Introduction to HTML and JavaScript

HTML Pages

- Web pages are referred to as HTML pages or documents. A markup language is a set of characters or symbols that defines a document's logical structure that specifies how a document should be printed or displayed.

- HTML documents are text documents that contain formatting instructions, called tags, which determine how data is displayed on a Web page.

- A **tag** pair and any data (or **content**) it contains are referred to as an element.

- Some elements do not require a closing tag. They are called **empty elements.**

Basic HTML Tags and Their Functions

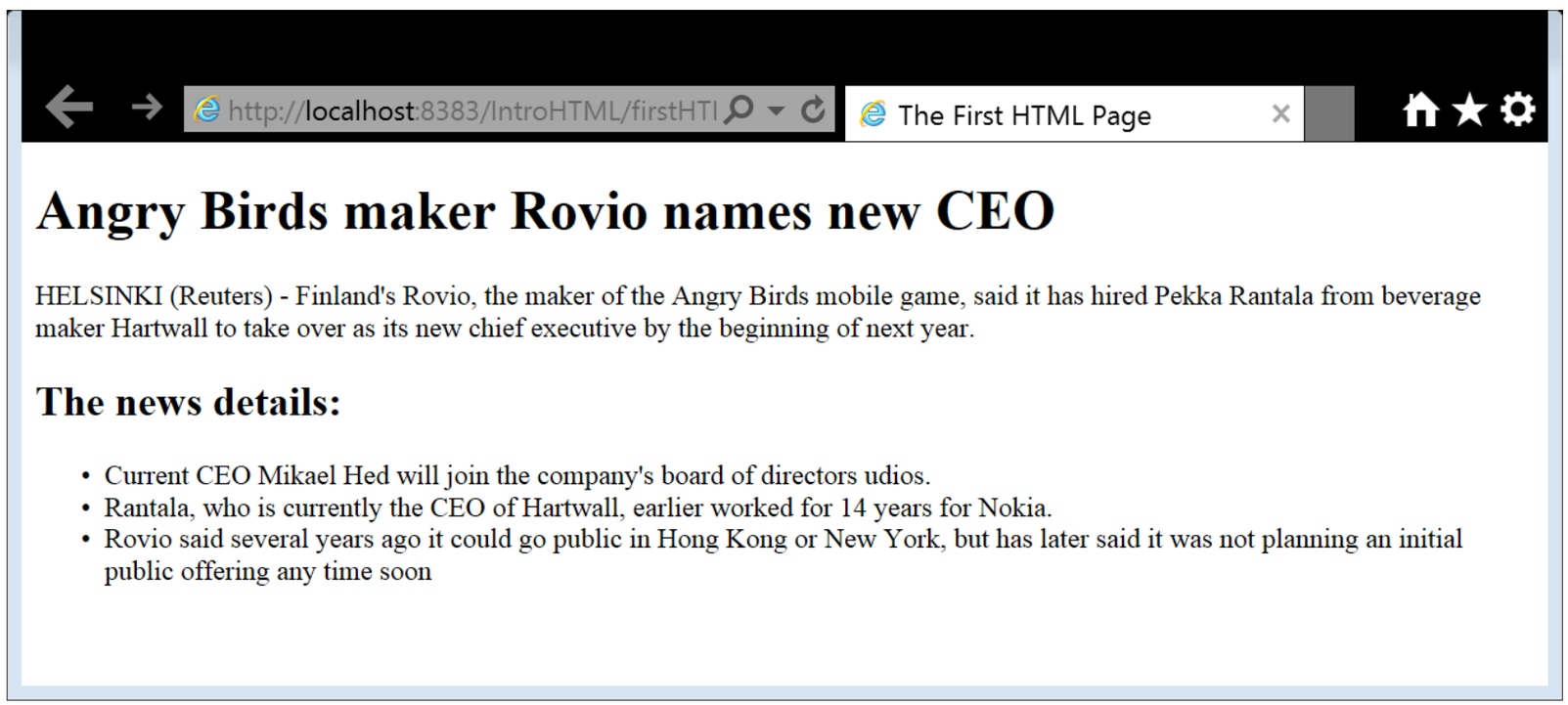
HTML Tag	Function
<!DOCTYPE>	Indicates the version and type of HTML used; includes a URL reference to a DTD
<html> </html>	Indicates the start and end of an HTML document
<head> </head>	Indicates the start and end of a section of the document used for the title and other document header information
<meta />	Indicates hidden information about the Web page
<title> </title>	Indicates the start and end of the title. The title does not appear in the body of the Web page, but appears on the title bar of the browser.
<body> </body>	Indicates the start and end of the body of the Web page
<hn> </hn>	Indicates the start and end of the text section called a heading; sizes range from <h1> through <h6>.
	Indicates the start and end of a new paragraph; inserts a blank line above the new paragraph
	Indicates the start and end of an unordered (bulleted) list
	Indicates that the item that follows the tag is an item within a list
<hr />	Inserts a horizontal rule
 	Inserts a line break at the point where the tag appears

HTML Document

- All HTML documents must use the <html>element as the root element.
- The <head> element contains information that is used by the Web browser. The <head> element and the elements it contains are referred to as the document head.
  - The <head> element and its content help manage a document's content, including the <title> element, which contains text that appears in a browser's title bar.
- The <body> element and the text and elements it contains are referred to as the document body.
- Attributes are used to configure many HTML elements. You place an attribute before the closing bracket of the opening tag, and separate it from the tag name or other attributes with a space.
  - You assign a value to an attribute using the syntax attribute="value".
- You cannot use line breaks in the body of an HTML document to insert spaces before and after a paragraph; the browser recognizes only paragraph <p> and line break
  elements for this purpose.
- Most Web browsers ignore multiple, contiguous spaces on a Web page and replace them with a single space.

The First HTML Page

```
<!DOCTYPE html>
<html>
    <head>
        <title>The First HTML Page</title>
        <meta charset="UTF-8">
    </head>
    <body>
        <h1>Angry Birds maker Rovio names new CEO</h1>
        <p>HELSINKI (Reuters) - Finland's Rovio, the maker of the Angry Birds mobile game, said it has hired Pekka
Rantala from beverage maker Hartwall to take over as its new chief executive by the beginning of next year.</p>
        <h2>The news details:</h2>
        <ul>
         <li>Current CEO Mikael Hed will join the company's board of directors udios.</li>
        <li>Rantala, who is currently the CEO of Hartwall, earlier worked for 14 years for Nokia.</li>
        <li>Rovio said several years ago it could go public in Hong Kong or New York, but has later said it was not
planning an initial public offering any time soon</li>
        </ul>
    </body>
</html>
```



Improving the Appearance of Your Web Page

- One goal in Web page development is to create a Web page that is visually appealing and maintains the interest of the visitors.
- Using Style Sheets
  - A style sheet is a series of rules that defines the style for a Web page or an entire Web site.
    - A style is a rule that defines the appearance of an element on a Web page.
  - CSS supports three types of style sheets: inline, embedded, and external (or linked).
    - An inline style, you add a style to an individual HTML tag.
    - An embedded style sheet, you add the style sheet within the <head> tags of the HTML document to define the style for an entire Web page.
    - An external style sheet is a text file that contains all of the styles. The file extension is .css.

Style Sheet Precedence

- The three style sheets supported by CSS control the appearance of a Web page at different levels.
- Each style sheet type also has a different level of precedence or priority in relationship to the others.

Type	Level and Precedence
Inline	• To change the style within an individual HTML tag • Overrides embedded and external style sheets
Embedded	• To change the style of one Web page • Overrides external style sheets
External	• To change the style of multiple pages in a Web site

Style Statement Format

- You must use a style statement to define the style. The following code shows an example of a style statement used in an inline style:
  - <h1 style=”font-family: Garamond; font-color: navy”>
- A style statement is made up of a selector and a declaration.
  - The part of the style statement that identifies the page elements is called the **selector**. E.g. h1
- The part of the style statement that identifies how the element(s) should appear is called the declaration.
  - A **declaration** includes at least one property, to apply to the selected element. For each **property**, the declaration includes a related value, e.g. the font-family and font-color properties and their **values**

Using Web Page Divisions and Images

- It is sometimes helpful to break up your Web page into divisions (or sections), which allows you to apply styles to different Web page elements. Commonly we use the start and end division tags as a container in which to insert images.
- Images are used in many ways to enhance the look of a Web page and make it more interesting and colorful.

Image Type	Use
Graphics Interchange Format (GIF)	• Use for images with few colors (<256) • Allows for transparent backgrounds
Portable Network Graphics (PNG)	• Newest format for images • Use for all types of images • Allows for variation in transparency
Joint Photographic Experts Group (JPEG)	• Use for images with many colors (>256), such as photographs

Image Element and its Attributes

- You can enhance <img> tag by using attributes. Attributes define additional characteristics for the HTML tag.

Attribute	Function
alt	• Alternative text to display when an image is being loaded • Especially useful for screen readers, which translate information on a loaded computer screen into audio output.
height	• Defines the height of the image, measured in pixels • Improves loading time
hspace	• Defines the horizontal space that separates the image from the text
src	• Defines the URL of the image to be loaded
vspace	• Defines the vertical space that separates the image from the text
width	• Defines the width of the image, measured in pixels • Improves loading time

The Enhanced First HTML Page

add color to headings.

Add an image

```
<!DOCTYPE html>
<html>
   <head>
      <title>The First HTML Page</title>
      <meta charset="UTF-8">
   </head>
   <body>
      <h1 style="color: #3D60B1">Angry Birds maker Rovio names new CEO</h1>
      <div><img src="img/angry_birds.jpg" width="763" height="210"
            alt="Angry Bird logo" /></div>
      <p>HELSINKI (Reuters) - Finland's Rovio, the maker of the Angry Birds mobile
game, said it has hired Pekka Rantala from beverage maker Hartwall to take over as
its new chief executive by the beginning of next year.</p>
      <hr />
      <h2 style="color: #3D60B1">The news details:</h2>
      <ul style="font-style: italic">
         <li>Current CEO Mikael Hed will join the company's board of directors
udios.</li>
         <li>Rantala, who is currently the CEO of Hartwall, earlier worked for 14 years
for Nokia.</li>
         <li>Rovio said several years ago it could go public in Hong Kong or New York,
but has later said it was not planning an initial public offering any time soon</li>
      </ul>
   </body>
</html>
```

Insert a horizontal rule

Change the font style of a bulleted list

The Enhanced First HTML Page

http://localhost:8383/IntroHTML/Enhanc

The First HTML Page

Angry Birds maker Rovio names new CEO

HELSINKI (Reuters) - Finland's Rovio, the maker of the Angry Birds mobile game, said it has hired Pekka Rantala from beverage maker Hartwall to take over as its new chief executive by the beginning of next year.

The news details:

- *Current CEO Mikael Hed will join the company's board of directors udios.*
- *Rantala, who is currently the CEO of Hartwall, earlier worked for 14 years for Nokia.*
- *Rovio said several years ago it could go public in Hong Kong or New York, but has later said it was not planning an initial public offering any time soon*

Exercise - Create a web page

- Create a new HTML page to make the Web page look similar to the one shown below. Both headings are the color red. (Hint: Use the style="color: red" property.).
- You can use any images of flowers and add the image to the Web page. It has a width of 192 pixels and a height of 175 pixels. (Hint: Include the image in a   container and remember to use the alt attribute.)
- Make the bulleted list in a small font size. (Hint: Use the style="font-size: small" property.)

Flower Show ← <h1> heading in red

image inserted

Our 10th annual Flower Show will be held the last weekend of May at the county fairgrounds. Hundreds of participants are expected to display their flowers at this show. Learn all about flower gardening from our guest speakers. Bring the whole family for a day of flowering fun!

How to register: ← <h2> heading in red

- Complete the registration form at participating stores
- Come the day before the event to select your display area
- Have fun the day of the event

← added unordered list in small font size

Web Page Forms

- Web page form designed to request specific information from the Web page visitor. A Web page form has three main components:
  - Input controls
  - A <form> tag, which contains the information necessary to process the form
  - A Submit button, which sends the data to be processed
- Input controls
  - An input control is any type of input mechanism on a form. A form may contain several different input controls classified as data or text input controls. A data input control can be a radio button (radio), a check box (checkbox), a Submit button (submit),
- a Reset button (reset), or a selection menu (select). A text input control allows the user to enter text through the following:
  - A text box (text), for small amounts of text
  - A textarea box (textarea), for larger amounts of text
  - A password text box (password), for entering a password

Form Input Controls

Control	Function	Remarks
text	Creates a single line field for a relatively small amount of text	Indicates both the size of the field and the total maximum length
password	Identical to text boxes used for single line data entry	Masks the entered text
textarea	Creates a multiple-line field for a relatively large amount of text	Indicates the number of rows and columns for the area
select	Creates a drop-down list or menu of choices from which a user can select an option or options	Indicates the length of the list in number of rows
radio	Creates a list item	Indicates only one item in a list can be chosen
reset	Resets the form	Returns all input controls to the default status
checkbox	Creates a single item or a list of items	Indicates a single item that can be checked. Indicates a list of more than one item that can be chosen.
submit	Submits a form for processing	Tells the browser to send the data on the form to the server

Input Controls

- A **text control** creates a text box that is used for a single line of input. The text control has two attributes:
  - size, which determines the number of characters that are displayed on the form
  - maxlength, which specifies the maximum length of the input field.
    <p>Last Name: <input name=”lastname” type=”text” size=”25” />
- A **radio control** limits the Web page visitor to only one choice from a list of choices.
  <input name=”ingredient” type=”radio” value=”sausage” />Sausage
  <input name=”ingredient” type=”radio” value=”veggie” />Veggie
- A **checkbox control** allows a Web page visitor to (a) select one item from a single-item list or (b) select more than one choice from a list of choices.
  <input name=”additional” type=”checkbox” value=”mushrooms” /> Mushrooms
- A **select control** creates a selection menu from which the visitor selects one or more choices.
  <select name=”payment”>
  <option>American Express</option>
  <option>Visa</option>
  <option>MasterCard</option>
  </select>
- A **textarea control** creates a field that allows multiple lines of input.
  What other items would you like to see on our menu?
  <textarea name=”other” rows=”3” cols=”100”></textarea>
- The **fieldset control** that helps to group related form elements together. This makes the form easier to read and complete.
  <fieldset><legend>Payment Method</legend></fieldset>
- A **submit control** creates the Submit button. The Submit button sends the information to the appropriate location for processing.
  <input type=”submit” value=”Submit” />
- A **button control** creates a button. The button does not have any functionality and it is normally used in conjunction with a JavaScript code.
  <input type="button onclick="window.alert('You clicked a button!')">

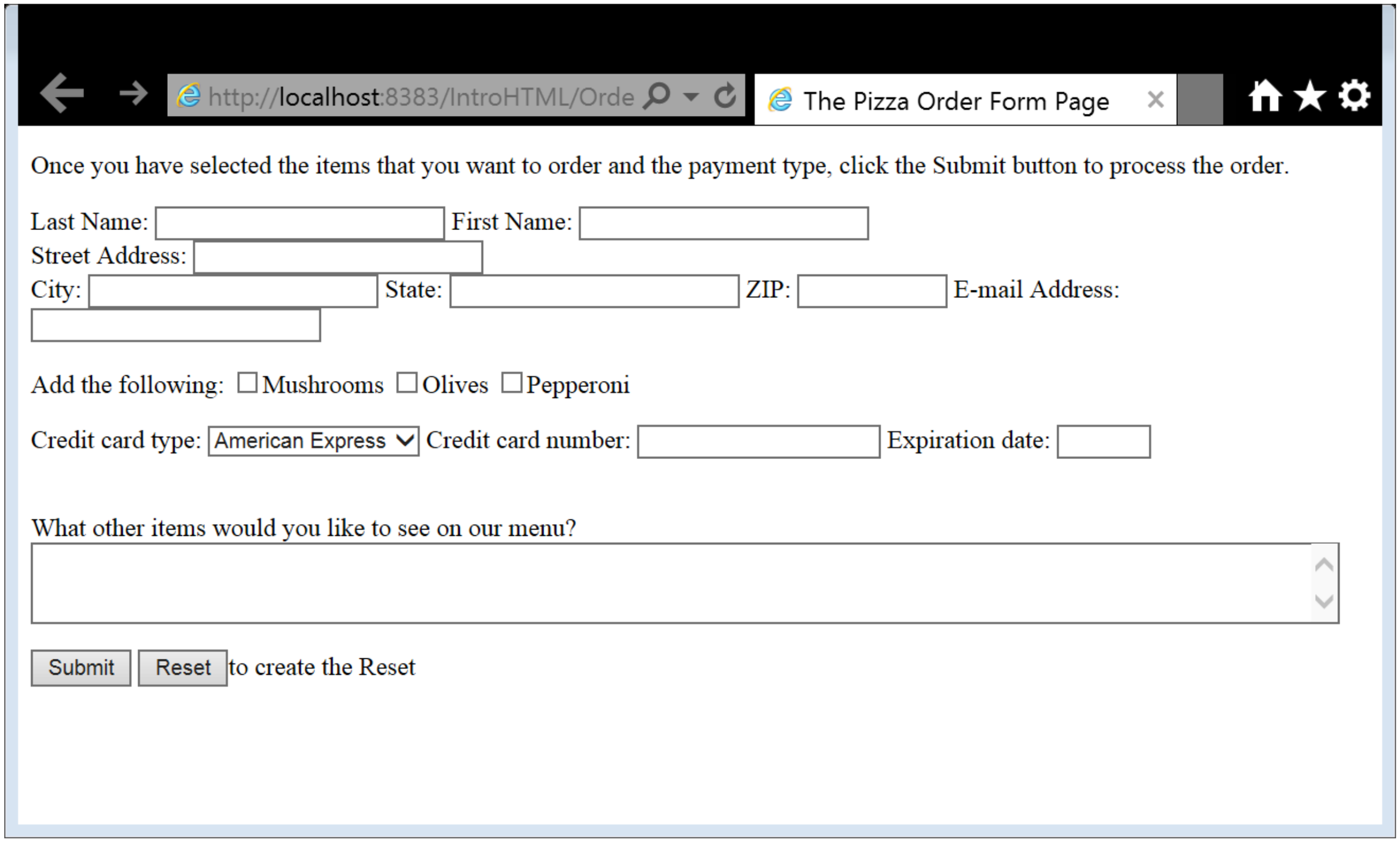
The Process of Creating a Form

- The start <form> and end </form> tags designate an area of a Web page as a form.
  - The action attribute specifies the action that is taken when the form is submitted. (mailto or server-side script name)
  - The method attribute specifies the way in which the data entered in the form is sent to the server to be processed.
    - The get method sends the name-value pairs to the end of the URL indicated in the action attribute.
    - The post method sendsa separate data file with the name-value pairs to the URL.
- Add Form controls:
  - Before creating a Web page form, you should plan how you want to format it.
    1. Determine what data to collect.
    2. Determine what types of control to use.
    3. Layout the input areas effectively.
        1. Important input data should go to the top of the page.
    4. Use grouping techniques for clarity.
        1. Use the fieldset tag to group related input items together.

Example of Order Form Page

```
<!DOCTYPE html>
<html>
   <head>
      <title>The Pizza Order Form Page</title>
      <meta charset="UTF-8">
   </head>
   <body>
      <form method="post" action="mailto:admissions@npu.edu">
         <p>Once you have selected the items that you want to order and the payment type, click the Submit button to process the order.
         </p>
         <p>Last Name: <input name="lastname" type="text" size="25" />
           First Name: <input name="firstname" type="text" size="25" /><br />
           Street Address: <input name="address" type="text" size="25" /><br>
           City: <input name="city" type="text" size="25" />
           State: <input name="state" type="text" size="25" />
           ZIP: <input name="zip" type="text" size="10" />
           E-mail Address: <input name="email" type="text" size="25" />
         </p>
         <p>Add the following:
           <input name="additional" type="checkbox" value="mushrooms" />Mushrooms
           <input name="additional" type="checkbox" value="olives" />Olives
           <input name="additional" type="checkbox" value="pepperoni" >Pepperoni
         </p>
         <p>Credit card type:
           <select name="payment">
              <option>American Express</option>
              <option>Visa</option>
              <option>MasterCard</option>
           </select>
           Credit card number:
              <input name="cardnum" type="text" size="20" maxlength="20" />
           Expiration date:
              <input name="cardexp" type="text" size="4" maxlength="4" />
         </p>
         <br />What other items would you like to see on our menu?
         <br /><textarea name="other" rows="3" cols="100"></textarea>
         <p><input type="submit" value="Submit" />
         <input type="reset" value="Reset" />to create the Reset
      </form>
   </body>
</htm
```

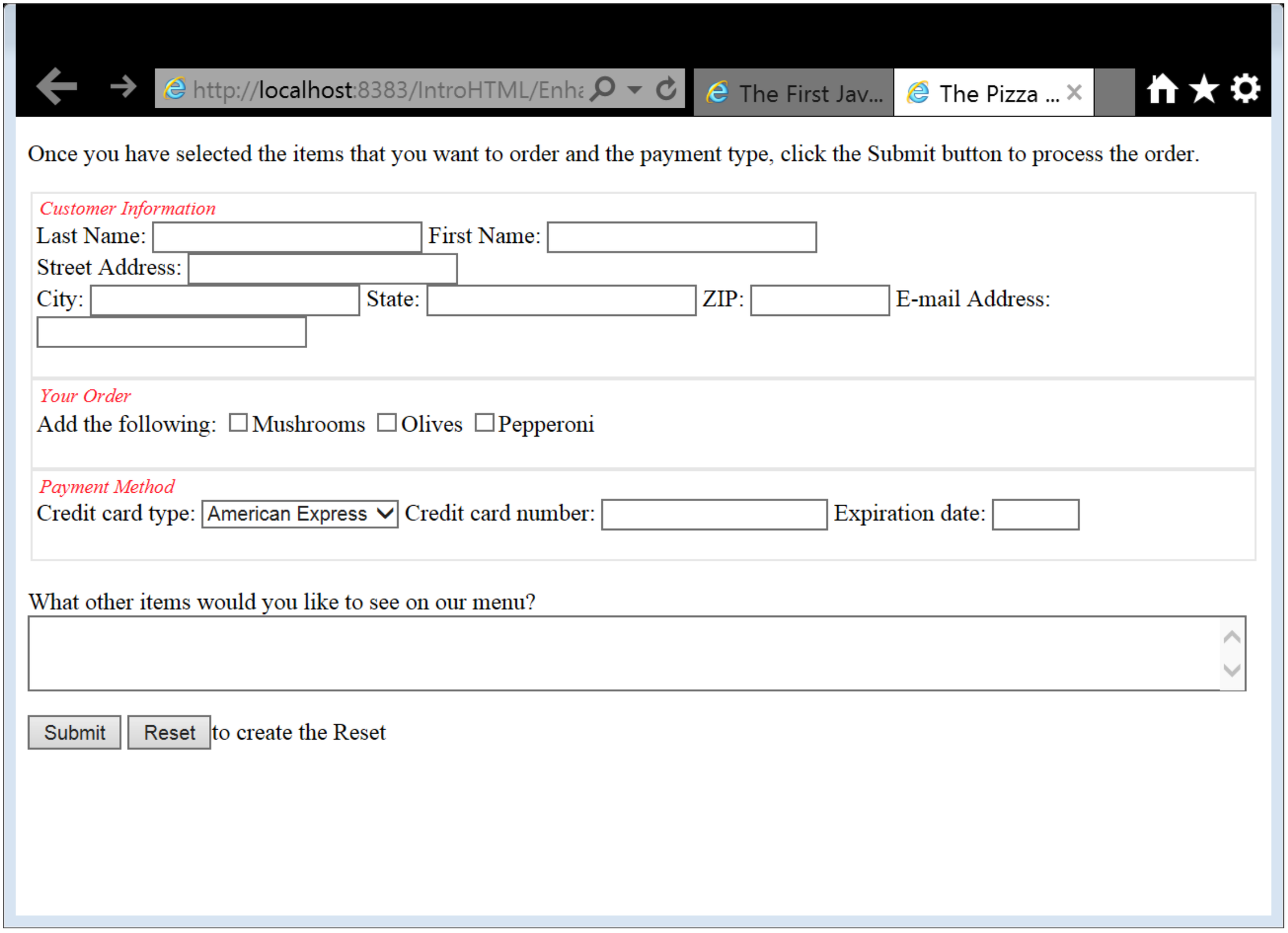
The Order Form Page



The Enhanced Order Form Page

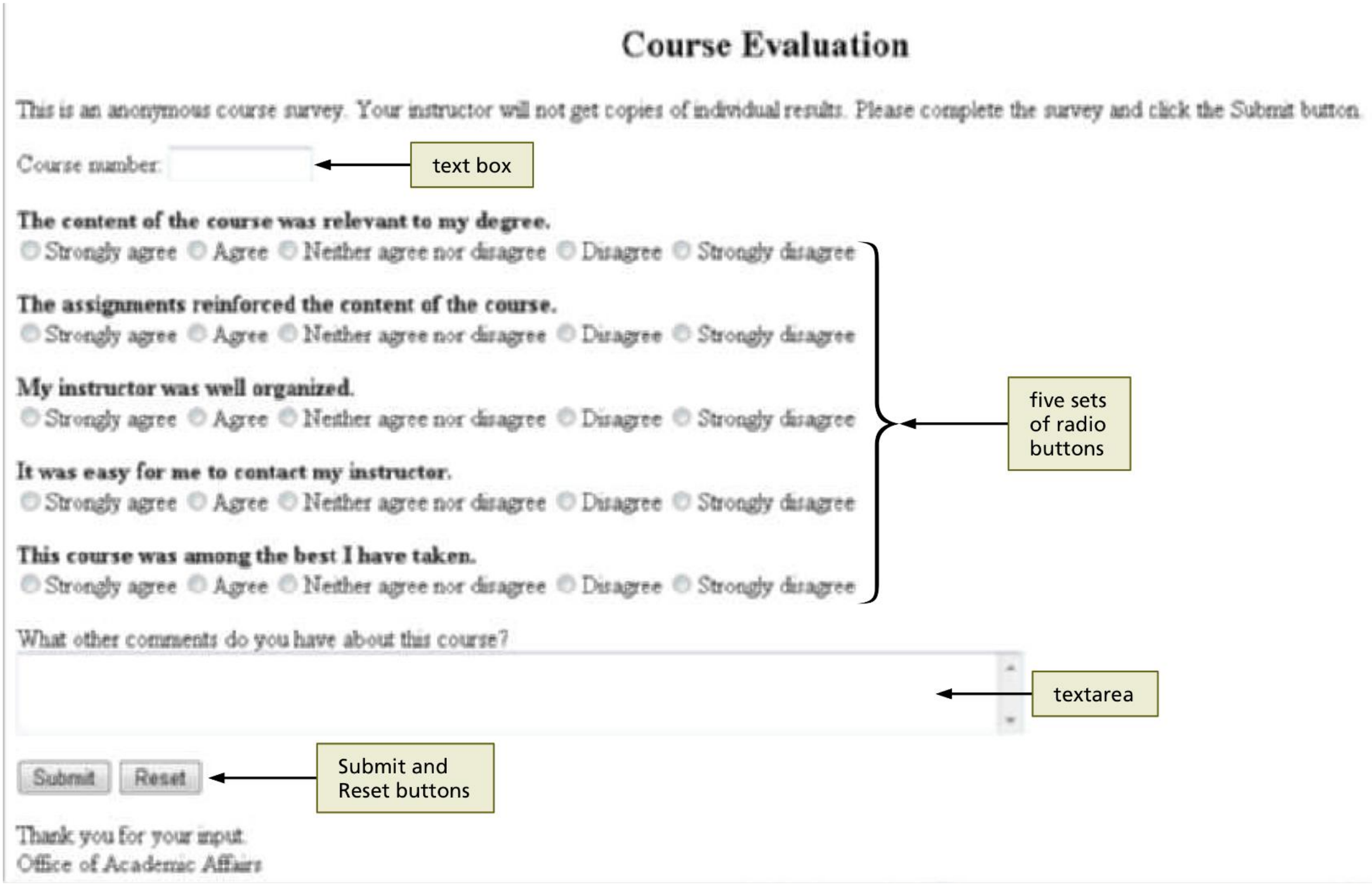
```
<!DOCTYPE html>
<html>
   <head>
      <title>The Pizza Order Form Page</title>
      <meta charset="UTF-8">
      <style type="text/css">
         legend {float: left; color: #ff1828;
            font-style: italic;
            font-size: small}
      </style>
   </head>
   <body>
      <form method="post" action="mailto:admissions@npu.edu">
         <p>Once you have selected the items that you want to order and the payment type, click the Submit button to process the order.
         </p>
         <fieldset><legend>Customer Information</legend>
         <p>Last Name: <input name="lastname" type="text" size="25" />
            First Name: <input name="firstname" type="text" size="25" /><br />
            Street Address: <input name="address" type="text" size="25" /><br>
            City: <input name="city" type="text" size="25" />
            State: <input name="state" type="text" size="25" />
            ZIP: <input name="zip" type="text" size="10" />
            E-mail Address: <input name="email" type="text" size="25" />
         </p>
         </fieldset>
         <fieldset><legend>Your Order</legend>
         <p>Add the following:
            <input name="additional" type="checkbox" value="mushrooms" />Mushrooms
            <input name="additional" type="checkbox" value="olives" />Olives
            <input name="additional" type="checkbox" value="pepperoni" >Pepperoni
         </p>
         </fieldset>
         <fieldset><legend>Payment Method</legend>
         <p>Credit card type:
            <select name="payment">
               <option>American Express</option>
               <option>Visa</option>
               <option>MasterCard</option>
            </select>
            Credit card number:
               <input name="cardnum" type="text" size="20" maxlength="20" />
            Expiration date:
               <input name="cardexp" type="text" size="4" maxlength="4" />
         </p>
         </fieldset>
         <br />What other items would you like to see on our menu?
         <br /><textarea name="other" rows="3" cols="100"></textarea>
         <p><input type="submit" value="Submit" />
         <input type="reset" value="Reset" />to create the Reset
      </form>
   </body>
</html>
```

The Enhanced Order Form Page



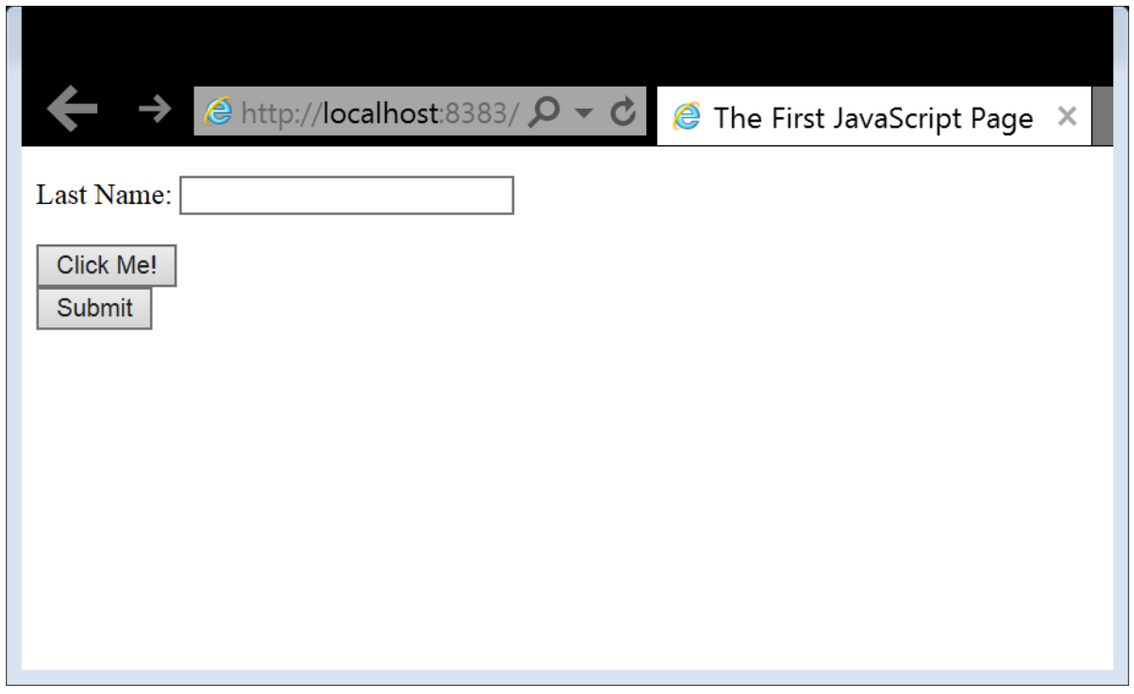
Exercise

- Create a Course Evaluation Survey Web page like the following picture.



A Simple Example of a Web Page Form

```
<!DOCTYPE html>
<html>
    <head>
        <title>The First JavaScript Page</title>
        <meta charset="UTF-8">
    </head>
    <body>
        <form method=”post” action=”mailto:admissions@npu.edu”>
            <p>Last Name: <input name=”lastname” type=”text” size=”25” /></p>
            <input type="button" onclick="window.alert('You clicked a button!')" value="Click
Me!" /><br />
            <input type="submit" value="Submit" />
        </form>
    </body>
</htm
```



Introduction to JavaScript

- JavaScript is a client-side scripting language that allows Web page authors to develop interactive Web pages and sites. Client-side scripting refers to a scripting language that runs on a local browser instead of on a Web server.
- Should you use client-side scripting or server-side scripting?
  - A general rule is to allow the client to handle the user interface processing and light processing, such as data validation, but have the Web server perform intensive calculations and data storage.
  - However it is important to perform as much processing as possible on the client for several reasons:
    - Distributing processing among multiple clients creates applications that are more powerful, because the processing power is not limited to the capabilities of a single computer.
    - Local processing on client computers minimizes transfer times across the Internet and creates faster applications.
    - Performing processing on client computers lightens the processing load on the server.

Adding JavaScript to a Web Page

- You can type the JavaScript code directly into the Web page code as a separate section.
- The <script> element tells the Web browser that the scripting engine must interpret the commands it contains.
  - The type attribute of the <script> element tells the browser which scripting language of the scripting language is being used.

```
<script type="text/javascript">
  statements
</script>
```

- Example,

```
<script type="text/javascript">
  document.write("<p>Are you ready now?</p>");
</script>
```

  - Notice that JavaScript statements are not required to end in semicolons. semicolons are strictly necessary only when you want to separate statements that are placed on a single line.
  - **It is considered good JavaScript programming practice to end any statement with a semicolon.**

JavaScript Objects

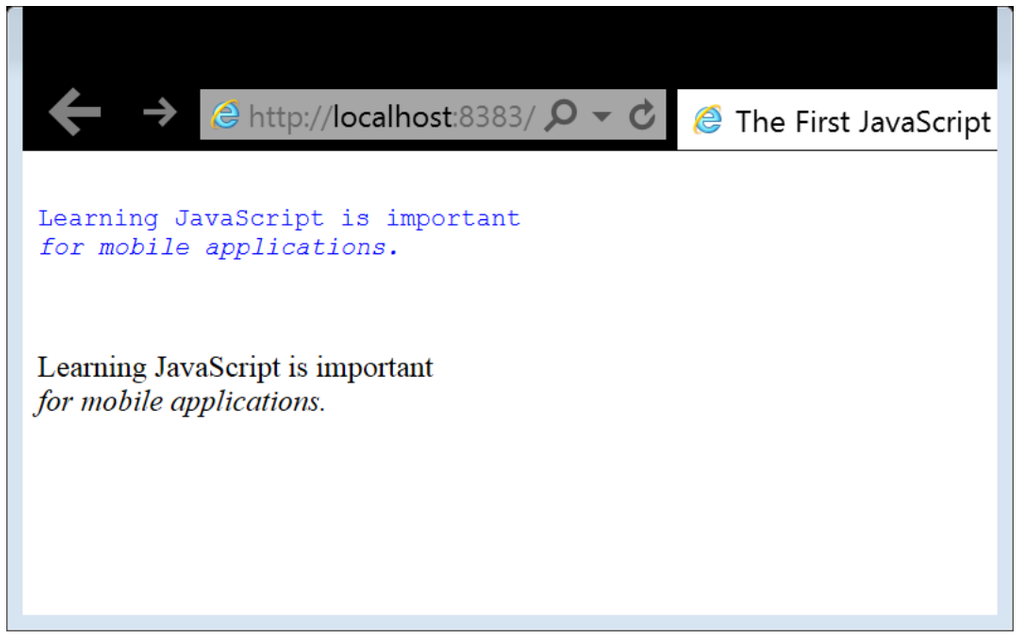
- Though JavaScript is an interpreted scripting language, JavaScript is considered an object-based programming language.
- An object is programming code and data that can be treated as an individual component.
  - For example, you can create a CarLoan object that calculates the number of payments required to pay off a car loan. The CarLoan object may also store information such as the principal loan amount and the interest rate.
- **Method** - Individual statements are grouped into a logical unit, which is used to perform a specific task.
- **Property** - a piece of data, such as a color or a name, that is associated with an object.

The Document Object

- The Document object is one of the most commonly used objects in JavaScript programming. It represents the content of a browser's window. Any text, graphics, or other information displayed in a Web page is part of the Document object.
- To add new text to a Web page, you the write() method or the writeln() method of the Document object.
- They perform essentially the same function that you perform when you manually add text to the body of a standard Web page document. The text is added according to the order in which the statements appear in the document.
- The only difference between the write() and writeln() methods is that the writeln() method adds a line break after the line of text. However, it only works if you place the method within a <pre> element.

Example of write() and writeln()

```
<!DOCTYPE html>
<html>
    <head>
        <title>The First JavaScript Page</title>
        <meta charset="UTF-8">
    </head>
    <body>
        <pre style="color: blue">
            <script type="text/javascript">
                document.writeln();
                document.writeln("Learning JavaScript is important");
                document.writeln("<em>for mobile applications.</em>");
            </script>
        </pre>
        <script type="text/javascript">
            document.write("<p>Learning JavaScript is important</br>");
            document.write("<em>for mobile applications.</em></p>");
        </script>
    </body>
</html>
```



Basic JavaScript Code

- **JavaScript is case sensitive**, and within JavaScript code, object names must always be all lowercase.
- **Variables** stores values in computer memory. Their values often change.
- The name you assign to a variable is called an identifier. You must follow the rules below:
  - Identifiers must begin with an uppercase or lowercase ASCII letter, dollar sign ($), or underscore (_).
  - You can use numbers in an identifier but not as the first character.
  - You cannot include spaces in an identifier.
  - You cannot use reserved words for identifiers.
- In JavaScript, you usually use the reserved keyword **var** to create variables. For example,

  var myVariable;
  - You can also assign a specific value to, or initialize it.

    var variable_name = value;
  - Note that You are not required to use the var keyword to declare a variable. However, omission of the var keyword affects where a variable can be used in a script.

Expressions

- An **expression** is a literal value or variable or a combination of literal values, variables, operators, and other expressions that can be evaluated by the JavaScript interpreter to produce a result.
- You use operands and operators to create expressions in JavaScript.
- **Operands** are variables and literals contained in an expression.
  - A literal is a value such as a literal string or a number.
- **Operators** are symbols used in expressions to manipulate operands**.** Example, the addition operator (+) and multiplication operator (*),

  averagePrice = 18.7;

Events

- An event is a specific circumstance (such as an action performed by a user, or an action performed by the browser) that is monitored by JavaScript and that your script can respond to in some way.

Event	Triggered When
abort	The loading of an image is interrupted
blur	An element, such as a radio button, becomes inactive
click	The user clicks an element once
change	The value of an element, such as text box, changes
error	An error occurs when a document or image is being loaded
focus	An element, such as a command button, becomes active
load	A document or image loads
mouseout	The mouse moves off an element
mouseover	The mouse moves over an element
reset	A form’s fields are reset to its default values
select	A user selects a field in a form
submit	A user submits a form
unload	A document unloads

Working with Elements and Events

- The events that are available to an element vary. For example,
  - The **click** event is available for the <a> element and form controls created with the <input> element.
  - The **load** event is available for the <body> element. It occurs when a Web page finishes loading, and an **unload** event occurs when a Web page is unloaded.
- When an event occurs, your script executes the **event handler** code that responds to that particular event.
  - You include event handler code as an attribute of the element that initiates the event.
  - The syntax of an event handler within an element is:
    <element event_handler ="JavaScript code">
  - Event handler names are the same as the name of the event itself, plus a prefix of “on”. For example, the event handler for the click event is **onclick**

HTML elements and their associated event handlers

Element	Description	Event
<a>	Anchor	onfocus, onblur, onclick, ondblclick, onmousedown, onmouseup, onmouseover, onmousemove, onmouseout, onkeypress, onkeydown, onkeyup
<img>	Image	onclick, ondblclick, onmousedown, onmouseup, onmouseover, onmousemove, onmouseout, onkeypress, onkeydown, onkeyup
<body>	Document body	onload, onunload, onclick, ondblclick, onmousedown, onmouseup, onmouseover, onmousemove, onmouseout, onkeypress, onkeydown, onkeyup
<form>	Form	onsubmit, onreset, onclick, ondblclick, onmousedown, onmouseup, onmouseover, onmousemove, onmouseout, onkeypress, onkeydown, onkeyup
<input>	Form control	tabindex, accesskey, onfocus, onblur, onselect, onchange, onclick, ondblclick, onmousedown, onmouseup, onmouseover, onmousemove, onmouseout, onkeypress, onkeydown, onkeyup
<textarea>	Text area	onfocus, onblur, onselect, onchange, onclick, ondblclick, onmousedown, onmouseup, onmouseover, onmousemove, onmouseout, onkeypress, onkeydown, onkeyup
<select>	Selection	onfocus, onblur, onchange

JavaScript Event Handler Code

- The JavaScript code for an event handler is contained within the quotation marks following the name of the JavaScript event handler.
  - <input type="button" onclick="window.alert('You clicked a button!')">
    - The window.alert() method displays a pop-up dialog box with an OK button.
- You can also include multiple JavaScript statements in an event handler, as long as semicolons separate the statements.
  - <input type="button" onclick="var message='You clicked a button'; window.alert(message)">

Referencing Web Page Elements

- You can use JavaScript to access any element on a Web page by appending the element's name to the name of any elements in which it is nested, starting with the Document object.
- Example, suppose you have a form with a name attribute set to "invoice"; also, suppose the form contains a text box with a name attribute set to "salesTotal". You can change the value of the text box.
  document.invoice.salesTotal.value = value;.

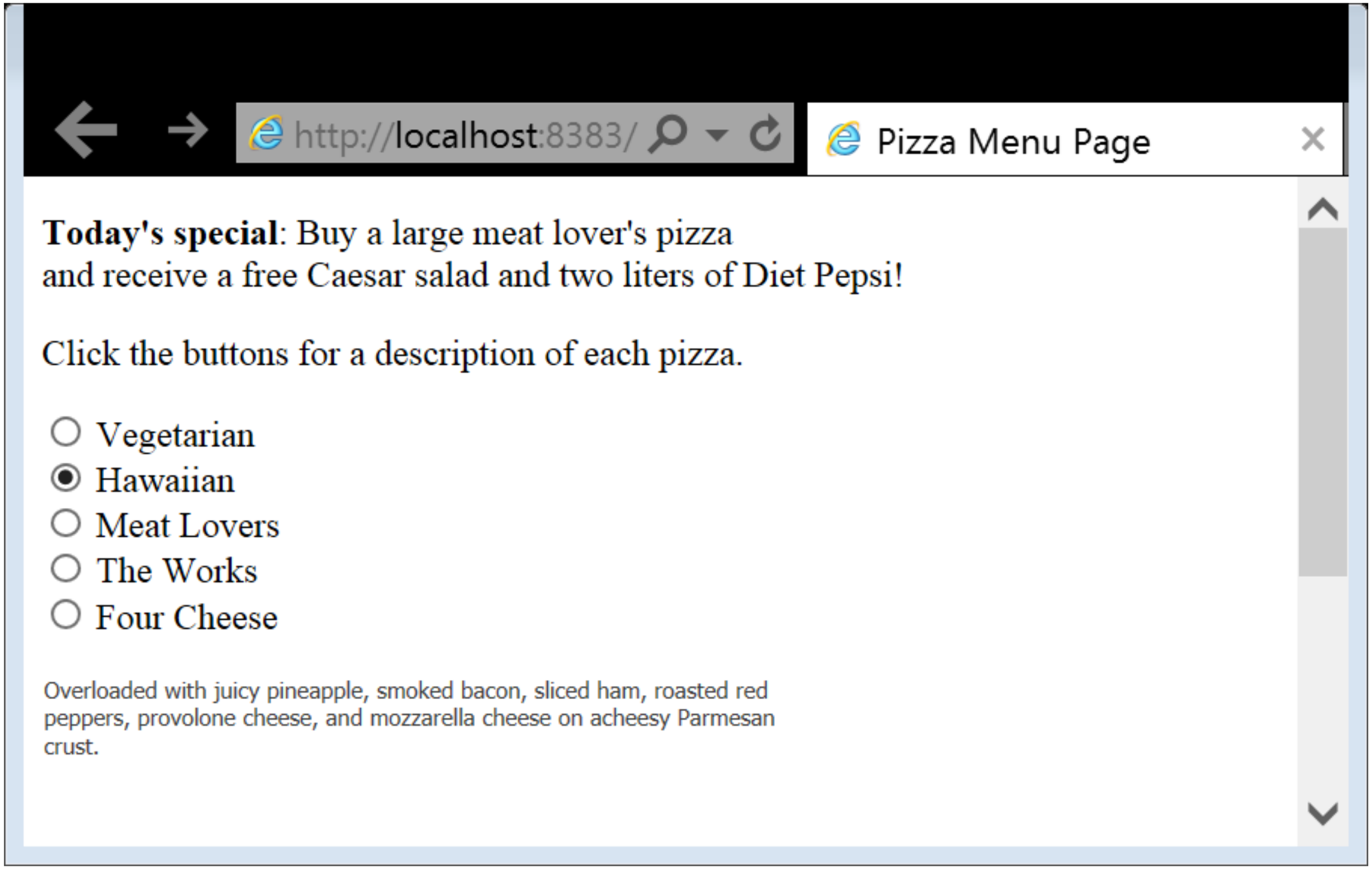
Example of Pizza Menu Page

```
<!DOCTYPE html>
<html>
   <head>
      <title>Pizza Menu Page</title>
      <meta charset="UTF-8">
      <script type="text/javascript">
         document.write( "<p><strong>Today's special</strong>: ");
         document.write("Buy a large meat lover's pizza<br />");
         document.write("and receive a free Caesar salad "); document.write("and two liters of Diet Pepsi!</p>");

         var vegetarian = "Lots of mushrooms, black olives, bell peppers, onions, artichoke hearts, and fresh tomatoes. ";
         var hawaiian = "Overloaded with juicy pineapple, smoked bacon, sliced ham, roasted red peppers, provolone cheese,
and mozzarella cheese on acheesy Parmesan crust.";
         var meatLovers = "Loads of pepperoni, savory Italian sausage, smoked bacon, hamburger, mushrooms, and extra
cheese.";
         var theWorks = "An irresistible combination of pepperoni, ham, spicy Italian sausage, fresh-sliced onions and green
peppers, gourmet baby portabella mushrooms, and ripe black olives.";
         var fourCheese = "Thin-crust pizza with a four-cheese blend of mozzarella, Parmesan, Romano, and Asiago, along
with our special seasoning.";

      </script>
   </head>
   <body>
      <form name="pizzaList" action="" method="get">
         <p>Click the buttons for a description of each pizza.</p>
         <p><input type="radio" name="pizzas" onclick= "document.pizzaList.pizzaDesc.value=vegetarian" /> Vegetarian<br />
         <input type="radio" name="pizzas" onclick= "document.pizzaList.pizzaDesc.value=hawaiian"/> Hawaiian<br />
         <input type="radio" name="pizzas" onclick= "document.pizzaList.pizzaDesc.value=meatLovers" /> Meat Lovers<br />
         <input type="radio" name="pizzas" onclick= "document.pizzaList.pizzaDesc.value=theWorks" /> The Works<br />
         <input type="radio" name="pizzas" onclick= "document.pizzaList.pizzaDesc.value=fourCheese" /> Four Cheese</p>
         <p><textarea name="pizzaDesc" cols="75" rows="20" style="background-color: Transparent; border: none; overflow:
hidden; font: 10px tahoma; color: #3F3F3F"></textarea></p>
      </form>
   </body>
</htm
```

Example of Pizza Menu Page



Structuring JavaScript Code

- There are some important rules to keep in mind when structuring your JavaScript code.
- Including a <script> Element for Each Code Section.
  - You can include as many script sections as you like within a document, but you must include a <script> element for each section. The following document includes two separate script sections. Example
    <h1>Multiple Script Sections</h1>
    <h2>First Script Section</h2>
    <script type="text/javascript">
    document.write(" Output from the first script section. "); </script>
    <h2>Second Script Section</h2>
    <script type="text/javascript">
    document.write(" Output from the second script
    section. ");
    </script>
- Placing JavaScript code in document head or document body?
  - It is a good idea to place as much of your JavaScript code as possible in the document head, because the head of a document is rendered before the document body.
    - After the JavaScript code is processed, then all the functions defined in the head section becomes available in the document body.
    - The JavaScript code in the head can perform some behind-scene tasks that are required by the document body

Creating a JavaScript File

- You can also save JavaScript code in an external file called a JavaScript source file.
- To access JavaScript code that is saved in an external file, you use the src attribute of the <script> element.

```
<script type="text/javascript" src="scripts.js">
</script>
```

- JavaScript source files cannot include HTML elements. If you do, it will be ignored or an error message will be generated, depending on which Web browser you use.
- There are several reasons you may want to use a .js source file:
  - Your document will be neater. Lengthy JavaScript code in a document can be confusing.
  - The JavaScript code can be shared among multiple Web pages.
  - JavaScript source files hide JavaScript code from incompatible browsers. Because an incompatible browser displays that code as if it were standard text.
- You can use a combination of embedded JavaScript code and JavaScript source files in your documents.
  - That technique is useful when you have multiple Web pages, each of which requires specific JavaScript code statements, but all of which can share a common JavaScript source file.

Exercise

1. Create a new html document in your NetBeans text editor, Use “Product Prices” as the content of the <title> element.
2. Add the following <h1> element to the document body: <h1>Product Prices</h1>
3. Add the following script block to the end of the document body

```
<script type="text/javascript">
</script>
```

4. In the script block, type the following statements that declare variables containing the product names and their prices:

```
var productA= "Computer";
var productB = "Watch ";
var productC = "Radio";
var productD = "Phone";
var productE = "Tablet";
var priceA= 1000;
var priceB = 375;
var priceC = 100;
var priceD = 600;
var priceE = 500;
```

5. Next, add the following statements to the end of the script block that print the values stored in each of the variables you declared and initialized in the last step:

```
document.write("<p>The price of " + productA+ " is" + priceA+" dollars. </p>");
document.write("<p>The price of " + productB+ " is" + priceB+" dollars. </p>");
document.write("<p>The price of " + productC+ " is" + priceC+" dollars. </p>");
document.write("<p>The price of " + productD+ " is" + priceD+" dollars. </p>");
document.write("<p>The price of " + productE+ " is" + priceE+" dollars. </p>");
```

6. Save the document and view it in the web browser.