

Chapter 20

How to use JavaScript libraries

Objectives

Applied

- Write code that uses jQuery to add effects to selected elements, to attach event handlers, and to modify elements and the DOM tree.
- Write code that uses Dojo to add effects to selected elements, to attach event handlers, and to modify elements and the DOM tree.
- Write code that uses these Dijits: Form, Button, CheckBox, RadioButton, ValidationTextBox, and FilteringSelect.

Knowledge

- Given a jQuery selector, describe the elements it will select.
- Describe the jQuery hide and show methods.
- Describe the jQuery bind and unbind methods.

Objectives (continued)

- Describe the jQuery `addClass`, `removeClass`, and `html` methods.
- Describe how to create new nodes with jQuery.
- Describe the jQuery `append`, `before`, `after`, and `replaceWith` methods.
- Describe the Dojo `require`, `query` and `byId` methods.
- Describe the Dojo `connect` and `disconnect` methods.
- Describe the Dojo `wipeIn`, `wipeOut`, `fadeIn`, and `fadeOut` methods.
- Explain when Dijits need to be manually parsed.
- Describe the `dijit.byId` method.
- Describe the `isValid` method of a Form Dijit.

Where to get information about the jQuery library

`http://www.jquery.com`

Where to download the jQuery library

`http://code.google.com/p/jqueryjs/downloads/list`

How to include the jQuery library from a local file

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

From the Google Code web site

```
<script type="text/javascript"  
    src="http://jqueryjs.googlecode.com/  
        files/jquery-1.3.2.min.js">  
</script>
```

Two objects that refer to the jQuery library

Object	Description
jQuery	Main object for the jQuery library
\$	Shortcut object for the jQuery library

How to avoid conflicts with other libraries that use the \$ variable

Load jQuery last

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

Then, return \$ to its original object

```
jQuery.noConflict();
```

Or, assign a new shortcut object that you can use to refer to jQuery

```
var $jq = jQuery.noConflict();
```

How to use the ready method to run a function

```
$( ).ready( function () {  
    // Your code goes here  
});
```

How to select the document object

Method 1: Calling the \$ function with the document object as the argument

```
$ (document) ;
```

Method 2: Calling the \$ function with no arguments

```
$ ( ) ;
```

How to select elements by tag name, class, or id

Select all paragraph tags

```
$ ("p") ;
```

Select all elements that have a class named error

```
$ (".error") ;
```

Select the element with btnSubmit as its id

```
$ ("#btnSubmit") ;
```

How to select elements by attributes

Select all img tags that have an alt attribute

```
$ ("img[alt]");
```

Select all img tags with a src attribute starting with tn

```
$ ("img[src^='tn']");
```

Select all img tags with a src attribute that ends with .gif

```
$ ("img[src$='.gif']");
```

Select all anchor tags with an href attribute that contains “google.com”

```
$ ("a[href*='google.com']");
```

How to use custom selectors

Select the third paragraph tag in the content div tag

```
$("#content > p:eq(2)"); // Numbering starts at 0
```

Select even and odd paragraph tags in the content div tag

```
$("#content > p:even"); // First tag is even, not odd,  
$("#content > p:odd"); // since numbering starts at 0
```

Select paragraph tags in the content div tag that contain “Murach”

```
$("#content > p:contains('Murach')");
```

Select all div tags that don't contain p tags

```
$("div:not(p)");
```

Select all img tags that don't have alt attributes

```
$("img:not([alt])");
```

How to hide and show elements

How to hide an element immediately

```
$("h1").hide();
```

How to hide an element slowly

```
$("h1").hide("slow");
```

How to show an element over 3 seconds

```
$("h1").show(3000);
```

How to show an element quickly and then run a function

```
$("h1").show("fast", function() { alert("Welcome!"); });
```

How to toggle the visibility of an element

```
$("h1").toggle();
```

How to hide or show elements by animating their height

How to hide an element by sliding it up

```
$ ("h1").slideUp ("fast");
```

How to hide an element by sliding it down

```
$ ("h1").slideDown (2000);
```

How to toggle the visibility of an element by sliding it

```
$ ("h1").slideToggle ("slow");
```

How to hide or show elements by fading them in or out

How to hide an element by fading it out

```
$("h1").fadeOut("slow");
```

How to show an element by fading it in

```
$("h1").fadeIn(3000);
```

How to fade an element to a specific opacity

```
$("h1").fadeTo("fast", 0.25); // Fades to 25%
```

A function that flashes an element

```
var flash = function (selector) {
    var keepFlashing = true;
    var flashIt = function () {
        $(selector).fadeOut("slow");
        $(selector).fadeIn("slow", function () {
            if ( keepFlashing ) flashIt();
        });
    }
    flashIt();
    return function () { keepFlashing = false; }
}
```

A ready method that calls the flash function

```
$.ready( function () {
    var flashStop = flash("h1");
    setTimeout( flashStop, 10000 );
});
```

How to add event handlers to elements

With the bind method

```
$("#btnSubmit").bind("click", function() {  
    alert("Thank you!"); });
```

With a shortcut method

```
$("#btnSubmit").click(function() {  
    alert("Thank you!"); });
```

How to remove an event handler

The event handler must be a named function

```
var submit_click = function () { alert("Thank you!"); }
```

How to attach the event handler

```
$("#btnSubmit").click(submit_click);
```

How to remove the event handler with the unbind method

```
$("#btnSubmit").unbind("click", submit_click);
```

How to trigger an event

With the trigger method

```
$("#btnSubmit").trigger("click");
```

With a shortcut method

```
$("#btnSubmit").click();
```

How to prevent an event's default action

A link in a page

```
<a href="http://www.example.com"  
  class="exampleLink">Example Link</a>
```

How to prevent the link's default action

```
$(".exampleLink").click( function (evt) {  
    alert("Not a real link");  
    evt.preventDefault();  
});
```

How to remove an event handler after it runs once

An event handler

```
var confirm_click = function (evt) {  
    alert("Are you sure? Click again to submit.");  
    evt.preventDefault();  
}
```

How to set the event handler so it runs only once

```
$("#btnSubmit").one("click", confirm_click);
```

How to add, remove, and toggle classes

Add a class to all elements with ids that end with “_error”

```
$("#span[id$='_error']").addClass("error");
```

Check if a class is present

```
if ($("#register").hasClass("centered")) {  
    $("#reset_form").show();}
```

Remove a class

```
$("#register").removeClass("centered");
```

Toggle a class

```
$("#span[id$='_error']").toggleClass("error");
```

Toggle a class based on the second parameter

```
$("#span[id$='_error']").toggleClass("error", validForm);
```

How to retrieve, set, and remove attributes

How to retrieve an attribute

```
alert( $("img:eq(0)").attr("title") );
```

How to set an attribute

```
$("img:not([alt])").attr("alt",  
    "No description available.");
```

How to remove an attribute

```
$("a").removeAttr("href");
```

Read and modify the contents of an element

How to read the text from an element

```
alert( $("#h1:first").text() );
```

How to read the html from an element

```
alert( $("#div.formLayout:last").html() );
```

How to read the value from a form element

```
alert( $("#exp_date").val() );  
alert( $("#card_type").val() );
```

How to set the text in an element

```
$("#last_name_error").text("Last name is required");
```

How to set the XHTML in an element

```
$("#p.notice").html("<b>All</b> fields <i>required</i>.");
```

How to set the value in a form element

```
$("#first_name").val("");  
$("#card_type").val("v");
```

How to create new content

How to create a single node

```
var newSpan = $("<span />");
```

How to create multiple nodes

```
var copyright =  
    $("<p>&copy; " + (new Date()).getFullYear() + "</p>");
```

How to add XHTML to an element's content

How to prepend XHTML content

```
$(".notice").prepend("Notice: ");
```

How to append XHTML content

```
$("h1").append("<img src='logo.gif' />");
```

How to add XHTML before or after an element

How to add content after an element

```
$(".notice").after(copyright);
```

How to add content before an element

```
$("h1").before("<div><img src='logo.gif' /></div>");
```

How to remove nodes from a page

How to remove a node

```
$ ("h1") .remove () ;
```

How to delete all of a node's child nodes

```
$ ("#card_type") .empty () ;
```

How to copy nodes

How to copy and move a node

```
$ ("#content") .append ( $ ("h1") .clone () ) ;  
$ ("h1") .clone () .appendTo ("#content") ;
```

How to copy a node and its events

```
$ ("#content") .prepend ( $ ("#register") .clone (true) ) ;  
$ ("#register") .clone (true) .prependTo ("#content") ;
```

How to replace a node

How to replace a node with XHTML

```
$("h1").replaceWith("<p>Registration form</p>");
```

How to replace a node with another node

```
$("h1").replaceWith( $(".notice" ) );  
// Moves existing node
```

```
$(".notice").replaceWith( copyright );  
// Uses newly created nodes
```

Where to download the Dojo library

`http://www.dojotoolkit.org`

Where to get the Dojo documentation

`http://api.dojotoolkit.org`

Dojo modules fall into three categories

- Core
- Dijit
- Dojox

How to include the Dojo library in an application

A template for loading the Dojo library

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

A URL for a local file

```
dojo-release-1.2.3/dojo/dojo.js
```

A URL for the Google APIs web site

```
http://ajax.googleapis.com/ajax/libs/  
  dojo/1.2/dojo/dojo.xd.js
```

A URL for the AOL Content Distribution Network

```
http://o.aolcdn.com/dojo/1.2/dojo/dojo.xd.js
```

How to load additional modules

```
dojo.require("dojo.fx");  
// Loads the effects module
```

How to use the addOnLoad method to run a function when the DOM is loaded

```
dojo.addOnLoad( function () {  
    alert("Ready");  
});
```

Select elements by tag name, class, or id

Select all paragraph tags

```
dojo.query("p");
```

Select all elements with a class named error

```
dojo.query(".error");
```

Two ways to select the element with btnSubmit as its id

```
dojo.query("#btnSubmit");  
dojo.byId("btnSubmit");
```

How to select elements by attributes

Select all img tags that have an alt attribute

```
dojo.query("img[alt]");
```

Select all img tags with a src attribute that begins with tn

```
dojo.query("img[src^='tn']");
```

Select all img tags with a src attribute that ends in .gif

```
dojo.query("img[src$='.gif']");
```

How to select all anchor tags with an href attribute that contains “google.com”

```
dojo.query("a[href*='google.com']");
```

Select elements by using pseudo-class selectors

Select the 1st and last <p> tags in the content div tag

```
$("#content > p:first-child");  
$("#content > p:last-child");
```

Select the third paragraph tag in the content div tag

```
$("#content > p:nth-child(3)"); // Numbering starts at 1
```

Select the odd and even paragraphs in the content div tag

```
$("#content > p:nth-child(odd)"); // First tag is odd  
$("#content > p:nth-child(even)");
```

How to select all div tags that don't contain p tags

```
$("#div:not(p)");
```

How to select all img tags that don't have an alt attribute

```
$("#img:not([alt])");
```

How to add event handlers to elements

```
var submit_click =  
    dojo.connect(dojo.byId("btnSubmit"), "onclick",  
        function() {  
            alert("Thank you!");  
        }  
    );
```

How to remove an event handler

```
dojo.disconnect(submit_click);
```

How to prevent an event's default action

A link in a page

```
<a href="http://www.example.com"
  id="exampleLink">Example Link</a>
```

How to prevent the link's default action

```
dojo.connect(dojo.byId("exampleLink"), "onclick",
  function (evt) {
    alert("Not a real link");
    evt.preventDefault();
  }
);
```

How to remove an event handler after it runs once

```
var submit_click =
  dojo.connect(dojo.byId("btnSubmit"), "onclick",
    function (evt) {
      alert("Are you sure? Click again to submit.");
      evt.preventDefault();
      dojo.disconnect(submit_click);
    }
  );
```

How to include the Dojo FX module

```
dojo.require("dojo.fx");
```

Hide and show elements by wiping them out or in

How to hide an element by wiping it out

```
dojo.fx.wipeOut(  
    {node: "registration_form", duration: 2000} ).play();
```

How to show an element by wiping it in

```
dojo.fx.wipeIn(  
    {node: "registration_form", duration: 2000} ).play();
```

Hide or show elements by fading them out or in

How to hide an element by fading it out

```
dojo.fadeOut(  
    {node: "registration_form", duration: 2000} ).play();
```

How to show an element by fading it in

```
dojo.fadeIn(  
    {node: "registration_form", duration: 2000} ).play();
```

How to combine two or more animations

How to combine two animations in parallel

```
var anim = [];  
var args = { node: "registration_form", duration: 2000 };  
anim.push( dojo.fx.wipeOut( args ) );  
anim.push( dojo.fadeOut( args ) );  
dojo.fx.combine( anim ).play();
```

How to combine two animations in series

```
var anim = [];  
var args = { node: "registration_form", duration: 2000 };  
anim.push( dojo.fadeOut( args ) );  
anim.push( dojo.fadeIn( args ) );  
dojo.fx.chain( anim ).play();
```

A method that flashes an element

```
var flash = function (id) {
    var keepFlashing = true;
    var args = { node: id, duration: 1000 };
    var flashIt = function () {
        var anim = [];
        anim.push( dojo.fadeOut(args) );
        anim.push( dojo.fadeIn(args) );
        var chain = dojo.fx.chain(anim);
        dojo.connect( chain, "onEnd", function () {
            if ( keepFlashing ) flashIt();    });
        chain.play();
    }
    flashIt();
    return function () { keepFlashing = false; };
}
```

A function that calls the flash function

```
dojo.addOnLoad( function () {
    var flashStop = flash("registration_form");
    setTimeout( flashStop, 10000 );    });
```

How to include a Dijit theme

A template for loading the Tundra theme

```
<link rel="stylesheet" type="text/css" href='URL' />
```

A URL for a local file

```
dojo-release-1.2.3/dijit/themes/tundra/tundra.css
```

A URL for the Google APIs web site

```
http://ajax.googleapis.com/ajax/libs/  
dojo/1.2/dijit/themes/tundra/tundra.css
```

A URL for the AOL Content Distribution Network

```
http://o.aolcdn.com/dojo/1.2/dijit/  
themes/tundra/tundra.css
```

How to parse Dijits

Load the parser module

```
dojo.require("dojo.parser");
```

A template for loading and parsing the Dijits automatically

```
<script src="URL"  
    type="text/javascript" djConfig="parseOnLoad:true">  
</script>
```

A statement for parsing the Dijits manually

```
dojo.addOnLoad( function() {  
    dojo.parser.parse();  
});
```

How to access a Dijit after a document has been parsed

```
var first_name = dijit.byId("first_name");
```

How to load the Form and Button modules

```
dojo.require("dijit.form.Form");  
dojo.require("dijit.form.Button");
```

How to create a Form Dijit

```
<form action="register_account.html" method="get"  
      id="register_form" dojoType="dijit.form.Form">  
</form>
```

Methods of a Form Dijit

```
isValid()  
submit()  
reset()
```

A function that uses the isValid method

```
var checkFormClick = function () {  
    if ( dijit.byId("register_form").isValid() ) {  
        alert("Form is ready to submit.");  
    } else {  
        alert("Please correct the errors in the form.");  
    }  
}
```

How to create a submit Button Dijit

```
<button type="submit" id="submit_form"  
    dojoType="dijit.form.Button">Submit Form</button>
```

How to create a reset Button Dijit

```
<button type="reset" id="reset_form"  
    dojoType="dijit.form.Button">Reset Form</button>
```

How to attach an event handler to the click event for a Button Dijit

The XHTML for the button

```
<button id="check_form"
        dojoType="dijit.form.Button">Check Form
</button>
```

How to attach the event handler to the button

```
dojo.addOnLoad( function() {
    dojo.connect( dijit.byId("check_form"),
        "onclick", checkFormClick );
});
```

How to change the label on a button and disable it

```
dijit.byId("submit_form").attr("label",  
    "Please Wait").attr("disabled",true);
```

How to load the module for CheckBox and RadioButton Dijits

```
dojo.require("dijit.form.CheckBox");
```

How to create a CheckBox Dijit

```
<input type="checkbox" id="accept_policy" value="yes"  
      dojoType="dijit.form.CheckBox" />
```

How to detect and change the state of a CheckBox Digit

How to detect the state of a CheckBox

```
var accepted =  
    dijit.byId("accept_policy").attr("checked");
```

How to check a CheckBox Digit

```
dijit.byId("accept_policy").attr("checked", true);
```

How to uncheck a CheckBox Digit

```
dijit.byId("accept_policy").attr("checked", false);
```

How to toggle a CheckBox Digit

```
var checked =  
    dijit.byId("accept_policy").attr("checked");  
dijit.byId("accept_policy").attr("checked", !checked);
```

How to create RadioButton Dijits

```
<input type="radio" name="card_type" value="mc"
      checked="checked"
      dojoType="dijit.form.RadioButton" /> MasterCard
<input type="radio" name="card_type" value="vi"
      dojoType="dijit.form.RadioButton" /> Visa
```

A function that reads the value of a button group

```
var getRadioValue = function ( name ) {
    var value;
    dojo.query(
        "[name=" + name + "]" ).forEach(function(element) {
            var button = dijit.byId(element.id);
            if ( button.attr("checked") ) {
                value = button.attr("value");
            }
        });
    return value;
}
```

A statement that calls the function

```
alert( getRadioValue("card_type") );
```

A function that checks a button in a group

```
var setRadioValue = function ( name, value ) {
    dojo.query(
        "[name=" + name + "]" ).forEach(function(element) {
            var button = dijit.byId(element.id);
            if ( button.value == value ) {
                button.attr("checked", true);
            }
        });
}
```

A call that checks the button with a value of “vi”

```
setRadioValue("card_type", "vi");
```

How to load the ValidationTextBox module

```
dojo.require("dijit.form.ValidationTextBox");
```

How to create a ValidationTextBox Dijit

```
<input type="text" name="first_name" id="first_name"  
  dojoType="dijit.form.ValidationTextBox"  
  required="true" trim="true"  
  invalidMessage="First name is required." />
```

How to use a regular expression with a ValidationTextBox Digit

```
<input type="text" name="zip" id="zip"  
  dojoType="dijit.form.ValidationTextBox"  
  required="true"  
  regExp="[\\d]{5}(-[\\d]{4})?"  
  invalidMessage="Required. Use 5 or 9 digit ZIP code."  
/>
```

How to use regular expression generators with a ValidationTextBox Digit

How to load the regular expression module

```
dojo.require("dojox.validate.regexp");
```

The XHTML for a ValidationTextBox Digit

```
<input type="text" name="email" id="email"  
      dojoType="dijit.form.ValidationTextBox"  
      required="true"  
      regExpGen="dojox.regexp.emailAddress"  
      invalidMessage="E-mail is required." />
```

Common generators for regular expressions

```
regExpGen="dojox.regexp.emailAddress" // Email address  
regExpGen="dojox.regexp.ipAddress"    // IP address  
regExpGen="dojox.regexp.url"         // Web site URL
```

How to use a custom validation function with a ValidationTextBox Digit

The XHTML for a ValidationTextBox Digit

```
<input type="password" name="verify" id="verify"
      dojoType="dijit.form.ValidationTextBox"
      required="true"
      validator="matchValues"
      constraints="{matchId: 'password'}"
      invalidMessage="Passwords do not match." />
```

The validator function

```
var matchValues = function ( value, constraints ) {
    var matchField = dijit.byId(constraints.matchId);
    if (matchField) {
        return value === matchField.attr("value");
    }
    return false;
}
```

How to load the credit card validation module

```
dojo.require("dojox.validate.creditCard");
```

The XHTML for the credit card number Dijit

```
<input type="text" name="card_number" id="card_number"  
  dojoType="dijit.form.ValidationTextBox"  
  required="true"  
  validator="checkCardNumber"  
  constraints="{ ccTypeName: 'card_type' }"  
  invalidMessage="Valid card number required." />
```

The custom validator function

```
var checkCardNumber = function ( value, constraints ) {
    var ccType;
    if ( constraints.ccTypeId ) {
        ccType =
            dijit.byId(constraints.ccTypeId).attr("value");
    } else if ( constraints.ccTypeName ) {
        ccType = getRadioValue( constraints.ccTypeName );
    } else { return false; }
    if (ccType) {
        return dojox.validate.isValidCreditCard(
            this.attr("value"), ccType );
    }
    return false;
}
```

The XHTML for the CVV number Dijit

```
<input type="text" name="card_cvv" id="card_cvv"  
      dojoType="dijit.form.ValidationTextBox"  
      required="true"  
      validator="checkCardCVV"  
      constraints="{ ccTypeName: 'card_type' }"  
      invalidMessage="Valid card CVV number required." />
```

The custom validator function

```
var checkCardCVV = function ( value, constraints ) {  
    var ccType;  
    if ( constraints.ccTypeId ) {  
        ccType =  
            dijit.byId(constraints.ccTypeId).attr("value");  
    } else if ( constraints.ccTypeName ) {  
        ccType = getRadioValue( constraints.ccTypeName );  
    } else { return false; }  
    if (ccType) {  
        return dojox.validate.isValidCvv(  
            this.attr("value"), ccType);  
    }  
    return false;  
}
```

How to set up event handlers for when the card type changes

```
dojo.query("[name=card_type]").forEach( function(element) {  
    var button = dijit.byId( element.id );  
    var card_number = dijit.byId("card_number");  
    var card_cvv = dijit.byId("card_cvv");  
    dojo.connect( button, "onChange",  
        card_number, "validate" );  
    dojo.connect( button, "onChange",  
        card_cvv, "validate" );  
});
```

How to load the ItemFileReadStore module

```
dojo.require("dojo.data.ItemFileReadStore");
```

An item data store in the file named states.txt

```
{  identifier: "value",
  items: [
    {name: "Alabama", value: "AL" },
    {name: "Alaska", value: "AK" },
    // 47 states omitted
    {name: "Wyoming", value: "WY" }
  ]
}
```

Two ways to create a data store

With XHTML

```
<div dojoType="dojo.data.ItemFileReadStore"  
      jsId="stateList"  
      url="states.txt">  
</div>
```

With JavaScript

```
stateList =  
    new dojo.data.ItemFileReadStore( {url: "states.txt"} );
```

How to load the FilteringSelect module

```
dojo.require("dijit.form.FilteringSelect");
```

How to create a FilteringSelect Dijit

```
<input type="text" name="state" id="state"  
      dojoType="dijit.form.FilteringSelect"  
      store="stateList" />
```

How to reset a FilteringSelect Dijit

A function that resets the FilteringSelect Dijit

```
var stateReset = function () {  
    dijit.byId("state").attr("displayedValue", "");  
}
```

How to attach the function to the Dijit

```
dojo.connect( dijit.byId("state"), "reset", stateReset );
```


The Register Account application

Register for an Account

Account Information


E-Mail:

Password:

Verify Password: 


Contact Information


First Name:

Last Name: 

Address:

City:

State: 

ZIP Code: 

Phone Number:

The XHTML file

```
<head>
<title>Account Registration</title>
<link rel="stylesheet" type="text/css"
      href="register.css" />
<link rel="stylesheet" type="text/css" href=
      http://ajax.googleapis.com/ajax/libs/
      dojo/1.2/dijit/themes/tundra/tundra.css/>
<script
      src="http://ajax.googleapis.com/ajax/
          libs/dojo/1.2/dojo/dojo.xd.js"
      type="text/javascript" djConfig="parseOnLoad:false">
</script>
<script type="text/javascript" src="register.js">
</script>
</head>
```

The XHTML file (continued)

```
<body class="tundra">
<div id="content">
  <h1>Register for an Account</h1>
  <form action="register_account.html"
        method="get" id="register_form"
        dojoType="dijit.form.Form" >
  <h2>Account Information</h2>
  <label for="email">E-Mail:</label>
    <input type="text" name="email" id="email"
           dojoType="dijit.form.ValidationTextBox"
           required="true"
           regExpGen="dojox.regexp.emailAddress"
           invalidMessage="E-mail is required."
    /><br />
  <label for="password">Password:</label>
    <input type="password" name="password" id="password"
           dojoType="dijit.form.ValidationTextBox"
           required="true" regExp=".{6,}"
           invalidMessage=
           "Password must be at least six characters."
    /><br />
```

The XHTML file (continued)

```
<label for="verify">Verify Password:</label>
  <input type="password" name="verify" id="verify"
    dojoType="dijit.form.ValidationTextBox"
    required="true"
    validator="matchValues"
    constraints="{matchId: 'password'}"
    invalidMessage="Passwords do not match."
  /><br />
<h2>Contact Information</h2>
<label for="first_name">First Name:</label>
  <input type="text" name="first_name" id="first_name"
    dojoType="dijit.form.ValidationTextBox"
    required="true" trim="true"
    invalidMessage="First name is required."
  /><br />
```

The XHTML file (continued)

```
<label for="last_name">Last Name:</label>
  <input type="text" name="last_name" id="last_name"
    dojoType="dijit.form.ValidationTextBox"
    required="true" trim="true"
    invalidMessage="Last name is required."
  /><br />
<label for="address">Address:</label>
  <input type="text" name="address" id="address"
    dojoType="dijit.form.ValidationTextBox"
    required="true" trim="true"
    invalidMessage="Address is required."
  /><br />
```

The XHTML file (continued)

```
<label for="city">City:</label>
  <input type="text" name="city" id="city"
    dojoType="dijit.form.ValidationTextBox"
    required="true" trim="true"
    invalidMessage="City is required."
  /><br />
<label for="state">State:</label>
  <input type="text" name="state" id="state"
    dojoType="dijit.form.FilteringSelect"
    store="stateList" />
<br />
```

The XHTML file (continued)

```
<label for="zip">ZIP Code:</label>
  <input type="text" name="zip" id="zip"
    dojoType="dijit.form.ValidationTextBox"
    required="true"
    regExp=" [\d]{5} (-[\d]{4})?"
    invalidMessage=
      "Required. Use 5 or 9 digit ZIP code."
  /><br />
<label for="phone">Phone Number:</label>
  <input type="text" name="phone" id="phone"
    dojoType="dijit.form.ValidationTextBox"
    required="true"
    regExp=" [\d]{3}-[\d]{3}-[\d]{4}"
    invalidMessage=
      "Required. Use 999-999-9999 format."
  /><br />
```

The XHTML file (continued)

```
<h2>Payment Information</h2>
<label for="card_type">Card Type:</label>
  <input type="radio" name="card_type"
    value="mc" checked="checked"
    dojoType="dijit.form.RadioButton" /> MasterCard
  <input type="radio" name="card_type" value="vi"
    dojoType="dijit.form.RadioButton" /> Visa
  <input type="radio" name="card_type" value="ax"
    dojoType="dijit.form.RadioButton" />
    American Express
  <input type="radio" name="card_type" value="di"
    dojoType="dijit.form.RadioButton" /> Discover
<br />
```

The XHTML file (continued)

```
<label for="card_number">Card Number:</label>
  <input type="text" name="card_number"
    id="card_number"
    dojoType="dijit.form.ValidationTextBox"
    required="true"
    validator="checkCardNumber"
    constraints="{ ccTypeName: 'card_type' }"
    invalidMessage="Valid card number required."
  /><br />
<label for="card_number">Card CVV:</label>
  <input type="text" name="card_cvv" id="card_cvv"
    dojoType="dijit.form.ValidationTextBox"
    required="true"
    validator="checkCardCVV"
    constraints="{ ccTypeName: 'card_type' }"
    invalidMessage="Valid card CVV number required."
  /><br />
```

The XHTML file (continued)

```
<label for="exp_date">Expiration Date:</label>
  <input type="text" name="exp_date" id="exp_date"
    dojoType="dijit.form.ValidationTextBox"
    required="true"
    regexp="(0? [\d] |1 [012])\./[\d]{4}"
    invalidMessage="Required. Use mm/yyyy format."
  /><br />
<h2>Submit Registration</h2>
<label>&nbsp;</label>
  <button type="submit" id="submit_button"
    dojoType="dijit.form.Button">Register</button>
  <button type="reset" id="reset_button"
    dojoType="dijit.form.Button">Reset</button>
  <br />
</form>
<p class="notice">All fields are required.</p>
</div>
</body>
</html>
```

The register.js file

```
dojo.require("dojo.parser");
dojo.require("dojo.data.ItemFileReadStore");
dojo.require("dijit.form.Form");
dojo.require("dijit.form.ValidationTextBox");
dojo.require("dojox.validate.regexp");
dojo.require("dojox.validate.creditCard");
dojo.require("dijit.form.FilteringSelect");
dojo.require("dijit.form.CheckBox");
dojo.require("dijit.form.Button");

var stateList;
```

The register.js file (continued)

```
var matchValues = function ( value, constraints ) {  
    var matchField = dijit.byId(constraints.matchId);  
    if (matchField) {  
        return this.attr("value") ===  
            matchField.attr("value");  
    }  
    return false;  
}  
  
var stateReset = function () {  
    dijit.byId("state").attr("displayedValue", "");  
}
```

The register.js file (continued)

```
var getRadioValue = function ( name ) {  
    var value;  
    dojo.query(  
        "[name=" + name + "]" ).forEach(function(element) {  
        var button = dijit.byId(element.id);  
        if ( button.attr("checked") ) {  
            value = button.attr("value");  
        }  
    });  
    return value;  
}
```

The register.js file (continued)

```
var checkCardNumber = function ( value, constraints ) {
    var ccType;
    if ( constraints.ccTypeId ) {
        ccType =
            dijit.byId(constraints.ccTypeId).attr("value");
    } else if ( constraints.ccTypeName ) {
        ccType = getRadioValue( constraints.ccTypeName );
    } else {
        return false;
    }
    if (ccType) {
        return dojox.validate.isValidCreditCard(
            this.attr("value"), ccType);
    }
    return false;
}
```

The register.js file (continued)

```
var checkCardCVV = function ( value, constraints ) {
    var ccType;
    if ( constraints.ccTypeId ) {
        ccType =
            dijit.byId(constraints.ccTypeId).attr("value");
    } else if ( constraints.ccTypeName ) {
        ccType = getRadioValue( constraints.ccTypeName );
    } else {
        return false;
    }
    if (ccType) {
        return dojox.validate.isValidCvv(this.attr("value"),
            ccType);
    }
    return false;
}
```

The register.js file (continued)

```
dojo.addOnLoad( function () {
    stateList =
        new dojo.data.ItemFileReadStore({url: "states.txt"});
    dojo.parser.parse();
    dojo.connect(
        dijit.byId("state"), "reset", stateReset );
    dojo.query("[name=card_type]").forEach(
        function(element) {
            var button = dijit.byId( element.id );
            var card_number = dijit.byId("card_number");
            var card_cvv = dijit.byId("card_cvv");
            dojo.connect( button, "onChange", card_number,
                "validate" );
            dojo.connect( button, "onChange", card_cvv,
                "validate" );
        });
    dijit.byId("email").focus();
});
```