COMP 2681: Web Site Design and Development

Working with JavaScript Objects and Events

Tutorial 13A

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Carey, P. (2001). Tutorial 9: Working with JavaScript Objects and Events. In New perspectives on creating Web pages with HTML and Dynamic HTML: Comprehensive. Cambridge, MA: Course Technology

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St. Mary's hospital, located in the city of Northland Pines, is a large complex serving the needs of the community and neighboring towns. St. Mary's is also a research hospital, which means that it is the home of several research institutions, including the Midwest Clinical Cancer Center and General Clinical Research Center.

One of the tasks involved in clinical research is enrolling patients in various studies. Each patient in a study must go through a registration process, including the completion of a registration form used to determine whether the patient is eligible to participate.

In past years, these forms were paper records, filled out by hand by the attending nurse or physician. Recently, however, the hospital has developed an intranet. Some researchers want to place registration forms on the hospital intranet, allowing them to be filled out online and automatically sent to a database for storage.

You've been asked to help develop one of the first online registration forms, for study run by Dr. Karen Paulson on the effects of different feeding methods on newborn infants. The form will have to be interactive in that it will have to calculate key items as well as check the user's entries for mistakes. To create this Web page form, you'll have to use JavaScript to control how users access and enter data into the form.

Understanding Form Validation

Session 13A.1

In this session you'll learn

- About the principles of form validation
- How validation applies to the objects found on a Web page form
- About the object-based nature of the JavaScript language and explore the principles of objects, properties and methods.

Open the file Studytxt.htm in your text editor and save it as Study.htm in the same folder.

Open the file Study.htm in your browser.

Figure 9-1 shows the current state of the Web page form.

Figure 9-2 shows the name of each field in the registration form.

Note that the name of the form is "REG"

This form collects basic info on newborns

As the form is currently designed, almost any value could be entered into any of the input fields. This concerns Dr. Paulson and to address her concerns, she explains what she would like the online form to do automatically for the user.

- The Date field should be completed automatically for the user, to avoid the possibility of an incorrect date being entered. The user should still be able to change the date, if necessary.

- If "Other" is selected from the Physician selection list, the user should be prompted to enter the physician's name in the "If other" input box. Otherwise, the insertion point should jump directly to the APGAR scores when the user presses the Tab key.

- The 1-minute total APGAR score should be calculated automatically based on the value of its 5 component parts.

- The value of each component of the APGAR score (activity, pulse, grimace, appearance and respiration) can be only 0, 1, or 2. The form should reject all other values and alert the user that an improper value was entered.

- No registration form should be submitted unless a parental consent form has been filled out, as indicated by a check in the Parental Consent check box on the registration form.

To meet Dr. Paulson's requirements, your Web page form must be able to react in different ways, depending on the user's input. The form must be able to skip certain fields if the user selects a certain item, but not if the user selects a different item. The form must also check the APGAR value that the user enters and either calculate a total score or, if necessary, inform the user that a mistake has been made.

Dr. Paulson's criteria are examples of form validation, a process by which the server or the browser checks form entries, and where possible errors are eliminated. On the Web, form validation can occur on either the client side or the server side.

As shown in Figure 9-3, in server-side validation, the form is sent to the Web server, which then checks the values. If a mistake is found, the user is notified and asked to resubmit the form.

In client-side validation, the form is checked as the user enters the info and immediate feedback is provided if the user makes a mistake.

One powerful use of JavaScript is to provide this kind of client-side validation. With a script built into the Web page form, you can give immediate feedback to users as they enter data, which also reduces the amount of network traffic between users and the Web server. Before you can do this for Dr. Paulson's form, however, you must first learn how JavaScript can be used to manipulate elements on your Web page, not just when the page is initially loaded, but also in response to events initiated by the user. The first step in accomplishing this is to understand the object-based nature of the JavaScript language and how it can be used to control the behavior of the Web page, the form on the page and even the Web browser itself.

Working with an Object-based Language

JavaScript is an object-based language, which means that the language is based on manipulating objects by either modifying their properties or applying methods to them. Objects are items that exist in a defined space on a Web page. Each object has properties that describe its appearance, purpose or behavior. Furthermore, an object can have methods, which are actions that can be performed with it or to it.

Consider the example of an oven in your kitchen. The oven is an object. It has certain properties, such as its model name, age, size and color. There are certain methods you can perform with the oven object, such as turning on the grill or the self-cleaner. Some of these methods change the properties of the oven, such as the oven's current temperature. You modify the oven's temperature property through the method of turning the stove on or off.

Similarly, your Web browser has its own set of objects, properties and methods. The Web browser itself is an object, and the page you're viewing is an object. If the page contains frames, each frame is an object and if the page contains forms, each field on the form (as well as the form itself) is an object. These objects have properties. The browser object has the type property (Netscape, IE, or Opera), the version property (3.0, 4.0 or 5.0). There are some methods you can apply to your browser: you can open it, close it, reload the contents of the browser window or move back and forth in your history list.

Understanding JavaScript Objects and Object Names

An object is identified by its object name, a name that JavaScript reserves for referring to a particular object. Figure 9-4 lists some of the many objects available in JavaScript and their corresponding object names.

When you want to use JavaScript to manipulate the current window, for e.g. you have to use the object name "window". Operations that affect the current Web page use the"document" object name.

An object can also use a name that you've assigned to it. You've seen many HTML tags that include the name property, such as the <form>, <frame> and <input> tags. You can refer to objects created from those tags with the values specified in the name property. For example, in Dr. Paulson's registration form, the following tag starts the form:

```
<form name=REG>
```

You refer to this form using the object name, REG, in your JavaScript program.

It is helpful to visualize the object names shown in Figure 9-4 as part of a hierarchy of objects. Figure 9-5 shows the layout of this hierarchy.

JavaScript Object Hierarchy

The topmost object in the hierarchy is the window object. The window object contains the other objects in the list, such as the current frame, history list or document. The document contains its own set of objects, including links, anchors, forms and within each form, forms elements such as input boxes.

In some situations, you will need to specify this hierarchy when referring to an object. You can do that by separating each object by a period and including the objects in the object name, starting at the top of the hierarchy and moving down. For example, in Dr. Paulson's form, the MEDRECNO input box lies w/in the REG form, which lies w/in the application window. The complete object reference for the input box, including the other objects in the hierarchy is:

```
window.document.REG.medrecno
```

Notice that you have to type REG and medrecno in lowercase letters, since the names given to these objects are also in uppercase. In most cases, you can omit the window object name from the hierarchy and JavaScript will assume that it is there. In other words, JavaScript treats the above object reference in the same way as the following reference:

```
document.REG.medrecno
```

When working with objects on Web page forms, such as the form you'll be developing for Dr. Paulson, you should include the entire hierarchy of object names (except for the window object).

Some browsers cannot interpret the object names without the complete hierarchy.

Figure 9-6 illustrates how the hierarchy applies to other objects on Dr.Paulson's Web registration form. Study this information and compare the object names in Figure 9-6 with the form names shown earlier in Figure 9-2. You'll need to use this information later whne you start to work on the form.

Working with Object Properties

Each object in JavaScript has properties associated with it. The number of properties varies depending on the particular object. Some objects have only a few properties whereas others have dozens. As with object names there are certain keywords that identify these properties. A partial list of objects and their properties is shown in Figure 9-7.

There are several ways of working with properties. You can change the value of a property, store the property's value in a variable or test whether the property equals a specified value in an If…Then expression.

Modifying a Property's Value

The syntax for changing the value of a property is:

```
object.property = expression
```

where object is the JavaScript name of the object you want to manipulate, property is a property of that object and expression is a JavaScript expression that assigns a value to that property.

Figure 9-8 shows how you could use objects and properties to modify your Web page and Web browser.

In this example, the first JavaScript command, document.bgColor="red" modifies the current Web page, changing the background color to red. Note that this will override browser's default background color. Similarly, the second command, document.fgColor="white", changes the foreground color, the text color to white. The final command uses the window.defaultStatus property to display the text "Call 1-800-555-2915 for technical support" in the window's status bar. This is the default status bar text, but it might be replaced by other text (such as the URL of a Web page when the user passes the mouse over a hyperlink) at certain times.

Not all properties can be changed. Some properties are read-only which means that you can read the property value but you can't modify it. One such property is the appVersion property of the navigator object, which identifies the version number of your Web browser. Although it would be nice to upgrade the version of your browser by using a simple JavaScript command, you're not allowed to change this value. Figure 9-9 show how you would use JavaScript to display other read-only information about your browser.

In this example above, the values of the appCodeName, appName and appVersion properties are used to display the browser code name, browser name and version on the Web page. You might use this info when creating pages that involve HTML extension supported by specific browsers or browser versions. Your JavaScript program could first test to see whether the user is running one of those browsers before inserting the tags into the Web page.

Assigning a Property to a Variable

Although you cannot change the value of read-only property, you can assign that value to a variable in your JavaScript program. The syntax is:

```
variable = object.property
```

where variable is the variable name, object is the name of the object and property is the name of its property. Figure 9-10 shows three examples of property values being assigned to JavaScript variable:

Working with Object Methods

Another way of controlling your Web page is to use methods. Recall that methods are actions that objects can perform or actions that you can apply to objects.

The syntax for applying a method to an object is:

```
object.method (parameters);
```

where object is the name of the object, method is the method to be applied, and parameters are any values used in applying the method to the object. If you are using multiple parameters, commas should separate each of these. One of the most commonly used methods is the write() method applied to the document object, which sends text to the Web page document. Figure 9-11 shows three examples of objects and methods.

Figure 9-12 lists other JavaScript objects and some of the methods associated with them.

Session 13A.2

In this session you'll learn

- About events in JavaScript
- How to run JavaScript programs in response to specific events
- How to initiate these events from w/in a program
- Validate a Web page form
- How to prompt the user for info
- How to alert the users when mistakes have been made

The following is a checklist of changes that Dr. Paulson wants you to make to her form.

- Automatically enter the current date in the formdate field and move the cursor to the next field in the form
- If "Other" is selected from the Physician selection list box, prompt the user for the name of the physician, otherwise go to the APGAR component fields
- Automatically calculate the total APGAR score
- Check that valid APGAR component scores have been entered.
- Check that parental consent has been obtained before submitting the form.

Your first task is to set up the form so that the current date is entered automatically into the formdate field whenever the browser opens the page. The action of the user opening the form is an example of an event. An event is a specific action that triggers the browser to run a block of JavaScript commands.

JavaScript supports several different kinds of events, many of which are associated with forms and form fields. Each event has a unique name. A list of these events is shown in Figure 9-13

Events can take place in rapid succession. Consider the example shown in Figure 9-14. A user presses the Tab key to enter text into an input field, changes the field's value and leaves the field by pressing the Tab key. The first event that the browser recognizes in this scenario is the Focus event, as the input field becomes the active filed in the form. After the user changes the value in the field and leaves the field, the Change event is triggered as the browser notes that the value of the field has been changed. Finally, the Blur event occurs as the focus leaves the field and goes to a different field on the form.

With so many different events associated with your Web objects, you need some way of telling the browser how to run a set of commands whenever a specific event occurs. This is where an event handler becomes important.

Using Event Handlers

An event handler is code added to an HTML tag that is run whenever a particular event occurs w/in that tag. The syntax for invoking an event handler is:

```
<tag event_handler ="JavaScript commands;">
```

where tag is the name of the html tag where the event occurs, event_handler is the name of an event handler and JavaScript commands are the set of commands or more often a single

command that calls a JavaScript function to be run when the event occurs. Different html tags have different event handlers.
Figure 9-15 lists some of the names of event handlers available in JavaScript and the objects with which they are associated.

In the example shown in Figure 9-16, the onclick event handler is used with radio buttons to change the page's background color to red, blue or green in response to the user clicking one of the 3 options. Note that the JavaScript commands invoked in this way do not require <script> tags, but they do have to be placed within a pair of single or double quotation marks in the tag. You can enter several commands in this way, separating one command line from another with a semicolon; however, when you have several JavaScript commands to run, the standard practice is to place them in a function, which can then be called using a single command line.

Using the onload Event Handler

Now that you've learned about objects, properties, methods and events, you are ready to start modifying Dr. Paulson's form.

The event handler for opening of a Web page is called onload. Because this handler is associated with the document object, you must place it in the <body> tag of the html file. The event handler should run the function StartForm(). StartForm() is a user-defined function that you" create shortly.

Start your text editor and open the Study.htm file

Type onload="StartForm();" in the <body> tag of the HTML

Save your changes

Now you have to create the StartForm() function. This function will have 2 purposes:

First it will enter the current date into the Date field, and then it will move the cursor to the next field in the form

JavaScript functions are usually collected together between a set of <script> tags located in the HEAD section of the file. The StartForm() function relies on another JavaScript function named DateToday(), which has already been created for you in the Study.htm file. The code for the DateToday() function is as follows:

```
function DateToday() {

        var Today=new Date();

        var ThisDay=Today.getDate();

        var ThisMonth=Today.getMonth();+1

        var ThisYear=Today.getFullYear();

return ThisMonth+"/ "+ThisDay+"/ "+ThisYear;
}
```

This function contains JavaScript commands that you should be familiar with. It uses the date object and extracts the current day, month and year and then combines those values in a text string, which it then returns to the user. StartForm() will call the DateToday() function to retrieve a text string containing the current date and then it will place that text in the Date field in the registration form. The code for the StartForm() function is as follows:

```
function StartForm() {

        document.REG.formdate.value=DateToday();

}
```

The program calls the DateToday() function which creates a text string displaying the current date. The value of the formdate field of the REG form in the current document is then made equal to this text string. In other words, the current date is displayed in the formdate field, which is what Dr. Paulson wants.

Add the StartForm() function to the Study.htm file:

Go to the <script> tag in the Study.htm file

Below the closing bracket of the DateToday() function enter the following commands:

```
function  StartForm()  {

        document.REG.formdate.value=DateToday();

}
```

Save your changes and your Study.htm page should show the current date upon reloading.

Figure 9-19 shows the page in your browser which shows the current date in the Date field.

A field's "value" property is only one of many properties you can associate with input boxes such as formdate field. Other properties and methods associated with fields are shown in Figure 9-20.

The function does one of the 2 jobs it needs to; it displays the date in the Date field. Dr. Paulson also wants the function to move the cursor to the next field in the form. To accomplish this, you have to learn how to make JavaScript not only respond to an event but also initiate one.

Emulating Events

When you use JavaScript to emulate an event, you are causing the Web page to perform an action for the user, such as having the cursor move to the next field. To emulate an event, you apply an event method to an object on your Web page.

Figure 9-21 shows three examples of JavaScript commands that emulate events. The examples are based on a Web page that contains a form named ORDERS and an input box named PRODUCT.

Other events you can emulate in your forms are shown in Figure 9-22.

You need to add a command to the StartForm() function that places the cursor in the next field in the REG form, which in this case is the firstname field. The command to move the cursor to the firstname field is:

```
document.REG.firstname.focus();
```

<u>Revise the StartForm() function:</u>

Return to the Study.htm file

Locate the StartForm() function at the beginning of the file and then add the following command to the end of the command block

```
document.REG.firstname.focus()
```

Save you changes and reload the page and the focus should now be at the FIRSTNAME field.

You have completed your first task on your list for Dr. Paulson.

The next few fields in the form don't require any modifications. However, Dr. Paulson does want you to change the behavior of the Physician selection list.

Working with a Selection Object

Dr. Paulson wants the form to control how the user selects a physician from the selection list. If the user selects one of the seven physicians in the list, the cursor should immediately go to the field for the APGAR Activity score, skipping over the If other field. On the other hand, if the user selects "Other" from the list of physicians, the form should prompt the user to enter that physician's name before continuing.

You need to create another function to handle this task. The function, which you'll name CheckOther(), should run whenever the cursor leave the Physician selection list. This action of leaving a field is managed by the onblur() event handler. You'll now add this event handler to the <select> tag for the Physician selection list.

Add the onblur() event handler to the tag:

Return to your text editor and the Study.htm file

Locate the <select> tag for the Physician selection list and then insert the following code into the tag:

```
onBlur="CheckOther();"
```

Now you need to create the CheckOther() function. To do so, you need to learn a little about how JavaScript works with selection lists and their options. JavaScript treats a selection list as an array of option values. In the case of Dr. Paulson's form, the tags that define the Physician selection list are:

```
<select name=physician>
        <option value="Albert">Dr. Warren Albert
        <option value="Alvarez">Dr. Maria Alvarez
        <option value="Brinkman">Dr. Karen Brinkman
        <option value="Kerry">Dr. Michael Kerry
        <option value="Nichols">Dr. Chad Nichols
        <option value="Paulson">Dr. Karen Paulson
        <option value="Webb">Dr. Tai Webb
        <option value="Other">Other
</select>
```

Each option in the selection list has a value property that corresponds to the VALUE property entered into the <option> tag. For the Physician selection list, the following are the JavaScript objects and properties for each option value:

```
document.REG.physician.options[0].value="Albert"
document.REG.physician.options[1].value="Alvarez"
document.REG.physician.options[2].value="Brinkman"
document.REG.physician.options[3].value="Kerry"
document.REG.physician.options[4].value="Nichols"
document.REG.physician.options[5].value="Paulson"
document.REG.physician.options[6].value="Webb"
document.REG.physician.options[7].value="Other"
```

Each option in the selection list belongs to a hierarchy of object names. In this case, the hierarchy starts with the document object, goes to the REG form w/in the document, then goes to the physician field w/in the form and finally goes to each individual option w/in the selection list. Note that the array of selection options starts with an index value of 0 and not 1.

Similarly, the text that actually appears in the selection list is specified by the text property. For options in the Physician selection list, this results in the following objects and properties:

```
document.REG.physician.options[0].text="Dr. Warren Albert"
document.REG.physician.options[1].text="Dr. Maria Alvarez"
document.REG.physician.options[2].text="Dr. Karen Brinkman
document.REG.physician.options[3].text="Dr. Michael Kerry"
document.REG.physician.options[4].text="Dr. Chad Nichols"
document.REG.physician.options[5].text="Dr. Karen Paulson"
document.REG.physician.options[6].text="Dr. Tai Webb"
document.REG.physician.options[7].text="Dr. Other"
```

Figure 9-25 shows some of the other properties and methods associated with selection lists and selection options.

The first task the CheckOther() function should perform is to determine whether the user has chosen the option "Other" from the Physician selection list. The option the user selects is stored in the selectedIndex property of the selection list.

The full reference for the physician selection list is:

```
document. REG.physician.selectedIndex
```

For example, if the user selects "Other" from the selection list, the selectedIndex property has a value of 7, because Other is the seventh item in the array of physician options.

If the user selects "Other" from the list of physicians, you want the CheckOther() function to prompt the user for the physician's name before going onto the next field in the form (the ACT field). However, if the user selects one of the physicians in the list, then the form should proceed to the ACT field without prompting.

Add the CheckOther() function to the Study.htm file:

Go to the <script> tag in the Study.htm file

Below the StartForm() function, enter the following commands:

```
function CheckOther() {

    if (document. REG.physician.selectedIndex==7) {

        //Prompt for the name of the physician

    }

    document.REG.act.focus();

}
```

Save your changes and reload the file in your browser and note when one of the physician is selected from the list and TAB is pressed the cursor moves to the act field.
The first line of command block checks whether the Other option (index value 7) is selected. The second line of the command block, which is only a comment right now, will prompt the user to enter the name of the doctor in the Other field. This will be covered shortly. The last line of the command block, the Else statement causes the cursor to move to the Activity field if the index value of 7 was not selected.

Prompting the User for Input

To prompt the user for input, you use the prompt() method. The prompt() method creates a dialog box containing a message you create and an input field into which the user can type a value or text string. The syntax for the prompt() method is:

```
prompt("Message", "Default_text");
```

where Message is the message that you want to appear in the dialog box, and Default_text is the default text that you want to appear in the dialog box's input filed.

Figure 9-27 shows an example of the JavaScript prompt() method.

Note that different browsers will display their dialog boxes slightly differently; however, all dialog boxes will share the common features of a title bar, default value, OK button and Cancel button.

The prompt() method also returns a result that can be stored in a variable or placed in an object. For example, the following JavaScript command will place whatever text the user enters in the dialog box into the UserName variable:

```
UserName=prompt("Enter your name", "Type name here");
```

You can use the prompt() method in the CheckOther() function to prompt the user for the name of the physician and then to insert the response into the othername field.

Add the prompt() method to the CheckOther() function:

Replace the comment. "//Prompt for the name of the physician" with the following:

```
document.REG.othername.value=prompt("Enter name of physician", "Name");
```

Save your changes and reload the file

Select Other and press TAB

Enter the name Dr. Carol White and click Ok. Observe what happens.

Figure 9-29 shows how the dialog box should appear

Figure 9-30 shows that on your form the cursor should be blinking in the Activity input box.

Session 13A.3

In this session you will learn how to:

- Create a calculated field
- Perform validation checks on values that the user enters
- Notify the user when mistakes have been made
- Perform a final validation check when the form is submitted.

Creating Calculated Fields

Next task is to calculate the total APGAR score automatically and store this value in the TOTAL field. The APGAR score is a measure of the general health of a newborn baby and has 5 components: activity, pulse, grimace, appearance and respiration. Each component is given a score of 0, 1 or 2 and the formula for the total APGAR score is simply the sum of all 5 components:

Dr. Paulson wants the form to recalculate the total APGAR value every time the user enters a value in one of the APGAR fields.

The first thing you'll do then, is add the onblur() event handler to each of the 5 APGAR fields in the form. Every time the user tabs out of the one of these fields, the Web browser will call a function (which we will create shortly) that calculates the current APGAR total. The total value will then be stored in the total field on the form.

Add the onblur() event handler to the five APGAR fields:

Reopen Study.htm

Go to the <input> tag for the Activity field and insert w/in the tag the following onblur event handler

onblur="APGAR();"

APGAR() is the name of the JavaScript function that you'll create to calculate the total APGAR score and then store the result in the total field.

Add this same line of code to the <input> tags of the other 4 component fields (but not to the total field)

Save your changes

Next, you need to create the APGAR() function. This function should add up the values entered into each of the component fields; however, JavaScript has a quirk you have to account for.

JavaScript treats values entered into input boxes as text strings, so you must first convert them from the text format to the number format. Otherwise the APGAR() function will produce an error.

You can change text to numbers with the eval() function.

One feature of the eval() function is that it takes a number that is represented as a text string and converts it to a number. For e.g. the following command takes the text string "10," converts it to the number 10 and stores that value in the variable total:

```
total = eval("10");
```

Converting the text values to numbers is important; otherwise, JavaScript will simply append one text string to the other. For e.g., consider the following command:

```
"10" + "5"
```

This command produces the text string "105" because you're adding 2 text strings together, rather than the values the text strings represent. However, the following command results in the numeric value 15:

```
eval("10") + eval("5")
```

Using the eval() function, you would create the APGAR() function as follows:

Create the APGAR() function:

Locate the CheckOther() function at the top of the Study.htm file and insert the following lines of code below it.

```
function APGAR() {
        var A = eval(document.REG.act.value);
        var P = eval(document.REG.pulse.value);
        var G = eval(document.REG.grimace.value);
        var AP = eval(document.REG.app.value);
        var R = eval(document.REG.resp.value);
        document.REG.total.value=A+P+G+AP+R;

}
```

Save your changes.

Enter the following APGAR component values (press the Tab key to move between the fields):

2 in the Activity field
0 in the Pulse field
1 in the Grimace field
2 in the Appearance field
2 in the Respiration field

Each time you enter a component value and press the Tab key to leave the field, the onBlur() event handler is triggered and the APGAR() function is run, updating the value in the total field.

Figure 9-33 shows the final result after you tab out of the Respiration field
By using the onBlur() event handler and the APGAR() function, you've created a field that is automatically calculated for the user. In its current form, the APGAR() function will accept any

value for each of the components; however, the function must also make sure that only valid APGAR component scores are entered. You'll make this change next.

Validating User Input

Dr. Paulson wants the form to allow only the values 0, 1 and 2 to be entered into the APGAR component fields; these are the only values physician assign when performing an examination of a newborn. If the user enters an incorrect value 2 things must happen:

1. The browser should display a dialog box informing the user of the mistake.

2. The cursor should be positioned back in the field in which the user entered the incorrect value, preventing the user from leaving the field until a valid value has been entered.

This presents a problem in the registration form. Five different component fields could be calling the APGAR() function. How do you know which field is the one in which the user entered an incorrect value? To make this work, you have to pass info to the function, indicating which field is using it.

You do this with the "this" keyword.

The "this" Keyword

The this keyword is a word reserved by JavaScript to refer to the currently selected object, whatever that might be. For e.g., if the Pulse field is the current field, the following 2 commands produce the same action (changing the value of the Pulse field to 2).

```
document.REG.pulse.value = 2;

this.value = 2;
```

You can also use the "this" keyword to pass info about the currently selected field to a function. For e.g., assume that you have 2 input boxes, pulse and resp both of which will use the same function, SetVal(), as shown below:

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

                function SetVal(field) {

                        field.value = 0;

                }

        </script>

<input name = pulse onfocus="SetVal(this);">

<input name = resp onfocus="SetVal(this);">
```

When the pulse input box receives the focus, it calls the SetVal() function, including the "this" keyword, as a parameter value. The SetVal() function is then applied to the currently selected object. When the pulse field is the currently selected object, the SetVal() function changes the pulse value to zero. When the resp field is the currently selected object, its value is similarly set to zero.

In the same way, you can modify the APGAR() function to include info, through the "this" keyword, to indicate which field is calling the function. You can test then whether the value of the field violates the rules that Dr. Paulson has set up for APGAR scores.

Add the "this" keyword to the onBlur() event handlers:

Return to the Study.htm file and go to the <input> tag for the Activity field.

In the code onBlur="APGAR();" type the word this within the parentheses so that the code now reads, onBlur="APGAR(this);"

Repeat the above step for the remaining 4 components of the APGAR scores

Save your changes.

Now that you've added the "this" keyword to the event handler that calls the APGAR() function, you need to make several changes to the function itself.

1. The function must store the value of the active field in a variable.

2. It needs to test whether or not the value of that variable is equal to 0, 1 or 2. If it is the function can calculate the total APGAR score as before, if not, the function should alert the user that a mistake has been made and return the cursor to the appropriate field so that the user can enter the correct value.

The revised APGAR() function should be as follows:

```
        function APGAR(field) {

        if(field.value==0 || field.value==1 || field.value==2) {

                var A = eval(document.REG.act.value);
                var P = eval(document.pulse.act.value);
                var G = eval(document.REG.grimace.value);
                var AP = eval(document.REG.ap.value);
                var R = eval(document.REG.resp.value);
                document.REG.total.value = A + P + G + AP + R;

        } else {

                //alert the user

                field.focus();

        }
        }
```

Figure 9-34 illustrates how this function works.

The new version of the APGAR() function has a single parameter, "field", which records which field called the function. Then the function tests whether the field value equals 0, 1 or 2 (remember that the || symbols represent the "or" logical operator). If this is the case, the function calculates the total APGAR score as before and the user continues to the next field in the form. However, if the field's value is other than 0,1 or 2, the function should alert the user that a mistake has been made and return the user to the field using the focus() method. The command for alerting the user is inserted as a comment at this point. We will modify this with a dialog box soon.

Revise the APGAR() function:

Locate the APGAR() function at the top of the Study.htm file

Change the function line function APGAR() to function APGAR(field)

Add the following 2 lines below the function statement as shown

```
if(field.value==0 || field.value==1 || field.value==2) {
```

Insert the following commands above the last line (the closing braces}) of the function

```
} else {

//alert the user

field.focus();
```

Save your changes.

Figure 9-35 shows the entire function, as it should appear in your text editor.

Notifying the User with Alert and Confirm Dialog Boxes

If the user enters an incorrect value for one of the APGAR components, the form should display a dialog box informing the user of the error. To accomplish this, you can use the alert() method. The alert() method operates in the same way as the prompt() method, except that it does not provide an input box in which the user can type a response. Instead, it simply displays a dialog box containing a message. The syntax for the alert() method is:

```
alert("Message");
```

Figure 9-36 shows an example of an alert dialog box.

Different browsers display slightly different dialog boxes.

JavaScript provides another method called the confirm() method, which works in the same way as the alert() method, except it has 2 buttons on the dialog box, an OK and Cancel button. If the user clicks the OK button, the value "true" is returned and "false" if cancel is clicked.

You would use the confirm() method in situations that require a simple "yes" (OK) or "no" (Cancel) response from the user.

Figure 9-37 shows an example of using the confirm() method to create a dialog box.

Add the alert() method to the APGAR() function:

In the APGAR() function, replace the comment "//alert the user" with the following line of code:

```
alert("You must enter a 0, 1 or 2");
```

Save your changes and reload the file in your browser and test whether the alert functions when an incorrect value is entered.

Figure 9-39 shows the dialog box in action when the user enters value other than 0, 1 or 2

Controlling Form Submission:

Dr. Paulson wants the registration form to perform a validity check to determine whether or not a parental consent form has been filled out. This is indicated on the registration form by the Parental Consent check box. If the box is checked, then it is assumed that the consent form has been filled out. This validity check must be performed when the user tries to submit the form.

When a user completes a form and then clicks the Submit button, a Submit event is initiated. JavaScript provides the onsubmit event handler to allow you to run a program in response to this action. Because the Submit event is associated with the form object, you must place the event handler in the <form> tag as shown below:

```
<script type="text/javascript">
        function goodbye() {
        alert("Thank you for your time");
        }
</script>

<form onSubmit="goodbye();">
```

In this example, the goodbye() function is run automatically when the user clicks the Submit button located elsewhere in the HTML file and a dialog box with the message "Thank you for your time" appears. This is a simple example in which the function does not actually perform any validation; it just displays a message. When you need to validate the form or a particular field in it, the situation is a bit different.

The syntax for validating your form before submitting it is:

```
<form onsubmit="return Function_Name();">
```

where Function_Name is the name of the function that is used to validate your form.

The function must return a value of either "true" or "false". If the function value is "true", the form will be submitted to the CGI script. If the value is "false", submission is canceled and the user is returned to the form (presumably to correct the problem). Note the inclusion of the keyword "return" in this command. The return keyword forces the browser to apply the results of the validation function. If you do not include the return keyword, the browser will submit the form whether or not it passes the validation test.

For e.g. if you create a function named Check_Data() to validate your form, the correct version of the onsubmit event handler will be:

```
<form onsubmit="return Check_Data();">
```

and not:

```
<form onsubmit="Check_Data();">
```

Add the Check_Data() function to the onSubmit event handler:

Return to the Study.htm file and go to the <FORM> tag (located below the list of functions)

Within the <form> tag, insert the following command

```
onsubmit="return Check_Data();"
```

Save your changes

Now you need to create the Check_Data() function. The purpose of this function is to simply determine whether or not the Parental Consent check box has been checked.
Some of the properties and methods associated with check boxes are shown in
Figure 9-41

You can tell whether a check box object has been checked by using the "checked" property. It is a Boolean property either true or false. In Dr. Paulson's form the Parental Consent check box has the field name consent. So if,

```
document.REG.consent.checked
```

equals "true" then the check box has been checked. If the property value is "false" the check box has been left unchecked and the form should not be submitted because no parental consent has been given.

The Check_Data() function will test which of these 2 conditions has occurred. If the check box has been selected, the function will alert the user that the form has been completed successfully and will return a value of "true". If the check box has not been selected, the function will alert the user of the problem and return a value of "false".

Create the Check_Data() function:

Below the APGAR() function at the top of the Study.htm file, insert the following lines:

```
function Check_Data() {

        if(document.REG.consent.checked==true) {

                alert("Form completed successfully");

                return true;

        } else {

                alert("You still need parental consent");

                return false;
        }

}
```

Save your changes to Study.htm and reload the file in your browser.

Figure 9-43 shows the dialog box working if the checkbox for parental consent is not checked.

Figure 9-44 shows the form being completed successfully if the parental consent check box has been checked.

Now you can test the Check_Data() function by trying to submit the form w/out first checking the Parental Consent check box.

In a more advanced version of this page, you might add other variation criteria to the Check_Data() function. For e.g., you might check whether or not a name and medical record number have been entered for the patient. You might double-check the values of each APGAR component to verify that they still valid. In that case the Check_Data() function would include several If…Else conditions.

Reloading a Page with the Location Object

There is one more issue to consider with the registration form. A user who wants to reset the form can press the Reload button located next to the register button. The Reload button resets all of the fields in the form to their default values. Is this what Dr. Paulson wants? Not exactly; recall that the first action this form takes is to insert the current date into the formdate field. This action runs whenever the page is loaded. Unfortunately, resetting a form is not the same as reloading the page. The date value would not be entered automatically if you simply reset the form. Instead, your form should actually be reloaded, an action which includes the onload event, which runs the StartForm() function, which in turn inserts the current date in the form.

To reload a page, you use the location object. The location object indicates the location of the page in the browser. To reload the page, use the reload() method.

```
location.reload();
```

You also can use JavaScript to access a page in a different location. The following command:

```
location=URL
```

will cause the browser to load a Web page with the address, URL.

Because the command for reloading a page is a single-line command, you can enter it directly into the <input> tag for the Reload button. The command should be activated whenever the button is clicked, so you'll use the onclick event handler in the tag

Insert the command to reload the page:

Return to the Stuy.htm file and go to the <input> tag for the Reload button at the bottom of the form. This tag is located in the section "Form registration and reset buttons"

Insert the following command into the <input> tag

```
onclick=”location.reload();”
```

Save your changes to the Study.htm file and reopen the file in your Web browser.

Enter some text in the form and click the Reload button. Verify that the page reloads properly: all the fields should be reset to their default values, the current date should be inserted into the formdate field and the cursor should be in the first name input box.

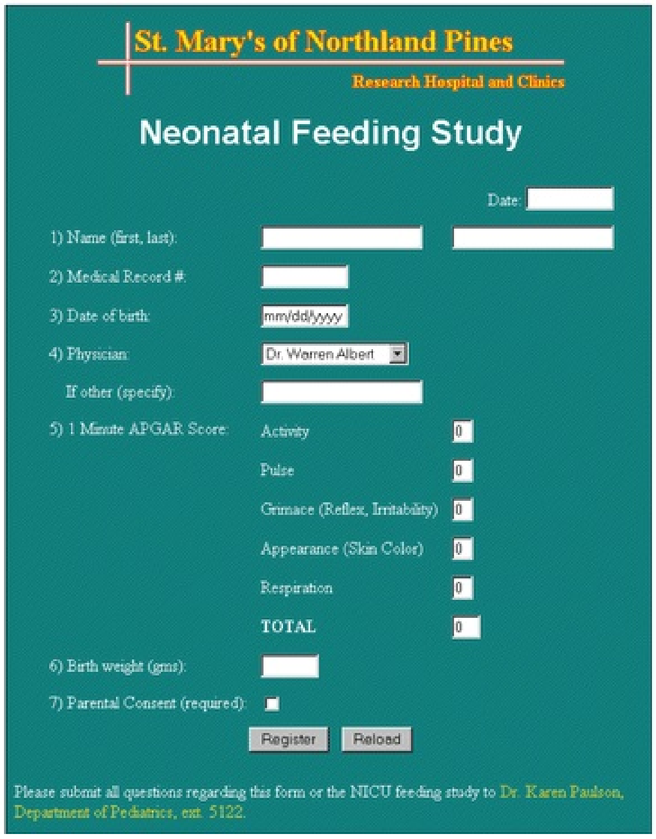
Module 13A - Figures

The following images are the figures referred to in **Working with JavaScript Objects and Events**.

Activity 13A.1 - Figures

Figure 9-1

Figure 9-1 DR PAULSON'S REGISTRATION FORM



St. Mary's of Northland Pines
Research Hospital and Clinics

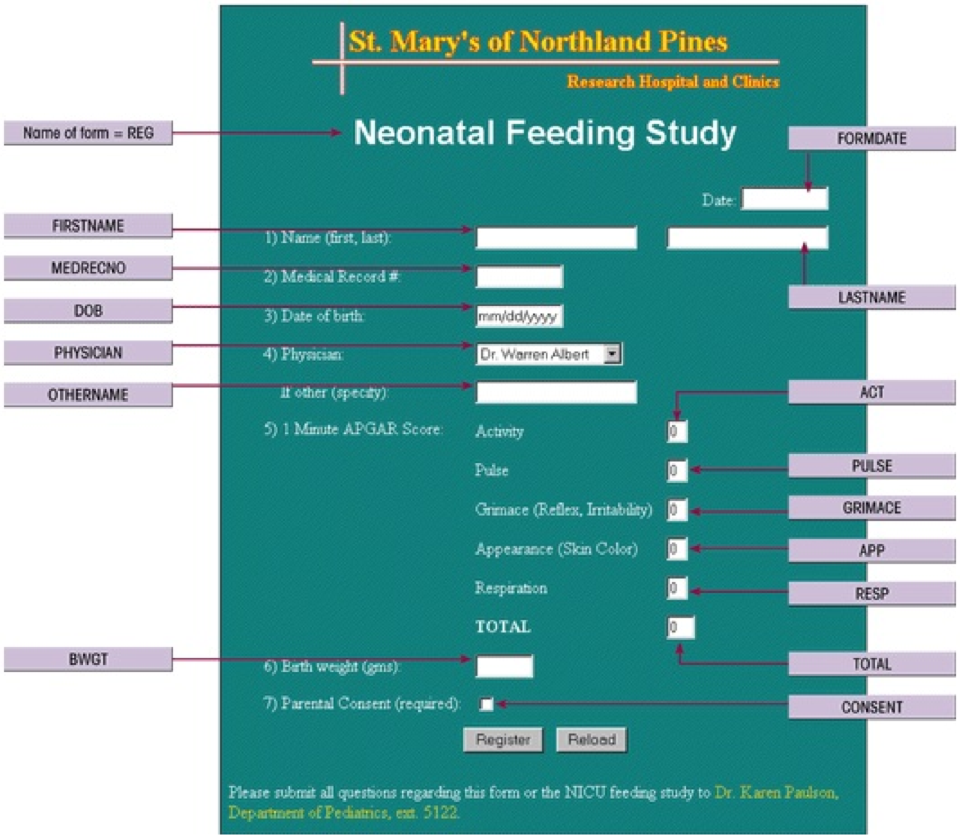
Neonatal Feeding Study

		Date:
1) Name (first, last):		
2) Medical Record #:		
3) Date of birth:	mm/dd/yyyy	
4) Physician:	Dr. Warren Albert	
If other (specify):		
5) 1 Minute APGAR Score:	Activity	0
	Pulse	0
	Grimace (Reflex, Irritability)	0
	Appearance (Skin Color)	0
	Respiration	0
	TOTAL	0
6) Birth weight (gms):		
7) Parental Consent (required):		

Please submit all questions regarding this form or the NICU feeding study to Dr. Karen Paulson, Department of Pediatrics, ext. 5122.

Figure 9-2

Figure 9-2 FIELD NAMES IN THE REGISTRATION FORM



St. Mary's of Northland Pines

Research Hospital and Clinics

Neonatal Feeding Study

Date:

1) Name (first, last):

2) Medical Record #:

3) Date of birth: mm/dd/yyyy

4) Physician: Dr. Warren Albert

If other (specify):

5) 1 Minute APGAR Score: Activity 0

Pulse 0

Grimace (Reflex, Irritability) 0

Appearance (Skin Color) 0

Respiration 0

TOTAL 0

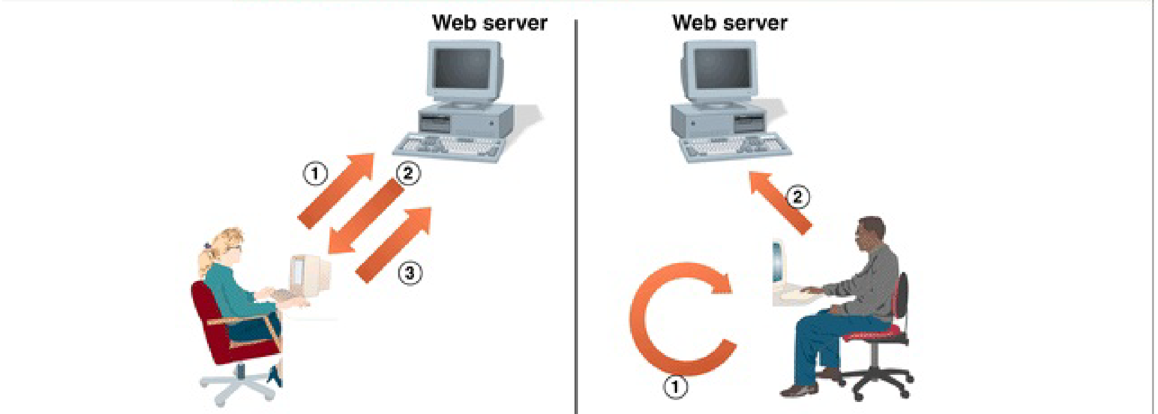
6) Birth weight (gms):

7) Parental Consent (required):

Please submit all questions regarding this form or the NICU feeding study to Dr. Karen Paulson, Department of Pediatrics, ext. 5122.

Figure 9-3

Figure 9-3 SERVER-SIDE AND CLIENT-SIDE VALIDATION



Server-side validation

1) The user submits the form to the Web server.

2) The Web server validates the user's responses and, if necessary, returns the form to the user for correction.

3) After correcting any errors, the user resubmits the form to the Web server for another validation.

Client-side validation

1) The user submits the form, and validation is performed on the user's computer.

2) After correcting any errors, the user submits the form to the Web server.

Figure 9-4

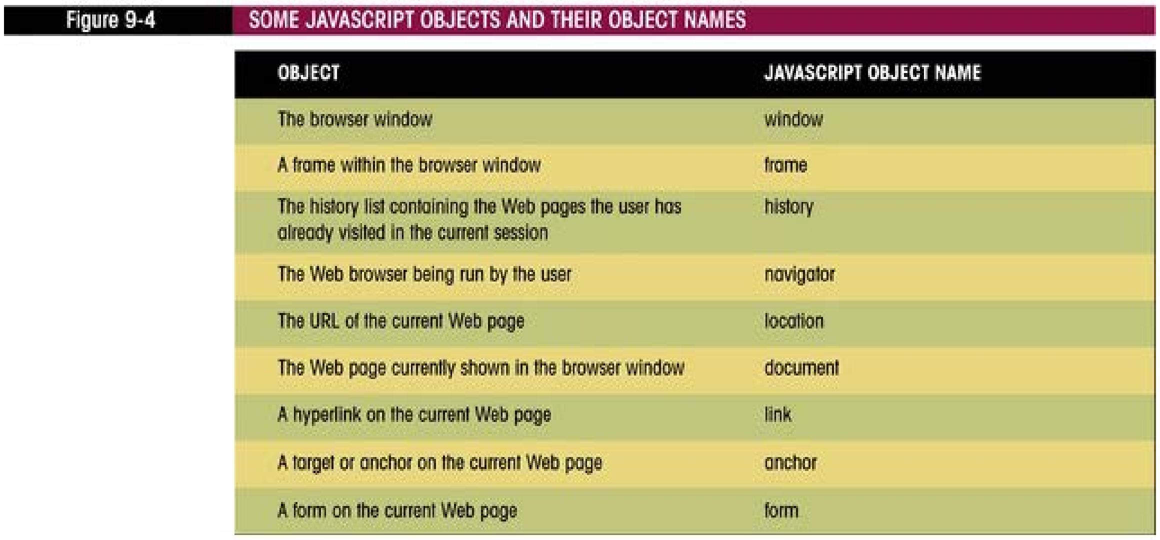


Figure 9-4 SOME JAVASCRIPT OBJECTS AND THEIR OBJECT NAMES

OBJECT	JAVASCRIPT OBJECT NAME
The browser window	window
A frame within the browser window	frame
The history list containing the Web pages the user has already visited in the current session	history
The Web browser being run by the user	navigator
The URL of the current Web page	location
The Web page currently shown in the browser window	document
A hyperlink on the current Web page	link
A target or anchor on the current Web page	anchor
A form on the current Web page	form

Figure 9-5

Figure 9-5 JAVASCRIPT OBJECT HIERARCHY

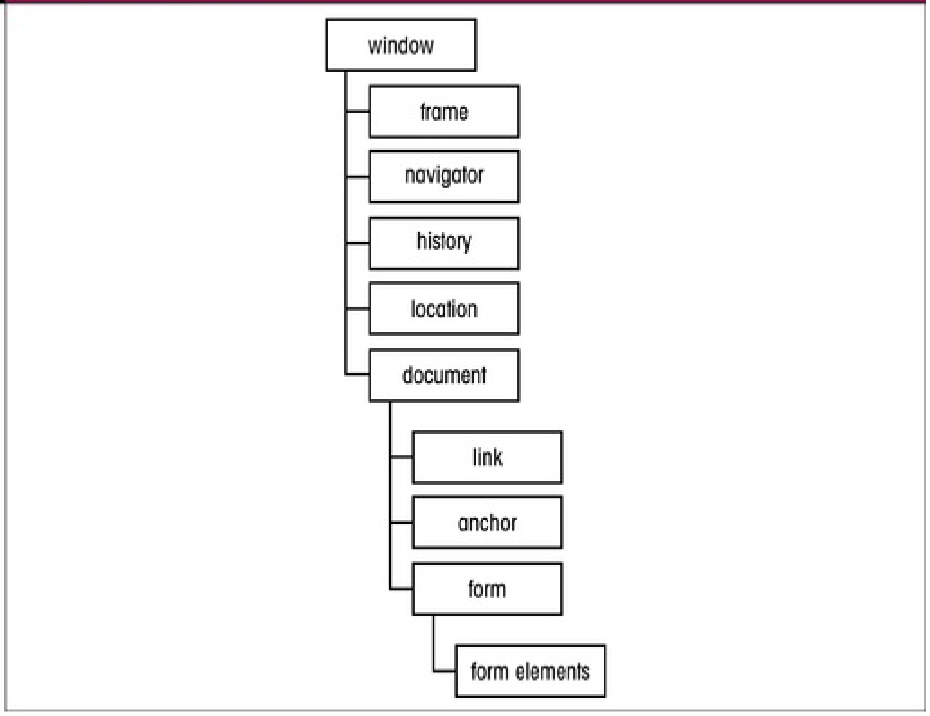
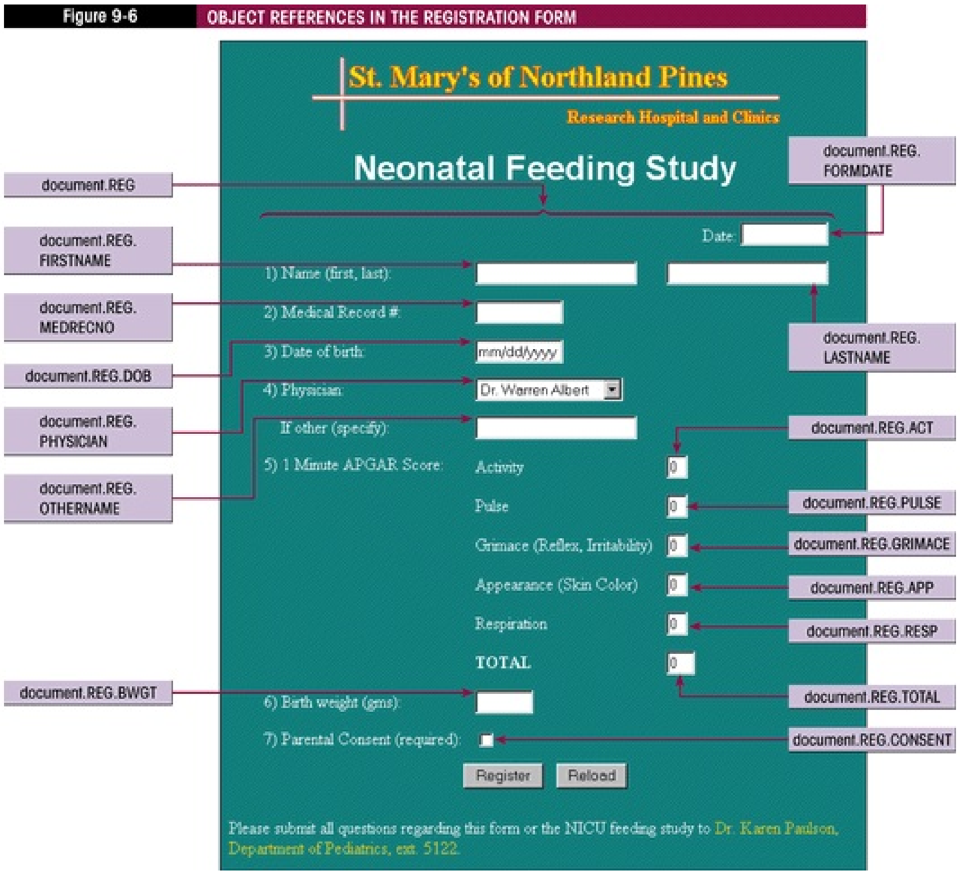


Figure 9-6



St. Mary's of Northland Pines

Research Hospital and Clinics

Neonatal Feeding Study

Date:

1) Name (first, last):

2) Medical Record #:

3) Date of birth: mm/dd/yyyy

4) Physician: Dr. Warren Albert

If other (specify):

5) 1 Minute APGAR Score:

Activity	0
Pulse	0
Grimace (Reflex, Irritability)	0
Appearance (Skin Color)	0
Respiration	0
TOTAL	0

6) Birth weight (gms):

7) Parental Consent (required):

Please submit all questions regarding this form or the NICU feeding study to Dr. Karen Paulson, Department of Pediatrics, ext. 5122

Figure 9-7

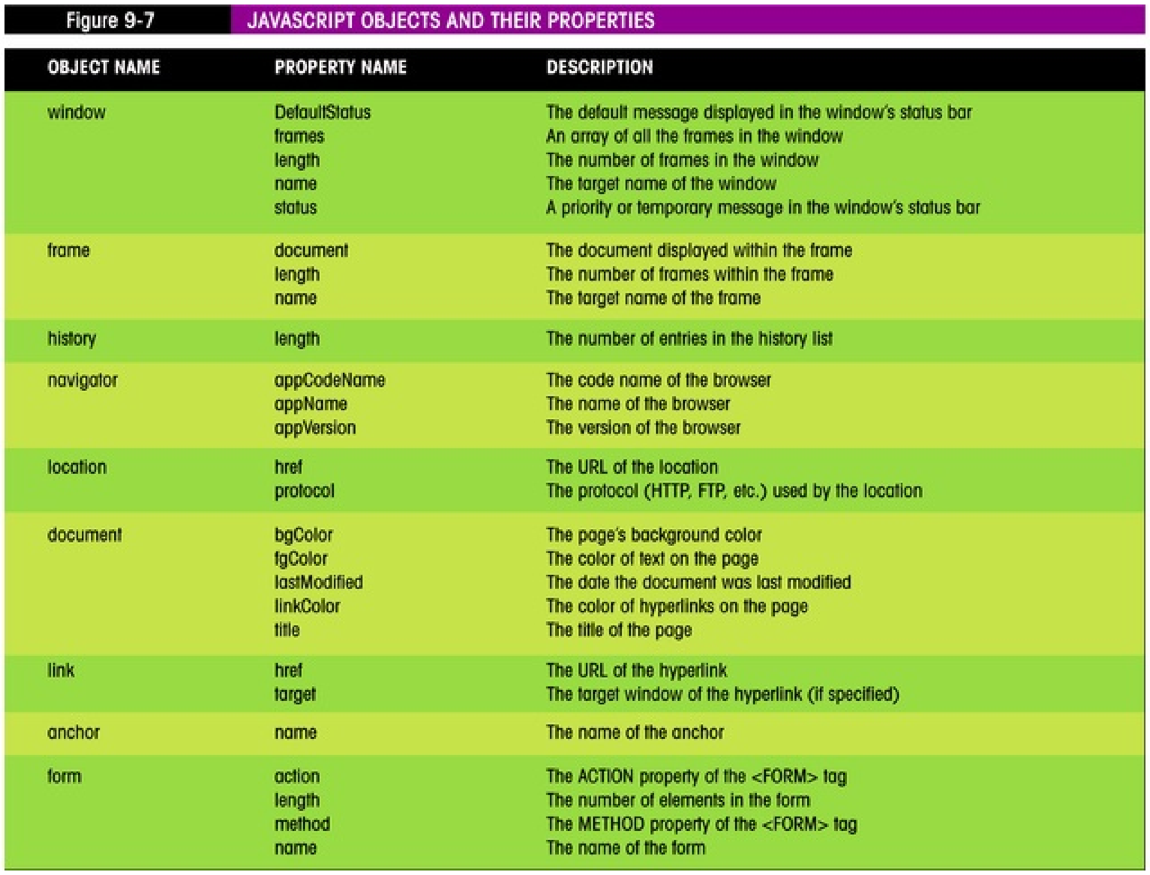


Figure 9-7 JAVASCRIPT OBJECTS AND THEIR PROPERTIES

OBJECT NAME	PROPERTY NAME	DESCRIPTION
window	DefaultStatus	The default message displayed in the window's status bar
	frames	An array of all the frames in the window
	length	The number of frames in the window
	name	The target name of the window
	status	A priority or temporary message in the window's status bar
frame	document	The document displayed within the frame
	length	The number of frames within the frame
	name	The target name of the frame
history	length	The number of entries in the history list
navigator	appCodeName	The code name of the browser
	appName	The name of the browser
	appVersion	The version of the browser
location	href	The URL of the location
	protocol	The protocol (HTTP, FTP, etc.) used by the location
document	bgColor	The page's background color
	fgColor	The color of text on the page
	lastModified	The date the document was last modified
	linkColor	The color of hyperlinks on the page
	title	The title of the page
link	href	The URL of the hyperlink
	target	The target window of the hyperlink (if specified)
anchor	name	The name of the anchor
form	action	The ACTION property of the <FORM> tag
	length	The number of elements in the form
	method	The METHOD property of the <FORM> tag
	name	The name of the form

Figure 9-8

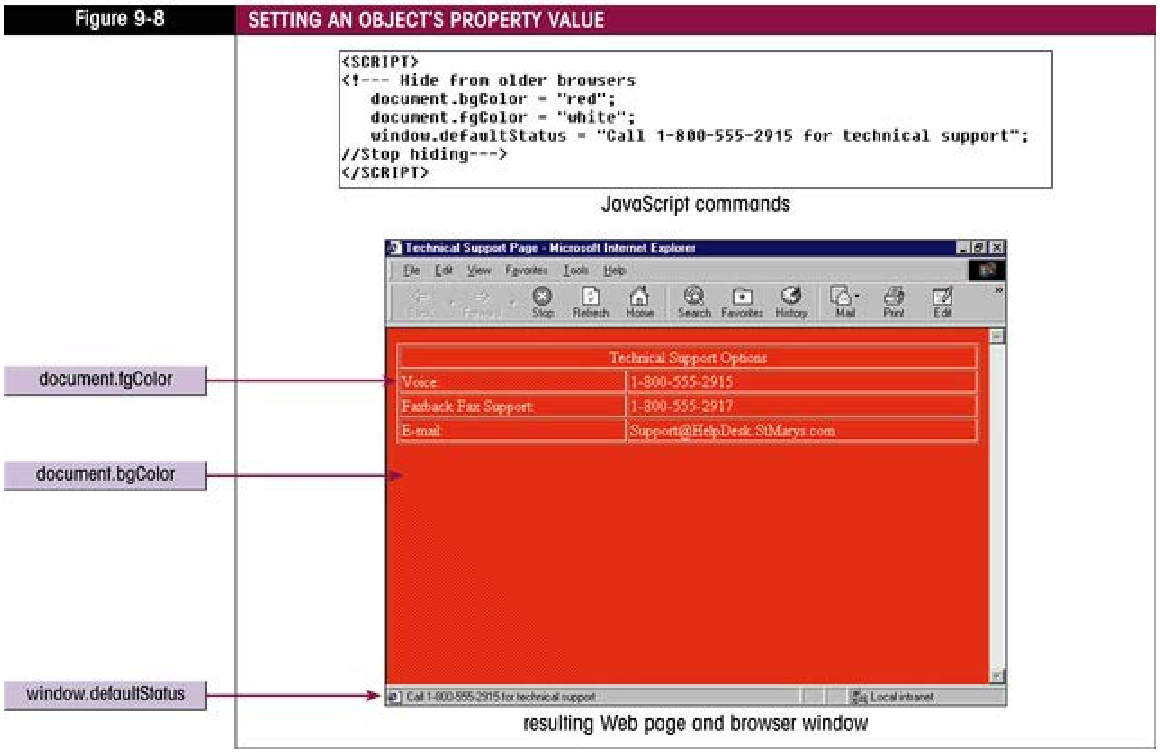


Figure 9-8 SETTING AN OBJECT'S PROPERTY VALUE

```
<SCRIPT>
<!--- Hide from older browsers
   document.bgColor = "red";
   document.fgColor = "white";
   window.defaultStatus = "Call 1-800-555-2915 for technical support";
//Stop hiding--->
</SCRIPT>
```

JavaScript commands

Technical Support Options	
Voice:	1-800-555-2915
Faxback Fax Support:	1-800-555-2917
E-mail:	Support@HelpDesk.StMarys.com

Call 1-800-555-2915 for technical support

resulting Web page and browser window

document.fgColor
document.bgColor
window.defaultStatus
Technical Support Page - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Forward Stop Refresh Home Search Favorites History Mail Print Edit
Local intranet

Figure 9-9

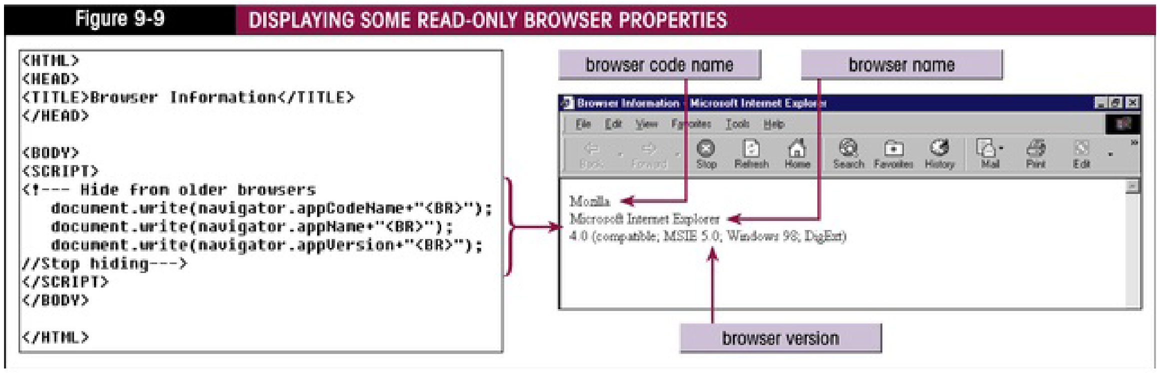


Figure 9-9 DISPLAYING SOME READ-ONLY BROWSER PROPERTIES

```
<HTML>
<HEAD>
<TITLE>Browser Information</TITLE>
</HEAD>

<BODY>
<SCRIPT>
<!--- Hide from older browsers
   document.write(navigator.appCodeName+"<BR>");
   document.write(navigator.appName+"<BR>");
   document.write(navigator.appVersion+"<BR>");
//Stop hiding--->
</SCRIPT>
</BODY>

</HTML>
```

```
Mozilla
Microsoft Internet Explorer
4.0 (compatible; MSIE 5.0; Windows 98; DigExt)
```

browser code name
browser name
browser version
Browser Information - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Forward Stop Refresh Home Search Favorites History Mail Print Edit

Figure 9-10

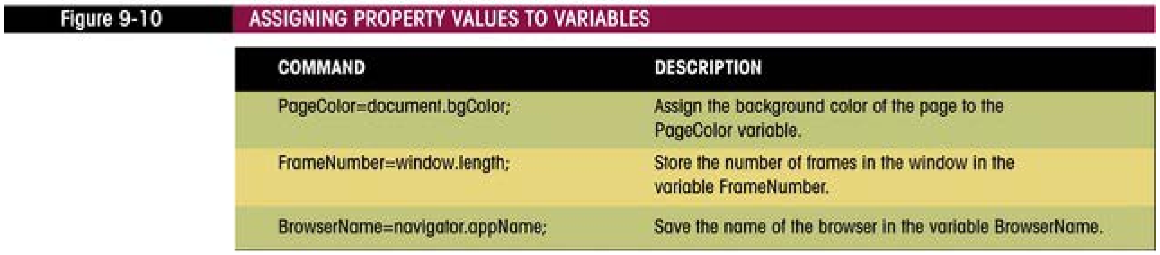


Figure 9-10 ASSIGNING PROPERTY VALUES TO VARIABLES

COMMAND	DESCRIPTION
PageColor=document.bgColor;	Assign the background color of the page to the PageColor variable.
FrameNumber=window.length;	Store the number of frames in the window in the variable FrameNumber.
BrowserName=navigator.appName;	Save the name of the browser in the variable BrowserName.

Figure 9-11

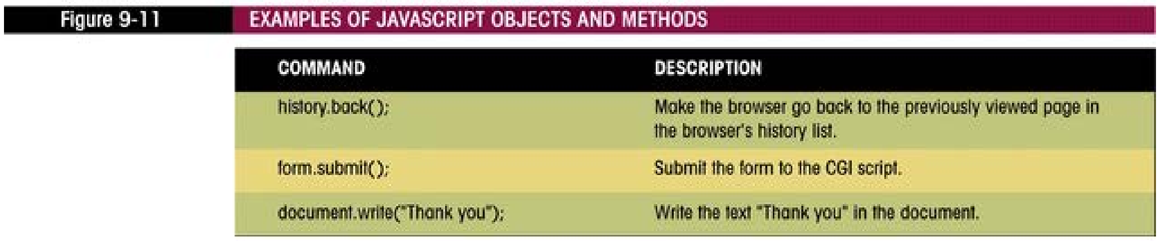


Figure 9-11 EXAMPLES OF JAVASCRIPT OBJECTS AND METHODS

COMMAND	DESCRIPTION
history.back();	Make the browser go back to the previously viewed page in the browser's history list.
form.submit();	Submit the form to the CGI script.
document.write("Thank you");	Write the text "Thank you" in the document.

Figure 9-12

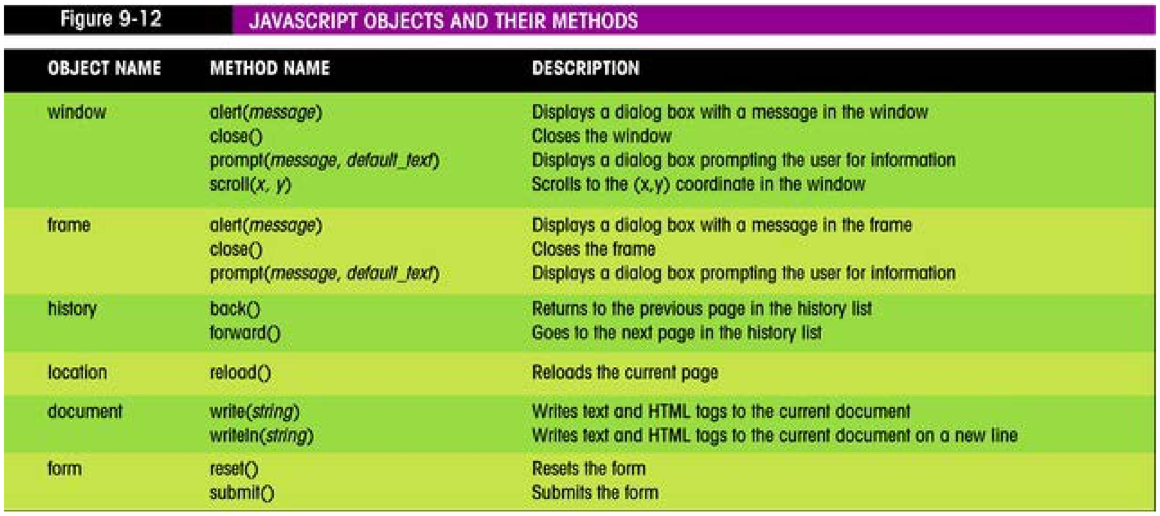


Figure 9-12 JAVASCRIPT OBJECTS AND THEIR METHODS

OBJECT NAME	METHOD NAME	DESCRIPTION

window	alert(*message*)
	close()
	prompt(*message*, *default_text*)
	scroll(*x*, *y*)
		Displays a dialog box with a message in the window
		Closes the window
		Displays a dialog box prompting the user for information
		Scrolls to the (x,y) coordinate in the window

frame	alert(*message*)
	close()
	prompt(*message*, *default_text*)
		Displays a dialog box with a message in the frame
		Closes the frame
		Displays a dialog box prompting the user for information

history	back()
	forward()
		Returns to the previous page in the history list
		Goes to the next page in the history list

location	reload()	Reloads the current page

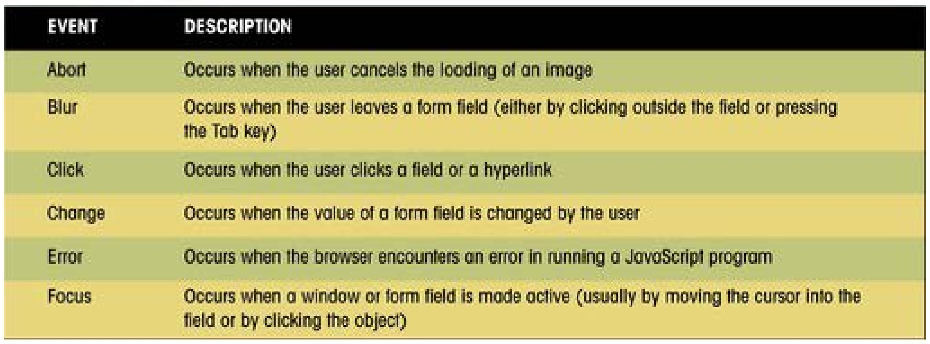
document	write(*string*)
	writeln(*string*)
		Writes text and HTML tags to the current document
		Writes text and HTML tags to the current document on a new line

form	reset()
	submit()
		Resets the form
		Submits the form

Activity 13A.2 - Figures

Figure 9-13

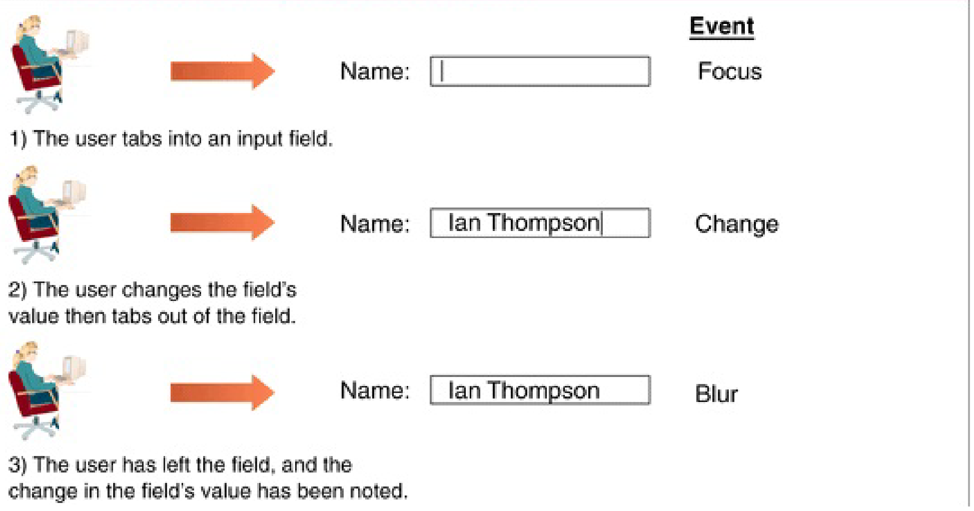
Figure 9-13 JAVASCRIPT EVENTS



EVENT	DESCRIPTION
Abort	Occurs when the user cancels the loading of an image
Blur	Occurs when the user leaves a form field (either by clicking outside the field or pressing the Tab key)
Click	Occurs when the user clicks a field or a hyperlink
Change	Occurs when the value of a form field is changed by the user
Error	Occurs when the browser encounters an error in running a JavaScript program
Focus	Occurs when a window or form field is made active (usually by moving the cursor into the field or by clicking the object)

Figure 9-14

Figure 9-14 EVENTS INITIATED BY THE USER DURING DATA ENTRY



1) The user tabs into an input field.

2) The user changes the field's value then tabs out of the field.

3) The user has left the field, and the change in the field's value has been noted.

Figure 9-15

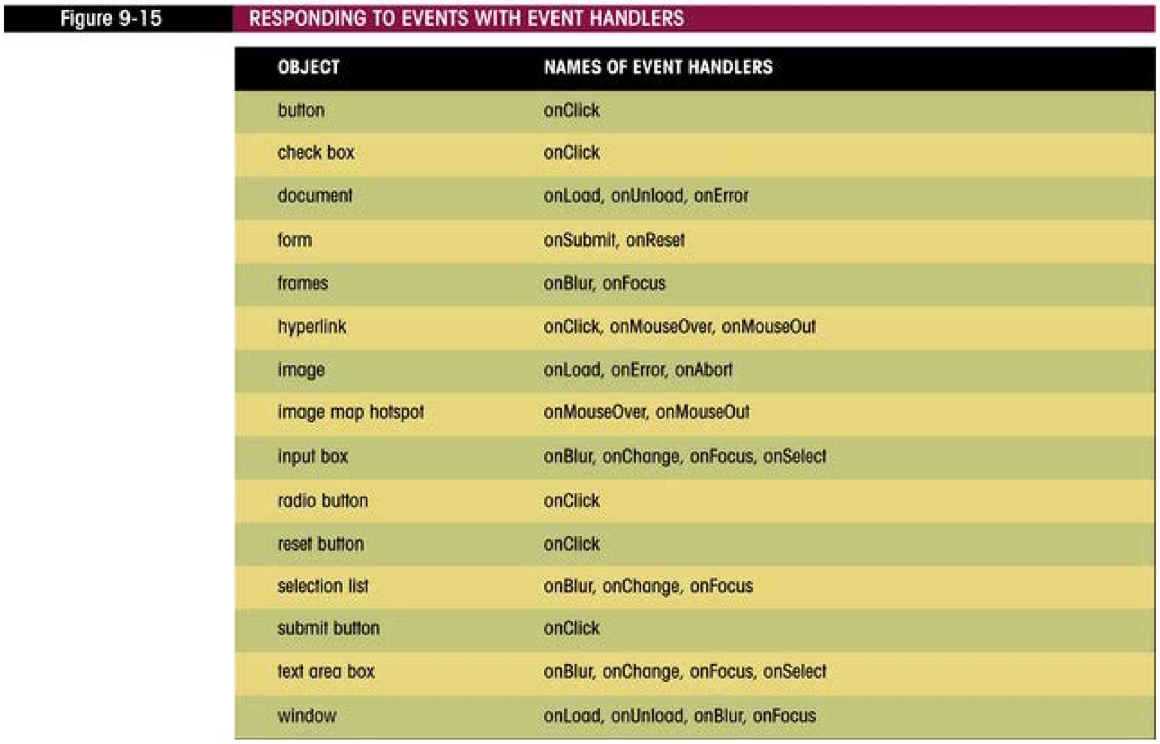


Figure 9-15 RESPONDING TO EVENTS WITH EVENT HANDLERS

OBJECT	NAMES OF EVENT HANDLERS
button	onClick
check box	onClick
document	onLoad, onUnload, onError
form	onSubmit, onReset
frames	onBlur, onFocus
hyperlink	onClick, onMouseOver, onMouseOut
image	onLoad, onError, onAbort
image map hotspot	onMouseOver, onMouseOut
input box	onBlur, onChange, onFocus, onSelect
radio button	onClick
reset button	onClick
selection list	onBlur, onChange, onFocus
submit button	onClick
text area box	onBlur, onChange, onFocus, onSelect
window	onLoad, onUnload, onBlur, onFocus

Figure 9-16

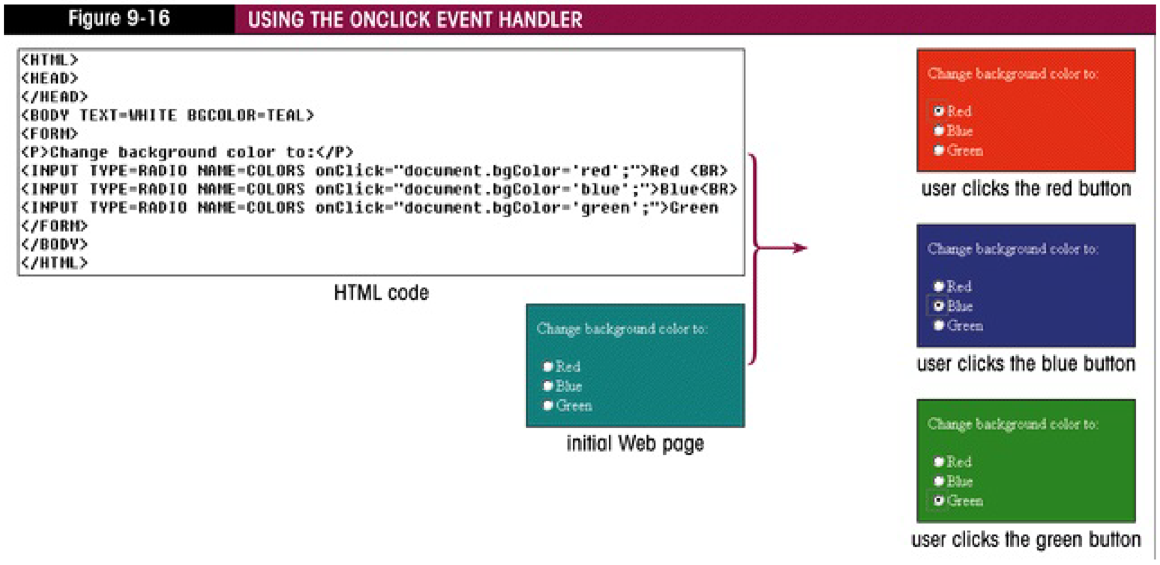


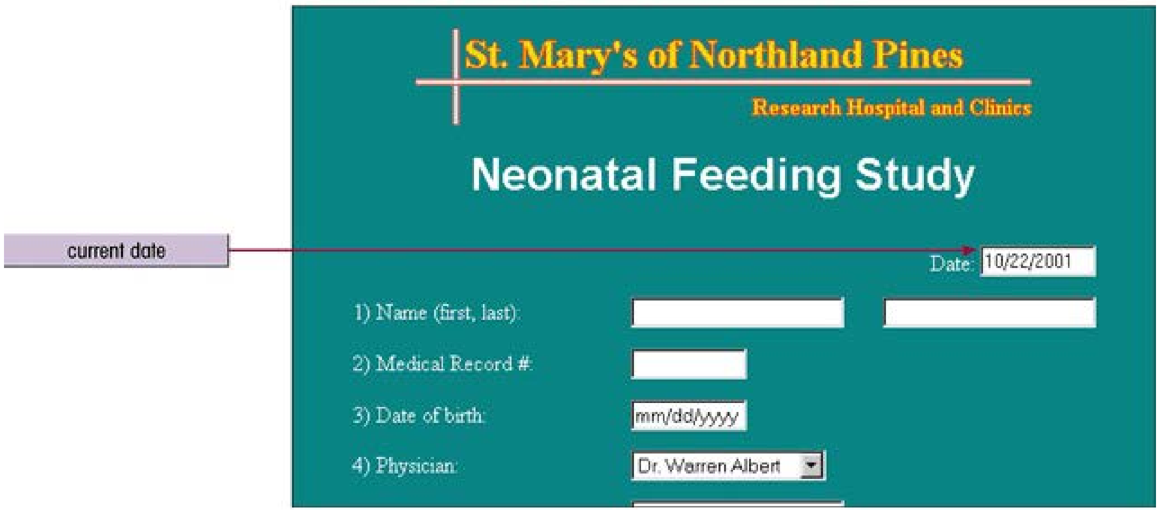
Figure 9-16 USING THE ONCLICK EVENT HANDLER

```
<HTML>
<HEAD>
</HEAD>
<BODY TEXT=WHITE BGCOLOR=TEAL>
<FORM>
<P>Change background color to:</P>
<INPUT TYPE=RADIO NAME=COLORS onClick="document.bgColor='red';">Red <BR>
<INPUT TYPE=RADIO NAME=COLORS onClick="document.bgColor='blue';">Blue<BR>
<INPUT TYPE=RADIO NAME=COLORS onClick="document.bgColor='green';">Green
</FORM>
</BODY>
</HTML>
```

HTML code
Change background color to:
Red
Blue
Green
initial Web page
user clicks the red button
user clicks the blue button
user clicks the green button

Figure 9-19

Figure 9-19 CURRENT DATE INSERTED INTO THE REGISTRATION FORM



Date: 10/22/2001

1) Name (first, last):

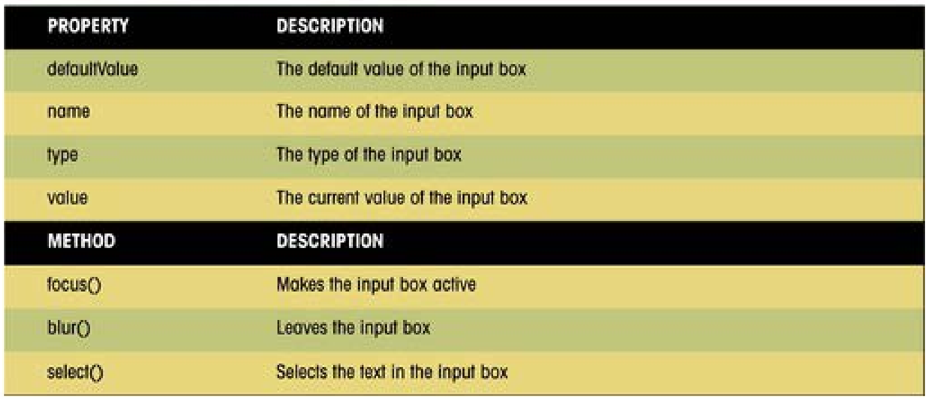
2) Medical Record #:

3) Date of birth: mm/dd/yyyy

4) Physician: Dr. Warren Albert

Figure 9-20

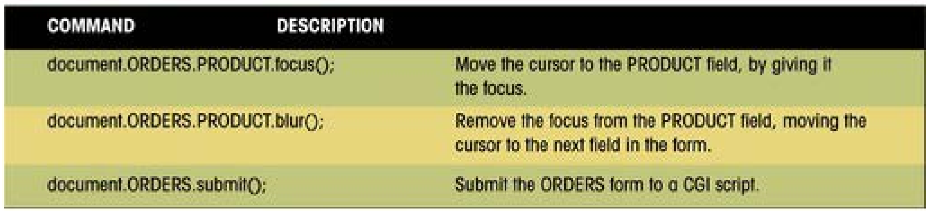
Figure 9-20 PROPERTIES AND METHODS OF INPUT BOXES



PROPERTY	DESCRIPTION
defaultValue	The default value of the input box
name	The name of the input box
type	The type of the input box
value	The current value of the input box
METHOD	**DESCRIPTION**
focus()	Makes the input box active
blur()	Leaves the input box
select()	Selects the text in the input box

Figure 9-21

Figure 9-21 EMULATING AN EVENT WITH JAVASCRIPT



COMMAND	DESCRIPTION
document.ORDERS.PRODUCT.focus();	Move the cursor to the PRODUCT field, by giving it the focus.
document.ORDERS.PRODUCT.blur();	Remove the focus from the PRODUCT field, moving the cursor to the next field in the form.
document.ORDERS.submit();	Submit the ORDERS form to a CGI script.

Figure 9-22

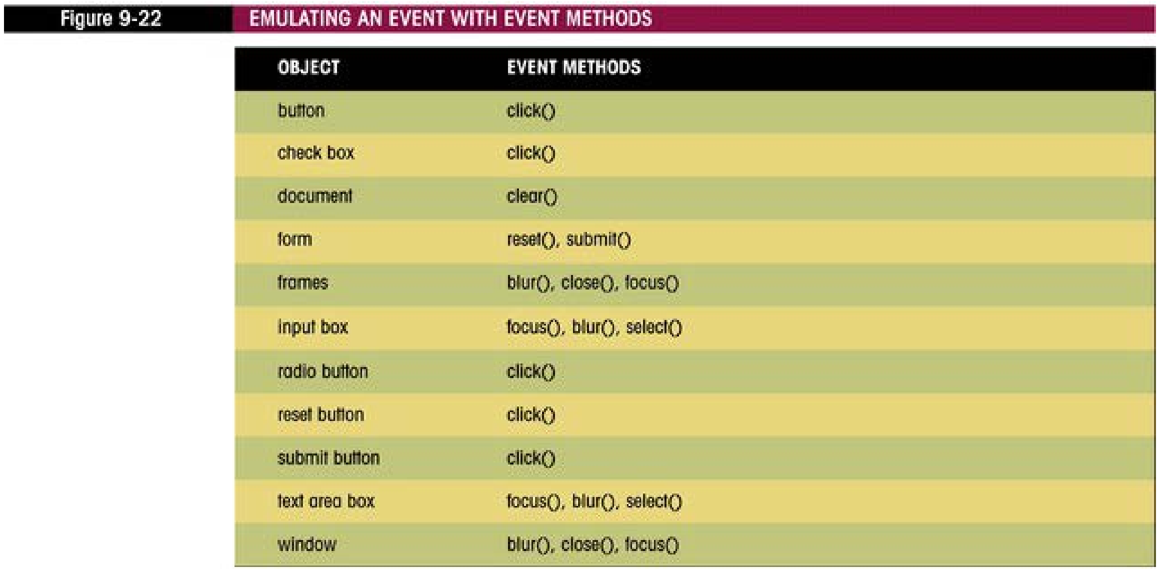


Figure 9-22 EMULATING AN EVENT WITH EVENT METHODS

OBJECT	EVENT METHODS
button	click()
check box	click()
document	clear()
form	reset(), submit()
frames	blur(), close(), focus()
input box	focus(), blur(), select()
radio button	click()
reset button	click()
submit button	click()
text area box	focus(), blur(), select()
window	blur(), close(), focus()

Figure 9-25

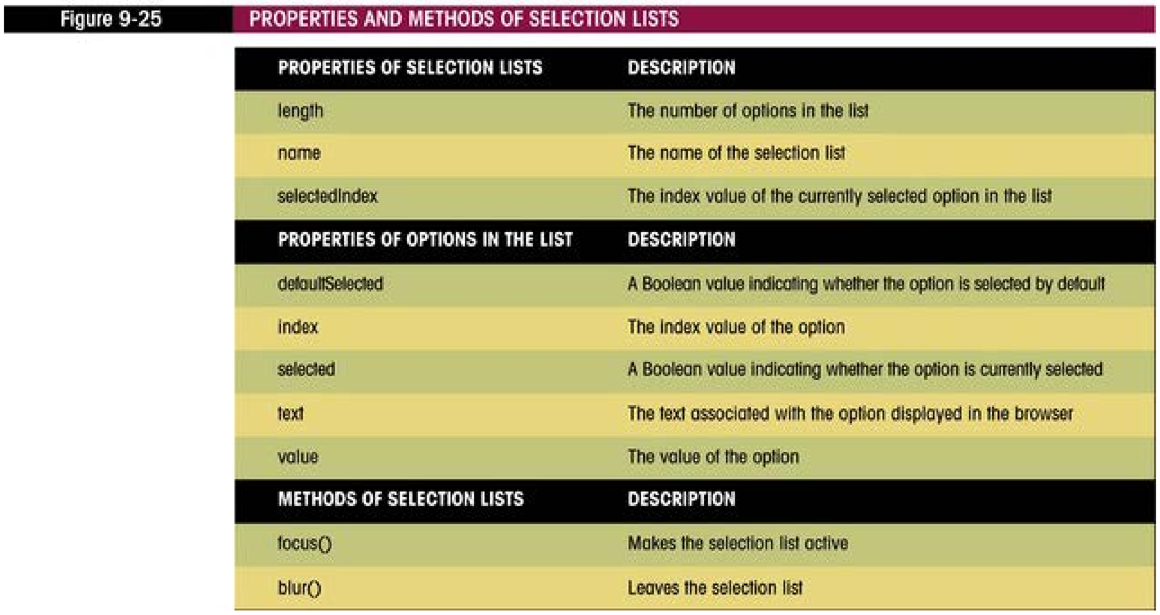
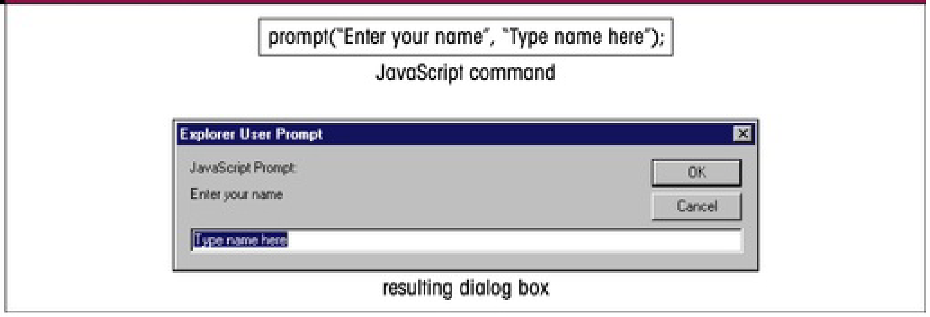


Figure 9-25 PROPERTIES AND METHODS OF SELECTION LISTS

PROPERTIES OF SELECTION LISTS	DESCRIPTION
length	The number of options in the list
name	The name of the selection list
selectedIndex	The index value of the currently selected option in the list
PROPERTIES OF OPTIONS IN THE LIST	**DESCRIPTION**
defaultSelected	A Boolean value indicating whether the option is selected by default
index	The index value of the option
selected	A Boolean value indicating whether the option is currently selected
text	The text associated with the option displayed in the browser
value	The value of the option
METHODS OF SELECTION LISTS	**DESCRIPTION**
focus()	Makes the selection list active
blur()	Leaves the selection list

Figure 9-27

Figure 9-27 THE PROMPT METHOD



```
prompt("Enter your name", "Type name here");
```

JavaScript command

Figure 9-29

Figure 9-29 ENTERING A PHYSICIAN NAME IN THE DIALOG BOX

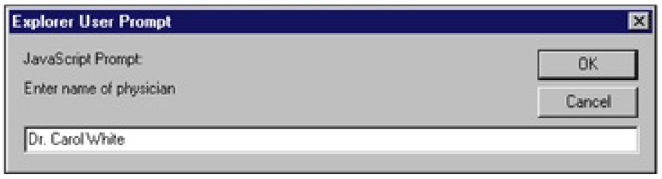
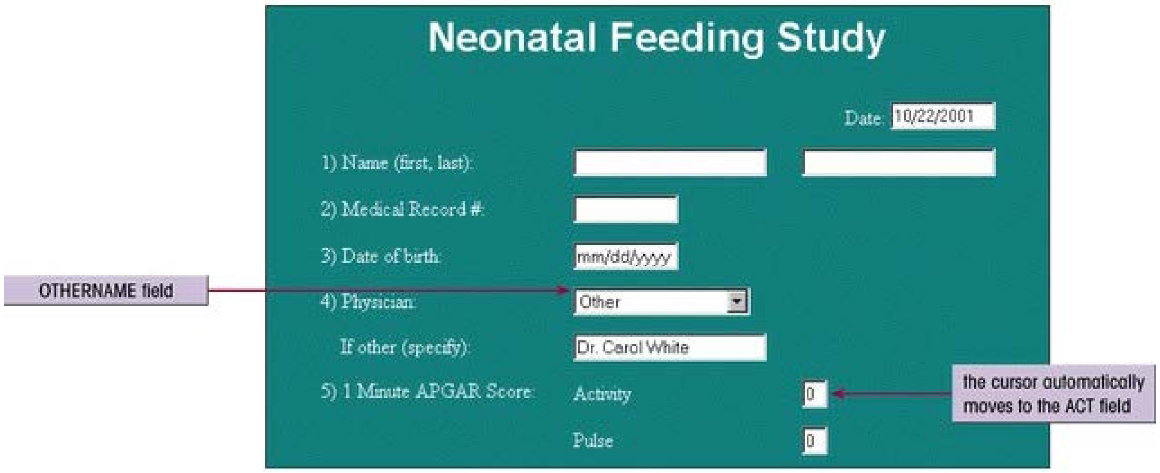


Figure 9-30

Figure 9-30 PHYSICIAN'S NAME AUTOMATICALLY ENTERED INTO THE OTHERNAME FIELD



Neonatal Feeding Study

Date: 10/22/2001

1) Name (first, last):

2) Medical Record #:

3) Date of birth: mm/dd/yyyy

4) Physician: Other

If other (specify): Dr. Carol White

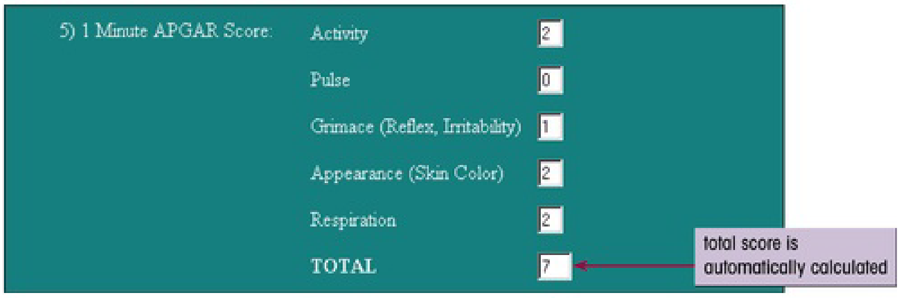
5) 1 Minute APGAR Score: Activity 0

Pulse 0

Activity 13A.3 - Figures

Figure 9-33

Figure 9-33 CALCULATING THE TOTAL APGAR SCORE

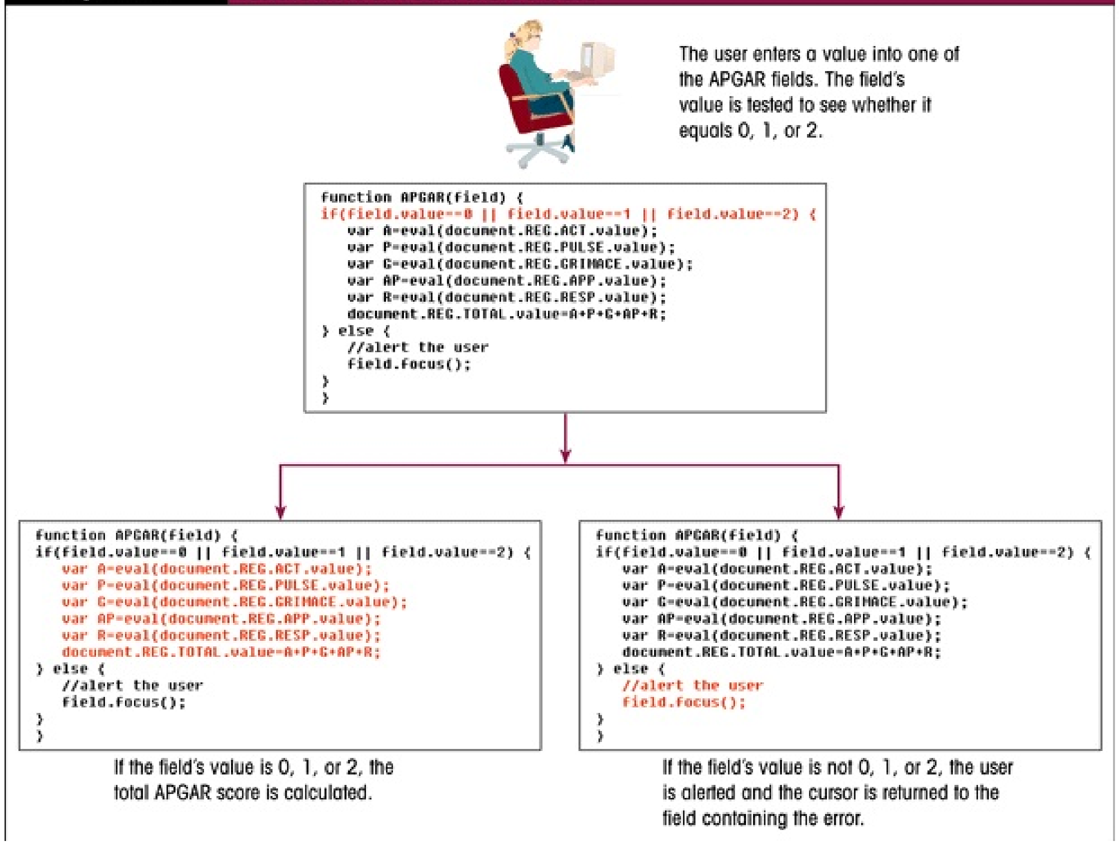


5) 1 Minute APGAR Score:

Activity	2
Pulse	0
Grimace (Reflex, Irritability)	1
Appearance (Skin Color)	2
Respiration	2
TOTAL	7

Figure 9-34

Figure 9-34 TESTING AN APGAR COMPONENT'S VALUE



The user enters a value into one of the APGAR fields. The field's value is tested to see whether it equals 0, 1, or 2.

```
function APGAR(field) {
if(field.value==0 || field.value==1 || field.value==2) {
   var A=eval(document.REG.ACT.value);
   var P=eval(document.REG.PULSE.value);
   var G=eval(document.REG.GRIMACE.value);
   var AP=eval(document.REG.APP.value);
   var R=eval(document.REG.RESP.value);
   document.REG.TOTAL.value=A+P+G+AP+R;
} else {
   //alert the user
   field.focus();
}
}
```

```
function APGAR(field) {
if(field.value==0 || field.value==1 || field.value==2) {
   var A=eval(document.REG.ACT.value);
   var P=eval(document.REG.PULSE.value);
   var G=eval(document.REG.GRIMACE.value);
   var AP=eval(document.REG.APP.value);
   var R=eval(document.REG.RESP.value);
   document.REG.TOTAL.value=A+P+G+AP+R;
} else {
   //alert the user
   field.focus();
}
}
```

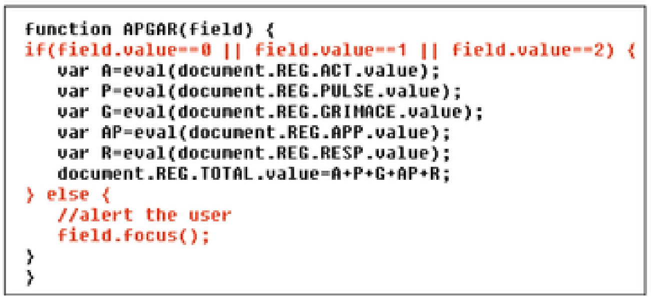
If the field's value is 0, 1, or 2, the total APGAR score is calculated.

```
function APGAR(field) {
if(field.value==0 || field.value==1 || field.value==2) {
   var A=eval(document.REG.ACT.value);
   var P=eval(document.REG.PULSE.value);
   var G=eval(document.REG.GRIMACE.value);
   var AP=eval(document.REG.APP.value);
   var R=eval(document.REG.RESP.value);
   document.REG.TOTAL.value=A+P+G+AP+R;
} else {
   //alert the user
   field.focus();
}
}
```

If the field's value is not 0, 1, or 2, the user is alerted and the cursor is returned to the field containing the error.

Figure 9-35

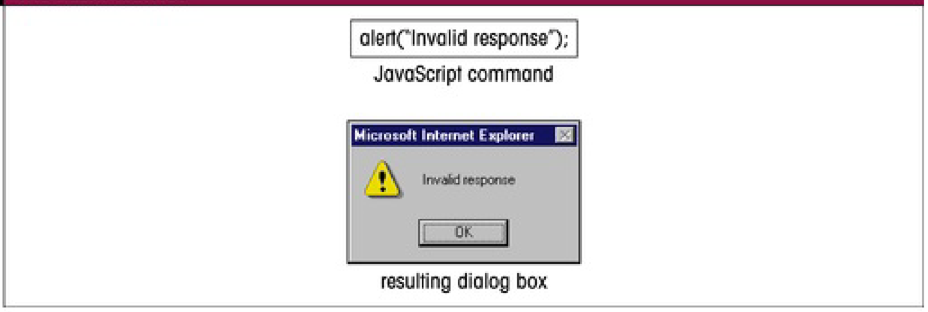
Figure 9-35 THE REVISED APGAR() FUNCTION



```
function APGAR(field) {
if(field.value==0 || field.value==1 || field.value==2) {
   var A=eval(document.REG.ACT.value);
   var P=eval(document.REG.PULSE.value);
   var G=eval(document.REG.GRIMACE.value);
   var AP=eval(document.REG.APP.value);
   var R=eval(document.REG.RESP.value);
   document.REG.TOTAL.value=A+P+G+AP+R;
} else {
   //alert the user
   field.focus();
}
}
```

Figure 9-36

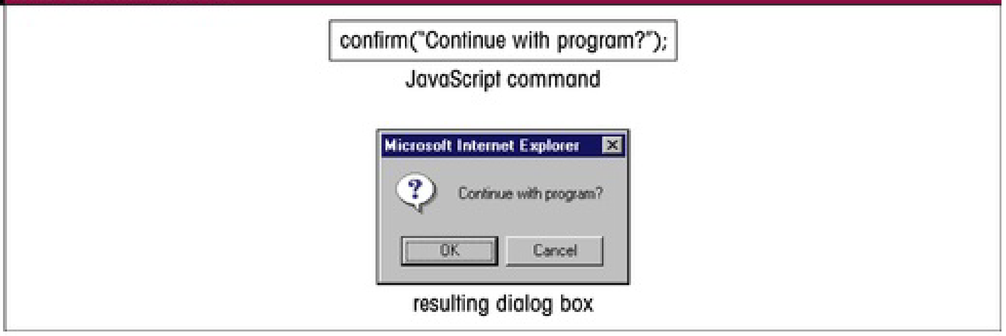
Figure 9-36 THE ALERT METHOD



```
alert("Invalid response");
```

Figure 9-37

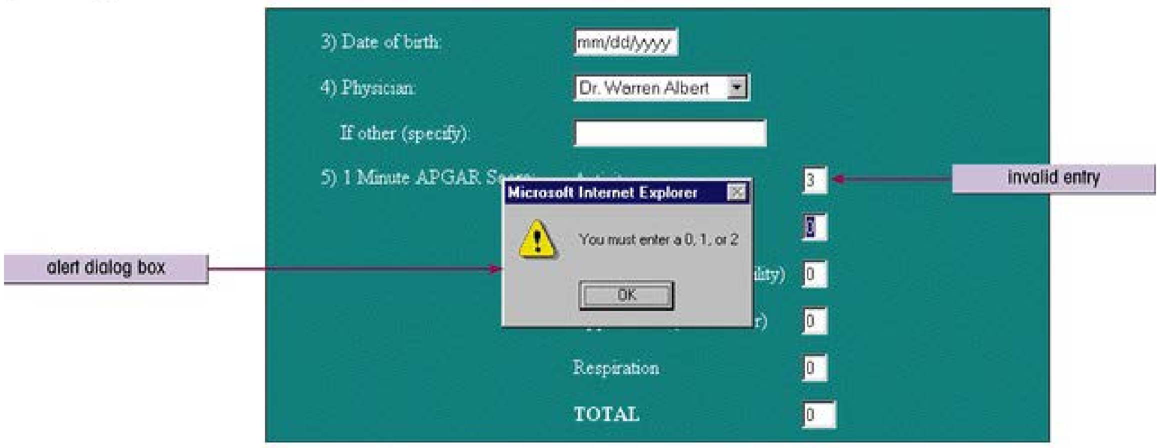
Figure 9-37 THE CONFIRM METHOD



```
confirm("Continue with program?");
```

Figure 9-39

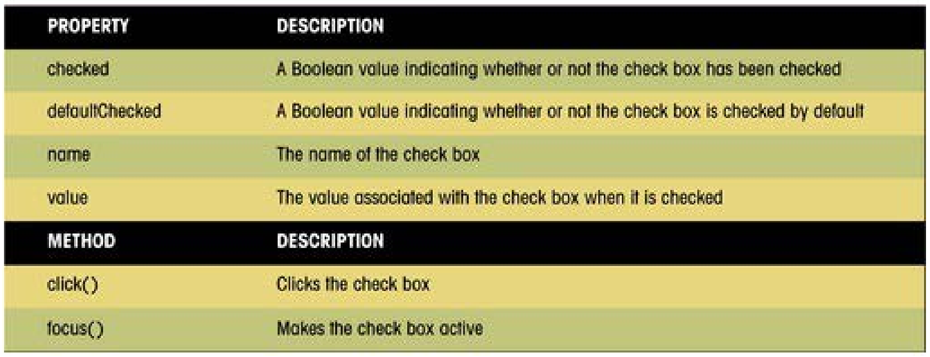
Figure 9-39 ALERTING THE USER TO AN INVALID ENTRY



You must enter a 0, 1, or 2

Figure 9-41

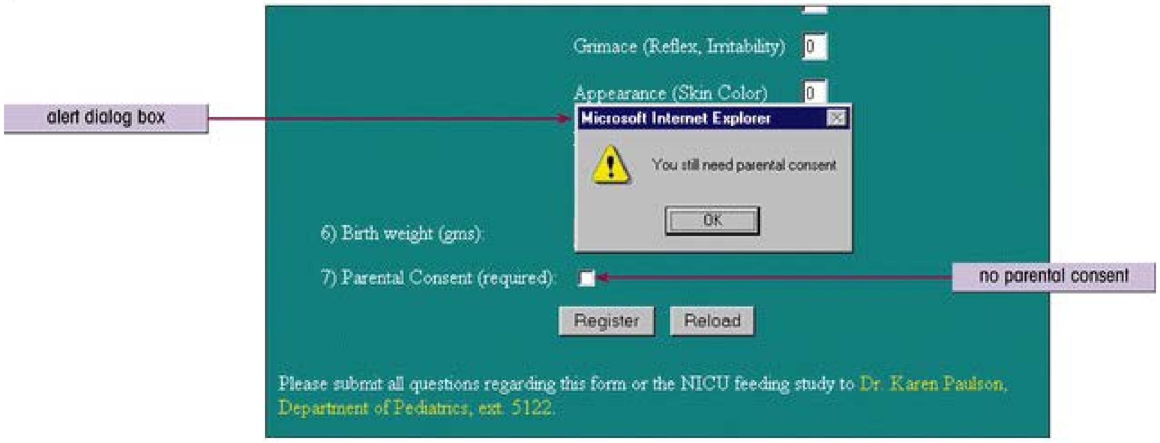
Figure 9-41 PROPERTIES AND METHODS OF CHECK BOXES



PROPERTY	DESCRIPTION
checked	A Boolean value indicating whether or not the check box has been checked
defaultChecked	A Boolean value indicating whether or not the check box is checked by default
name	The name of the check box
value	The value associated with the check box when it is checked
METHOD	**DESCRIPTION**
click()	Clicks the check box
focus()	Makes the check box active

Figure 9-43

Figure 9-43 A FORM IS REJECTED BECAUSE OF LACK OF PARENTAL CONSENT

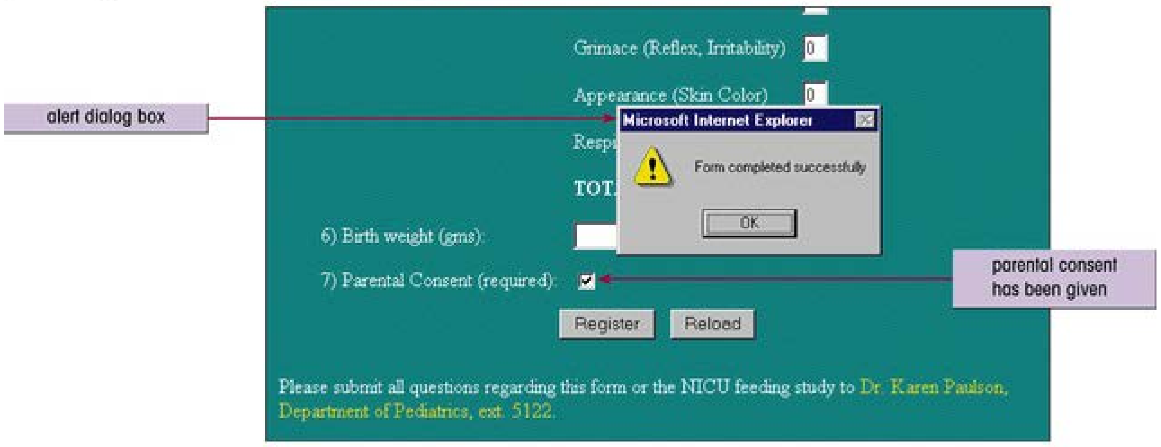


You still need parental consent

Please submit all questions regarding this form or the NICU feeding study to Dr. Karen Paulson, Department of Pediatrics, ext. 5122.

Figure 9-44

Figure 9-44 A VALID FORM IS SUBMITTED



Grimace (Reflex, Irritability) 0

Appearance (Skin Color) 0

Resp

TOT

Form completed successfully

6) Birth weight (gms):

7) Parental Consent (required): ✓

Please submit all questions regarding this form or the NICU feeding study to Dr. Karen Paulson, Department of Pediatrics, ext. 5122.