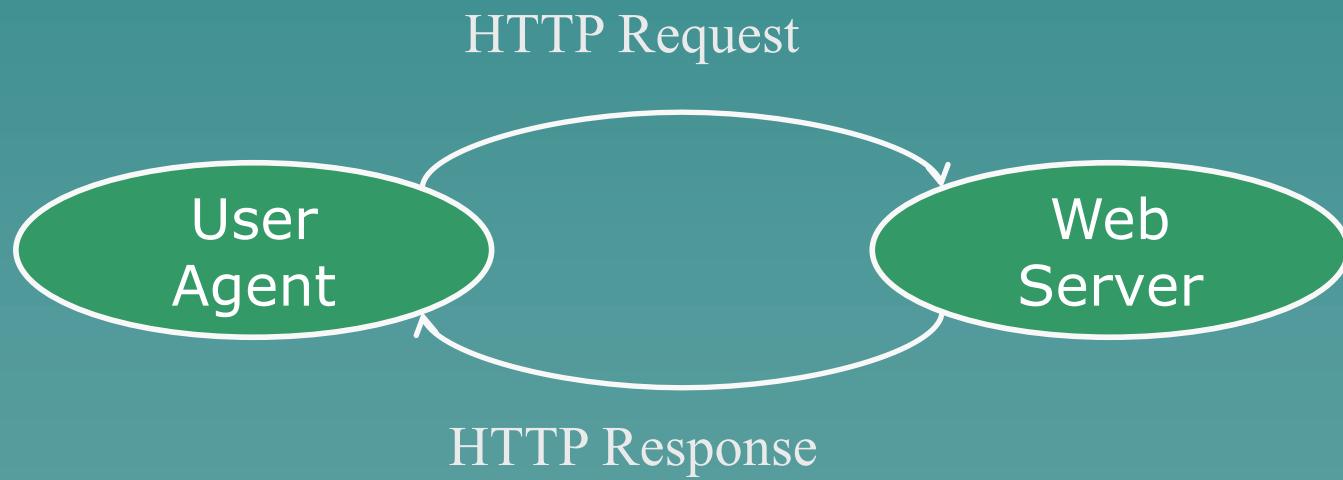
- Send data in the query part of the URI

- ◆ **POST**

- Send data in the body of the submission

Review: Client Server Model (Web)

- ◆ Client: User Agent
- ◆ Server: Web server



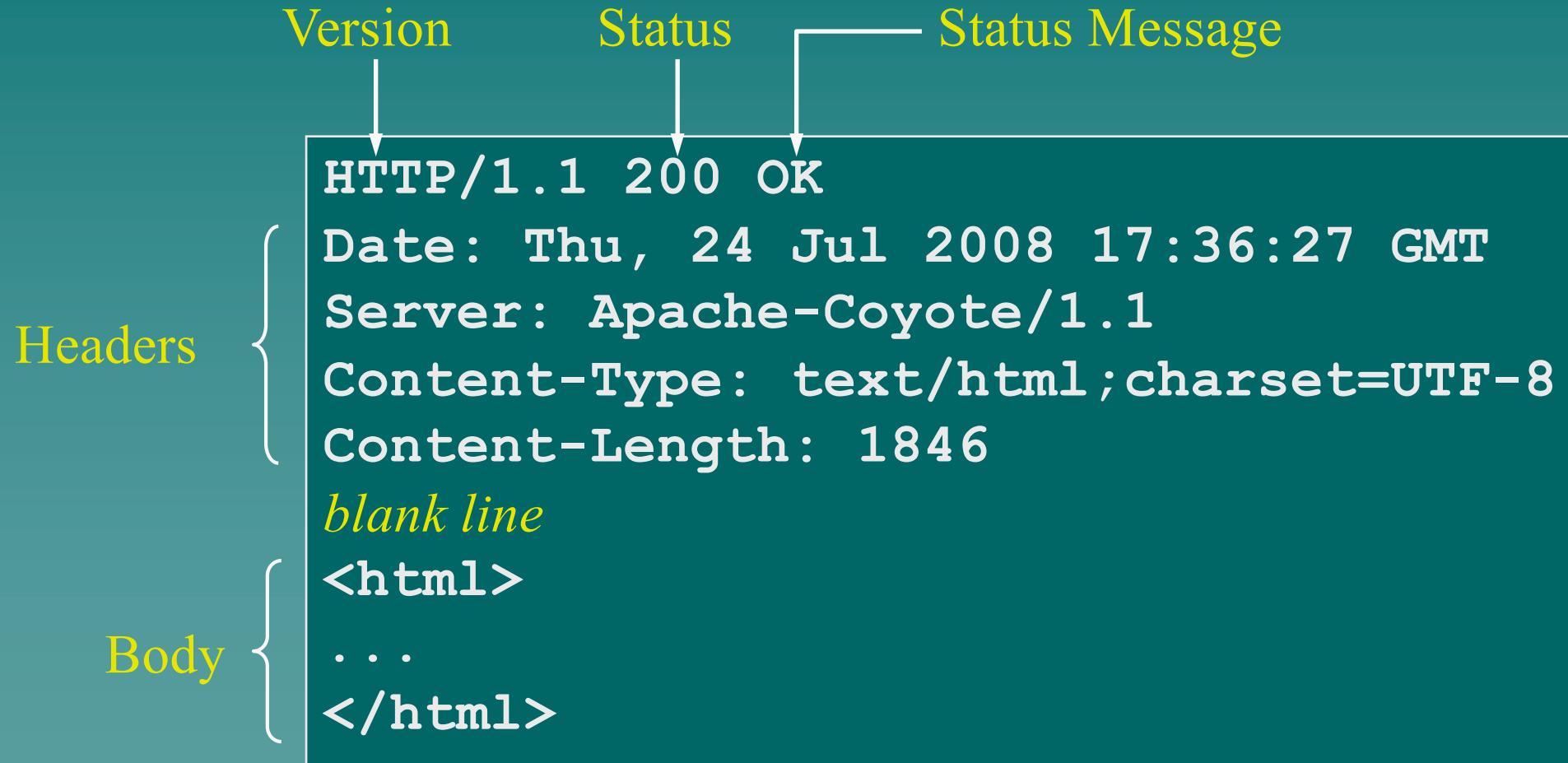
HTTP Request

Method	URL	Protocol Version
GET	/index.html	HTTP/1.1
Host: www.example.com		
User-Agent: Mozilla/5.0		
Accept: text/html, */*		
Accept-Language: en-us		
Accept-Charset: ISO-8859-1,utf-8		
Connection: keep-alive		
<i>blank line</i>		

Headers {

Body (optional) {

HTTP Response



3.2. Creating Form Buttons

- ◆ You can create submit and reset buttons by placing the following within <form> & </form> tags

```
<input type="submit" value="Click To Submit">  
<input type="reset"   value="Erase and Restart">
```

Type of
button to create

Button Label

- ◆ The submit button will be labeled “Click To Submit”. The reset button will be labeled “Erase and Restart”.

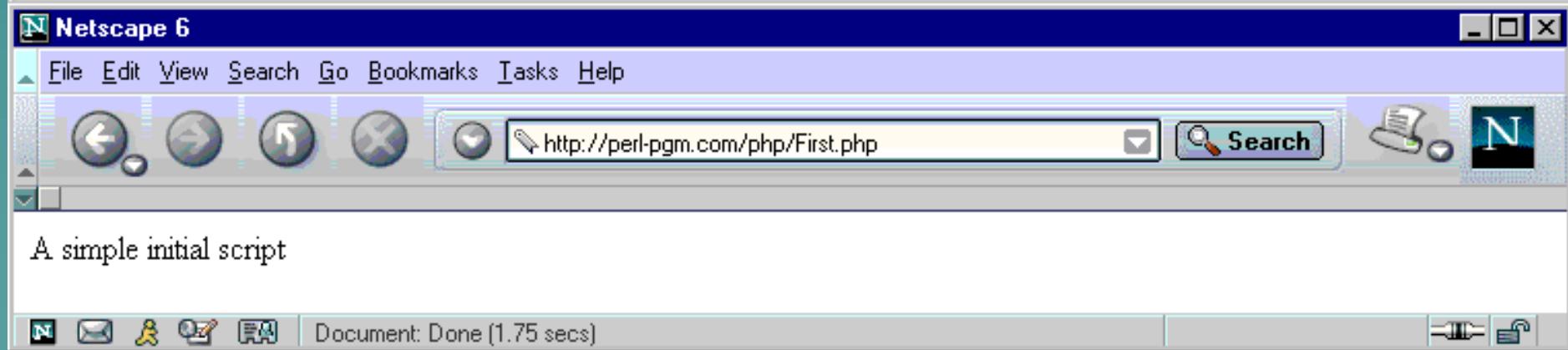
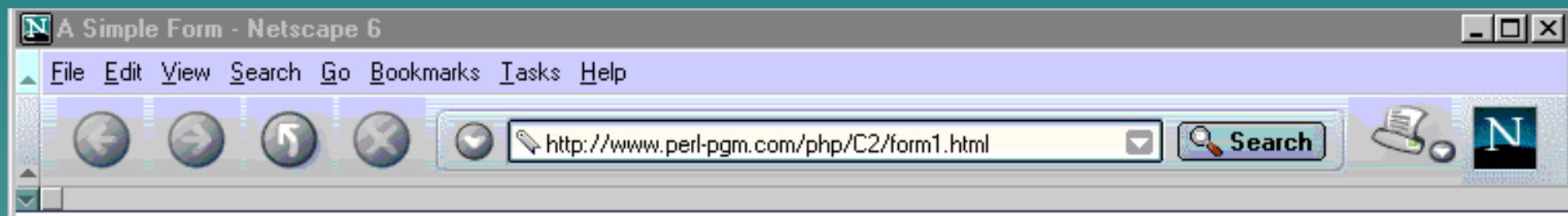
Another Full Script Example

```
1.<html>
2.<head> <title> A Simple Form </title> </head>
3.<body>
4.<form action="First.php" method="post" >
5. Click submit to start our initial PHP program.
6. <br> <input type="submit" value="Click To Submit">
7. <input type="reset" value="Erase and Restart">
8. </form>
9. </body> </html>
```

A Full Example ...

The previous code can be executed at

<http://webwizard.aw.com/~phppgm/C2/form1.html>



3.3. Creating Text Input Boxes

- ◆ Text input boxes create a form element for receiving a single line of text input.

Name: <input type="text" size="15" maxlength="20" name="fname">

Create a text box. **The width of text box.** **Maximum number of input characters**

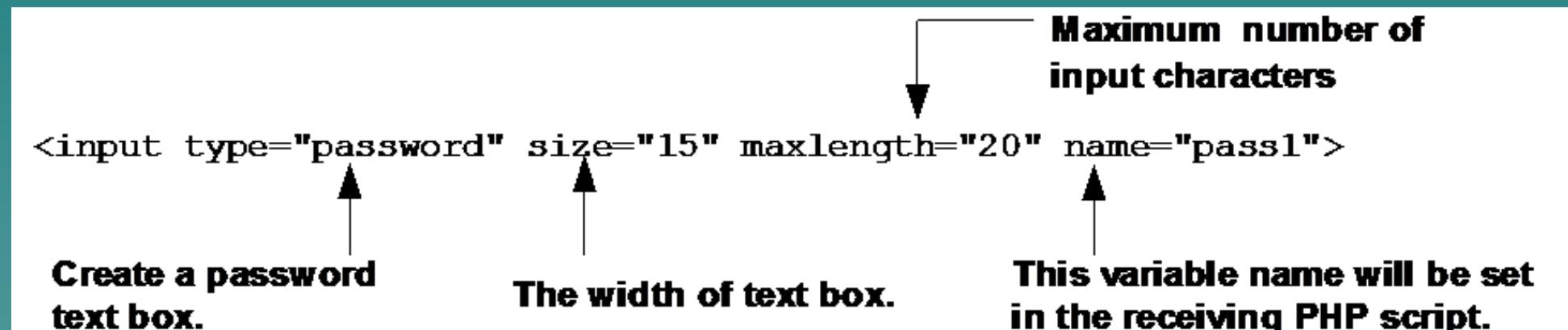
Use this name to identify the form element in the receiving program.

This diagram illustrates the HTML code for creating a text input box. The code is: Name: <input type="text" size="15" maxlength="20" name="fname">. Three annotations with arrows point to specific parts of the code: 'Create a text box.' points to the opening tag <input>; 'The width of text box.' points to the 'size="15"' attribute; and 'Use this name to identify the form element in the receiving program.' points to the 'name="fname"' attribute.

- ◆ Will be 15 characters wide accepting a maximum of 20 characters. Will set a variable named **fname** with value of whatever the end-user enter.

3.4. Creating Password Boxes

- ◆ Password boxes similar to text boxes except asterisks are displayed (instead of text input).



- ◆ Will be 15 characters wide accepting a maximum of 20 characters. Will set a variable named `pass1` with value of whatever the end-user enter.

Warning: Password Boxes Not Secure

- ◆ When the user submits the form, any data input is sent in clear text (nonencrypted) just like any other HTML form field.
- ◆ Someone with network access could, therefore, read the password being transferred.
- ◆ For this reason, most Web applications do not use this approach to receive and transmit passwords.

3.5. Creating Text Areas

- ◆ The following creates a text area containing 4 rows and 50 columns.

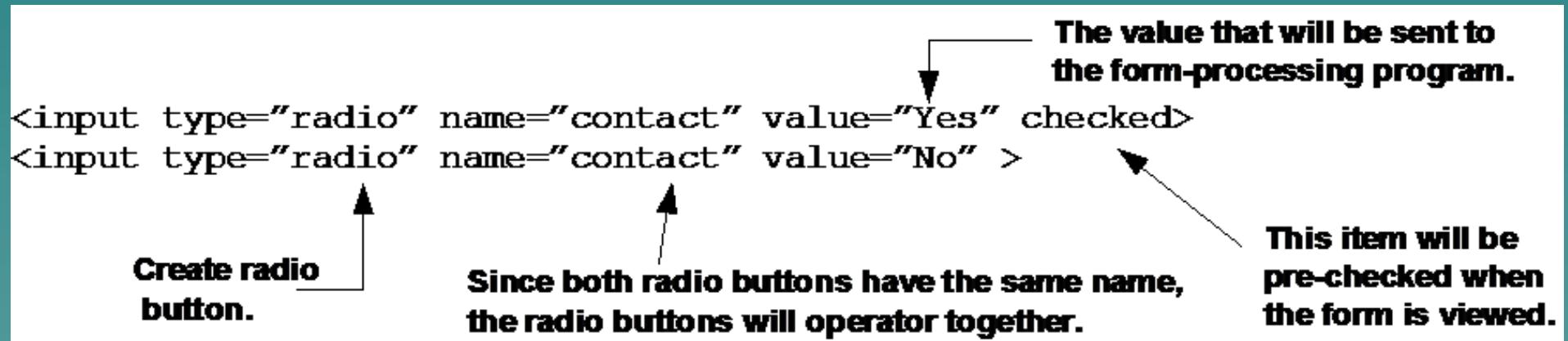
The diagram illustrates the creation of a text area using HTML code. A callout box points to the 'rows' attribute with the text 'Number of rows'. Another callout box points to the 'cols' attribute with the text 'Number of columns.'. A third callout box points to the text 'Your comments here' within the `</textarea>` tags with the text 'Text areas have closing tags.' A fourth callout box points to the text 'Any text here will appear as default text in text area.' with the text 'Any text here will appear as default text in text area.'

```
<textarea rows="4" cols="50" name="Comments">  
Your comments here</textarea>
```

- ◆ The words “Your comments here” are the default text. The variable name Comments will be available to the form-handling script.

3.6. Creating Radio Buttons

- ◆ Radio buttons are small circles that can select by clicking them with a mouse. Only one within a group can be selected at once.



- ◆ The name argument must be the same for all radio buttons operating together. The value argument sets the variable value that will be available to the form-processing script.

3.7. Creating Check Boxes

- ◆ Check boxes are small boxes on a form that create a check mark when the user clicks them.

```
<input type="checkbox" name="walk" value="Yes" checked> Walk  
<input type="checkbox" name="Bicycle" value="Yes"> Bicycle  
<input type="checkbox" name="Car" value="Yes"> Car  
<input type="checkbox" name="Plane" value="Yes"> Plane
```

This item will be pre-checked when the form is viewed.

Create checkbox

Each check box sets a different variable name when selected.

The value that will be sent to the form-processing program.

- ◆ The above create four independent check boxes; that is, all four check box elements can be selected and each will set a value for a different variable name.

3.7. Creating Check Boxes (2)

- ◆ Might want to create a set of check boxes that use the same name argument.

```
<input type="checkbox" name="travel" value="Car" checked> Car?  
<input type="checkbox" name="travel" value="Bike"> Bicycle?  
<input type="checkbox" name="travel" value="Horse"> Horse?  
<input type="checkbox" name="travel" value="None"> None of the above?
```

Create
checkbox

Since each checkbox element has the same name,
multiple values can be set for the same variable name.

This item will be pre-checked
when form is viewed.

The value that will be sent to
the form-processing program.

- ◆ The value received by the form-processing script would be a comma-separated list of all items checked.

3.8. Creating Selection Lists

- Creates a box with a scrolling list of one or more items that user can highlight and select.

```
variable name set in  
the receiving script      Viewable window  
size                      Allows end-user to  
                           select multiple items.  
  
<select name="Accommodations" size=2 multiple>  
  <option> A fine hotel </option>  
  <option selected> A cheap motel! </option>  
  <option> A tent in the parking lot </option>  
  <option> Just give me a sleeping bag checked </option>  
</select>
```

This text is displayed as an option and the entire text will be returned as the variable's value if selected.

- This HTML code creates 4 options formatted in a scrolling list
 - Only two of these options are displayed at the same time, and the user can select more than one option.
 - Multiple selections are sent to the form-processing script as a comma-separated list.

Content

1. PHP Variables
2. Working with PHP String Variables
3. HTML Input Forms
4. HTML Input Forms and PHP Scripts

Receiving Form Input into PHP Scripts

- ◆ To receive HTML form input into a PHP script:
 - Use a PHP var name that matches the variable defined in the form element's **name** argument.
- ◆ E.g., if form uses the following:
 - `<input type="radio" name="contact" value="Yes">`
- ◆ Then form-handling PHP script could use a variable called \$contact.
 - If the user clicks the radio button, then \$contact would = Yes

Full Example

- ◆ Suppose your HTML form uses the following

```
<form action="PrRadio.php" method="post">  
Enter email address:  
<input type="text" size="16" maxlength="20" name="email">  
May we contact you?  
  <input type="radio" name="contact" value="Yes" checked>  
  <input type="radio" name="contact" value="No">  
  <input type="submit" value="Click To Submit">  
  <input type="reset" value="Erase and Restart">  
</form>
```

- ◆ Then in the *PrRadio.php* as follows

4. Thank You: Got Your Input.
5. <?php
6. print ("
Your email address is \$email");
7. print ("
 Contact preference is \$contact");
8. ?>

A Full Example ...

The previous code can be executed at

<http://webwizard.aw.com/~phppgm/C2/Form4Radio.html>

The image displays two side-by-side screenshots of a web browser window titled "A Simple Form - Netscape 6".

Screenshot 1 (Top): The title bar says "A Simple Form - Netscape 6". The menu bar includes File, Edit, View, Search, Go, Bookmarks, Tasks, and Help. The toolbar has standard icons for Back, Forward, Stop, Home, and Search. The address bar shows the URL "http://perl-pgm.com/php/C2/Form4Radio.html". The main content area contains the following text:

Contact Information

Enter email address:

May we contact you? Yes No

Buttons at the bottom: Click To Submit and Erase and Restart.

Screenshot 2 (Bottom): The title bar says "Receiving Input - Netscape 6". The menu bar and toolbar are identical. The address bar shows the URL "http://perl-pgm.com/php/C2/PrRadio.php". The main content area displays the following message:

Thank You: Got Your Input.

Your email address is dlash@mymail.com

Contact preference is Yes

At the bottom, there are icons for Mail, Home, Stop, and Refresh, and the status bar says "Document: Done (1.37 secs)".

Register_Globals?

- ◆ Since PHP 4.2.1, the default PHP configuration is require a different mechanism to receive input for security reasons (than the one just shown).
 - Technical details: it is a PHP configuration option to turn REGISTER_GLOBALS OFF (new default) or ON in the php.ini configuration file.
- ◆ If your site has REGISTER_GLOBALS OFF you must use a different mechanism to receive HTML Form Variables.

How can you tell if Register_Globals is OFF?

- ◆ Enter the following PHP script and run it.
 - <?php phpinfo(); ?>
- ◆ Search through the output for REGISTER_GLOBALS and see if it is set to OFF or ON.
- ◆ If it is off you must use the following way to receive input data.

Getting input data with Register_Globals OFF?

- ◆ To receive data with REGISTER_GOBALS OFF you use a special variable called `$_POST`.

```
$name=$_POST["name"];
```

Enclose in square bracket and then quotes

Name of HTML form variable (note do not use \$)

Special PHP Global variable. Technically it is an *associative array* (covered in chapter 4)

PHP variable name that you want to receive the HTML form input.

Full Example, when REGISTER_GLOBALS is OFF

- ◆ Suppose your HTML form uses the following
 - Enter email address: <input type="text" size="16" maxlength="20" name="email">
- ◆ Then can receive input as follows

```
1. <html>
2.   <head><title> Receiving Input </title> </head>
3.   <body>
4.     <font size=5>Thank You: Got Your Input.</font>
5.     <?php
6.       $email = $_POST["email"];
7.       $contact = $_POST["contact"];
8.       print ("<br>Your email address is $email");
9.       print ("<br> Contact preference is $contact");
10.      ?>
```

A Full Example ...

The previous code can be executed at

http://webwizard.aw.com/~phppgm/C2/Form4Radio_NG.html

The image displays two side-by-side screenshots of the Netscape 6 web browser. The top window, titled "A Simple Form - Netscape 6", shows a form with the title "Contact Information". It contains a text input field with the value "dlash@mymail.com" and a radio button group labeled "May we contact you? Yes No ". Below the form are two buttons: "Click To Submit" and "Erase and Restart". The bottom window, titled "Receiving Input - Netscape 6", shows the results of the submission. It displays the message "Thank You: Got Your Input." followed by the submitted email address "Your email address is dlash@mymail.com" and the selected contact preference "Contact preference is Yes". Both windows have standard browser toolbars and status bars.

Question?

