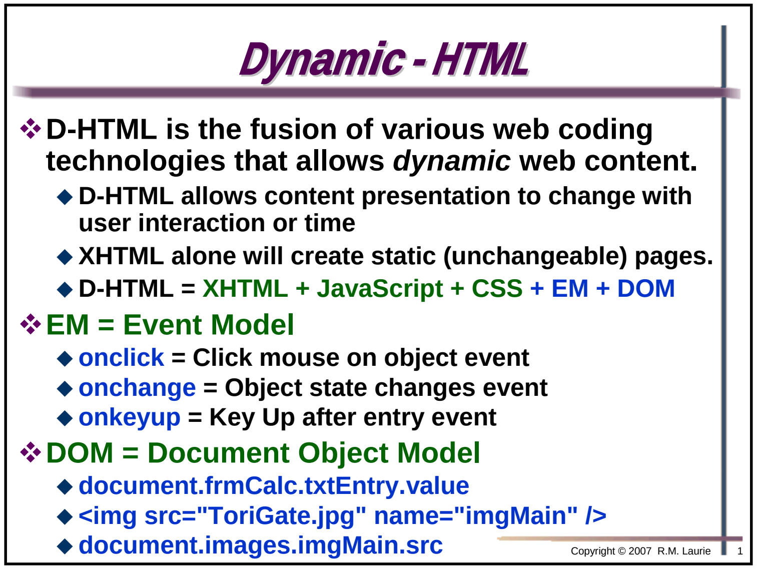

Dynamic - HTML

- D-HTML is the fusion of various web coding technologies that allows *dynamic* web content.
  - D-HTML allows content presentation to change with user interaction or time
  - XHTML alone will create static (unchangeable) pages.
  - D-HTML = XHTML + JavaScript + CSS + EM + DOM
- EM = Event Model
  - onclick = Click mouse on object event
  - onchange = Object state changes event
  - onkeyup = Key Up after entry event
- DOM = Document Object Model
  - document.frmCalc.txtEntry.value
  - <img src="ToriGate.jpg" name="imgMain" />
  - document.images.imgMain.src

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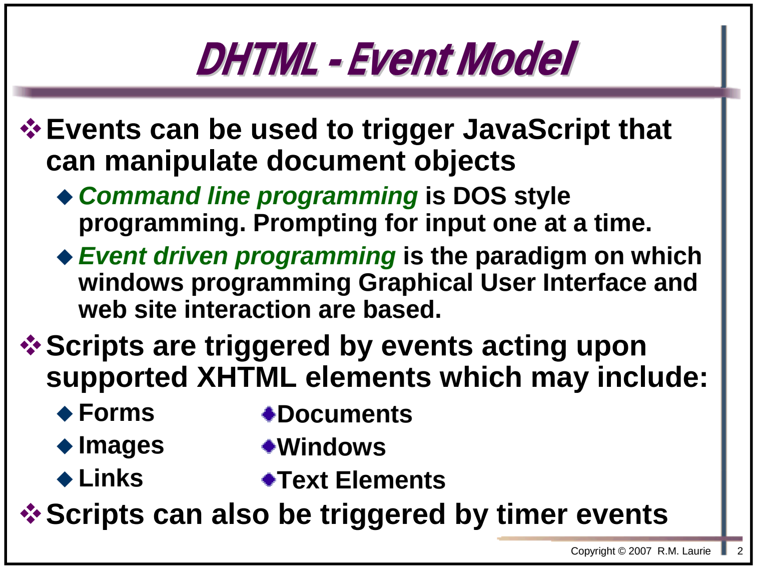

DHTML - Event Model

- Events can be used to trigger JavaScript that can manipulate document objects
  - *Command line programming* is DOS style programming. Prompting for input one at a time.
  - *Event driven programming* is the paradigm on which windows programming Graphical User Interface and web site interaction are based.
- Scripts are triggered by events acting upon supported XHTML elements which may include:
  - Forms
  - Images
  - Links
  - Documents
  - Windows
  - Text Elements
- Scripts can also be triggered by timer events

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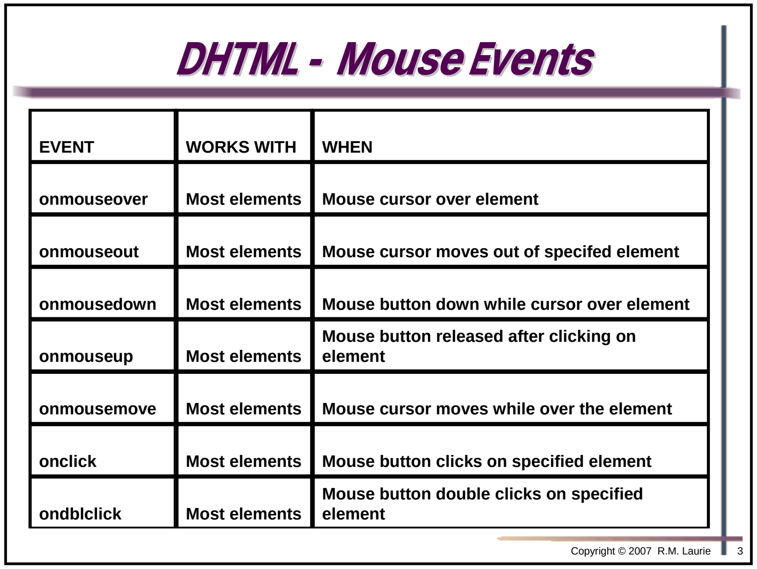

DHTML - Mouse Events

EVENT	WORKS WITH	WHEN
onmouseover	Most elements	Mouse cursor over element
onmouseout	Most elements	Mouse cursor moves out of specifed element
onmousedown	Most elements	Mouse button down while cursor over element
onmouseup	Most elements	Mouse button released after clicking on element
onmousemove	Most elements	Mouse cursor moves while over the element
onclick	Most elements	Mouse button clicks on specified element
ondblclick	Most elements	Mouse button double clicks on specified element

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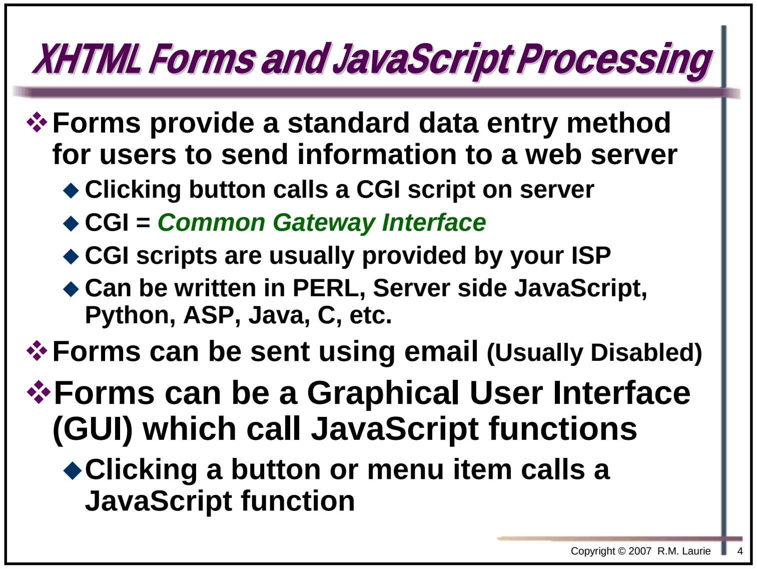

XHTML Forms and JavaScript Processing

- Forms provide a standard data entry method for users to send information to a web server
  - Clicking button calls a CGI script on server
  - CGI = *Common Gateway Interface*
  - CGI scripts are usually provided by your ISP
  - Can be written in PERL, Server side JavaScript, Python, ASP, Java, C, etc.
- Forms can be sent using email (Usually Disabled)
- Forms can be a Graphical User Interface (GUI) which call JavaScript functions
  - Clicking a button or menu item calls a JavaScript function

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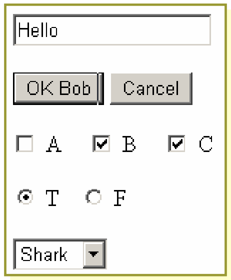
The Form's Shell

- The form layout may contain invisible elements and visible elements which are used for user information entry modes:
  - Text box
  - Button: Submit, Reset
  - Check boxes
  - Radio buttons
  - Menus



Hello

OK Bob | Cancel

□ A ☑ B ☑ C

● T ○ F

Shark ▼

Form Element

- <form> element is a block level element
  - All elements contained within <form> are part of the form
- <form name="*frmBob*" method="post" action="*/cgi-bin/scriptname.cgi*">
  - name attribute is the identifier (or label) of the form
  - method specifies how data is sent to server (CGI)
    - post = Appends data to browser HTTP request
  - action specifies the CGI script on web server to process the sent data
- </form>
  - All form elements must be closed

Text Box and Text Area Elements

- Text box element is for single line text input
  <input type="text" name="*txtIntro*" value="Hello" size="20" />
  - type="text" defines as a text box
  - name is the optional identifier for the text box
  - value is the value initially displayed in the field
  - size is the width of text box in characters
  - maxlength limits characters entered to a maximum
- Text area element is for multi-line text input
  <textarea rows="4" cols="30" name="tarGreet"> Hello</textarea>
  - rows is the height
  - cols is the width
  - name is the optional identifier for the text box

Submit, Reset and Image Buttons

- Submit button triggers the form action

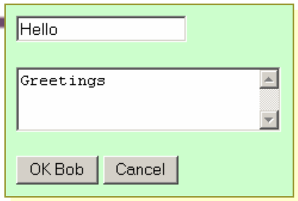
  <input type="submit" name="btOK" value="OK Bob" />
  - type defines as a submit button
  - value is displayed in the caption of the button
- reset button reinitializes form fields

  <input type="reset" value="Cancel" />
- input button usually used to call function

  <input type="button" name="btCalc" value="Calculate" onclick="calculate()" />
- input image triggers action specified in name

  <input type="image" name="btBack" src="btback.gif" />

Form, Text Box, and Text Area Code

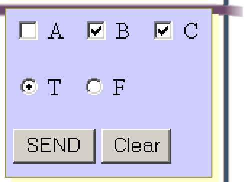

Hello

Greetings

```
<head>
   <title>Text Demo</title>
 </head>
 <body style="background-color: #CCFFCC">
   <form name="frmBob" method="post" action="/cgi-bin/script.cgi">
     <p> <input type="text" name="txtbxBob" value="Hello"
         size="20" maxlength="30" />
     </p>
         <p> <textarea rows="3" cols="25" name="txtarBob">
                 Greetings</textarea> </p>
         <p> <input type="submit" name="btnOK" value="OK Bob" />
         <input type="reset" name="btnCancel" value="Cancel" /> </p>
   </form>
 </body>
```

9

Check Box and Radio Button Code


□ A ☑ B ☑ C

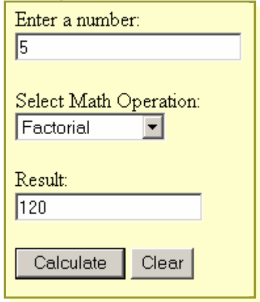
● T ○ F

```
<head>
   <title>Check Box and Radio Buttons</title>
 </head>
 <body style="background-color: #CCCCFF">
   <form name="frmAnswer" method="post" action="/cgi-bin/script.cgi">
     <p> <input type="checkbox" name="chk1A" value="AnsA" /> A
     <input type="checkbox" name="chk1B" value="AnsB"
     checked="checked" /> B  <input type="checkbox" name="chk1C"
     value="AnsC" checked="checked" /> C</p>
     <p><input type="radio" name="radQues2" value="AnsT"
     checked="checked" />T  <input type="radio" name="radQues2"
     value="AnsF" />F</p>
     <p> <input type=“submit" name="btSubmit" value="SEND" />
     <input type="reset" name=“btReset" value="Clear" /> </p>
   </form>
  </body>
```

```
chk1B=AnsB&chk1C=AnsC&radQues2=AnsT&btnSubmit=SEND
```

Select Menu

- ❖ Select menus use **select** and **option** elements
- ❖ Select menus work well with setting parameters
- ❖ Can be used to provide a Graphical User Interface (GUI) for JavaScript Programs
- ❖ This example utilizes a select menu to choose one of three functions:
  - ◆ Square
  - ◆ Square Root
  - ◆ Factorial
- ❖ Calculate button click calls Calculate() function
  - ◆ **onclick** is an event (Stay Tuned)


Enter a number: 5

Select Math Operation: Factorial

Result: 120

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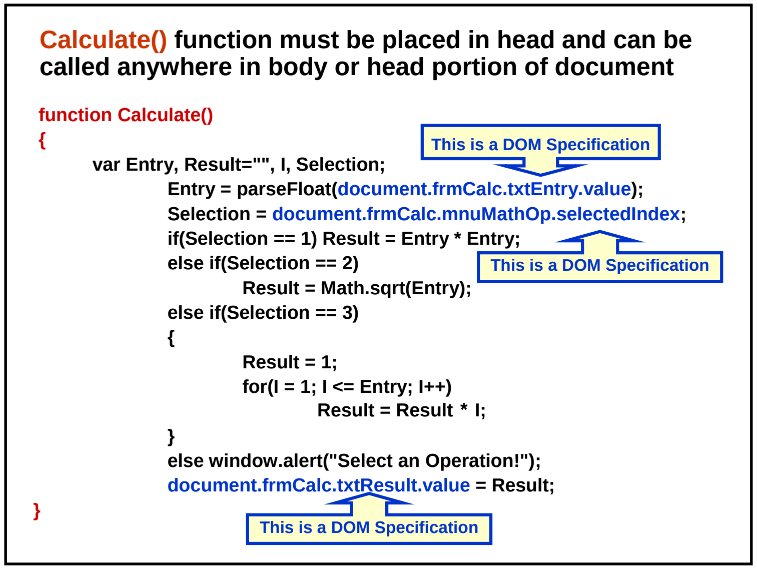
❖ Calculate button click calls Calculate() function

```
<head>  <title>Forms Example</title>
   <script type="text/javascript">
    <!-- Calculate() function will go here -->  </script>  </head>
  <body style="background-color: #FFFFCC">
    <form name="frmCalc" action="">
      <p>Enter a number:<br />
       <input type="text" name="txtEntry" size="20" /></p>
      <p>Select Math Operation:<br />
       <select name="mnuMathOp">
        <option selected="selected">- Choose One -</option>
        <option>Square</option>
        <option>Square Root</option>
        <option>Factorial</option>
      </select> </p>
      <p>Result:<br />
       <input type="text" name="txtResult" size="20" /></p>
      <p> <input type=“button" name="btCalc" value="Calculate"
      onclick="Calculate()" />
      <input type="reset" name="btClear" value="Clear" /></p>
    </form>   </body>
```



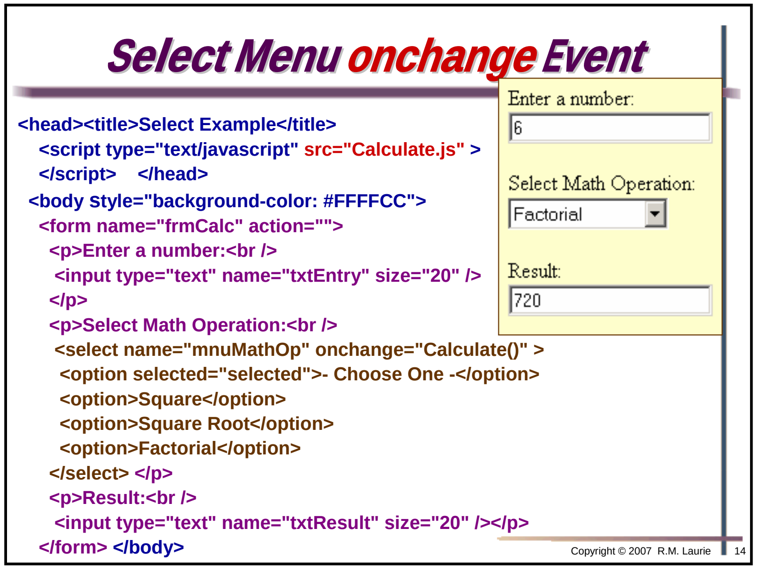
Calculate() function must be placed in head and can be called anywhere in body or head portion of document

```
function Calculate()
{
        var Entry, Result="", I, Selection;
                Entry = parseFloat(document.frmCalc.txtEntry.value);
                Selection = document.frmCalc.mnuMathOp.selectedIndex;
                if(Selection == 1) Result = Entry * Entry;
                else if(Selection == 2)
                        Result = Math.sqrt(Entry);
                else if(Selection == 3)
                {
                        Result = 1;
                        for(I = 1; I <= Entry; I++)
                                Result = Result * I;
                }
                else window.alert("Select an Operation!");
                document.frmCalc.txtResult.value = Result;
}
```

This is a DOM Specification

This is a DOM Specification

This is a DOM Specification



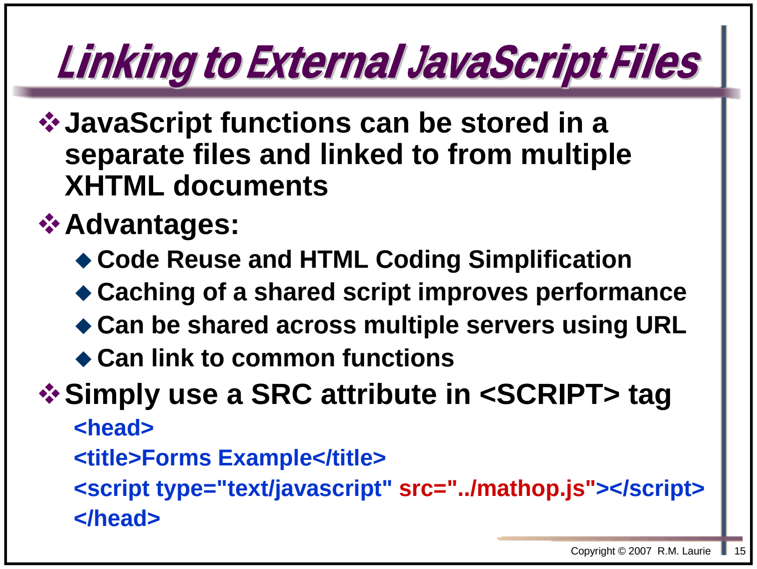
Select Menu onchange Event

```
<head><title>Select Example</title>
   <script type="text/javascript" src="Calculate.js" >
   </script>    </head>
 <body style="background-color: #FFFFCC">
  <form name="frmCalc" action="">
    <p>Enter a number:<br />
     <input type="text" name="txtEntry" size="20" />
    </p>
    <p>Select Math Operation:<br />
     <select name="mnuMathOp" onchange="Calculate()" >
      <option selected="selected">- Choose One -</option>
      <option>Square</option>
      <option>Square Root</option>
      <option>Factorial</option>
    </select> </p>
    <p>Result:<br />
     <input type="text" name="txtResult" size="20" /></p>
  </form> </body>
```

Enter a number: 6

Select Math Operation: Factorial

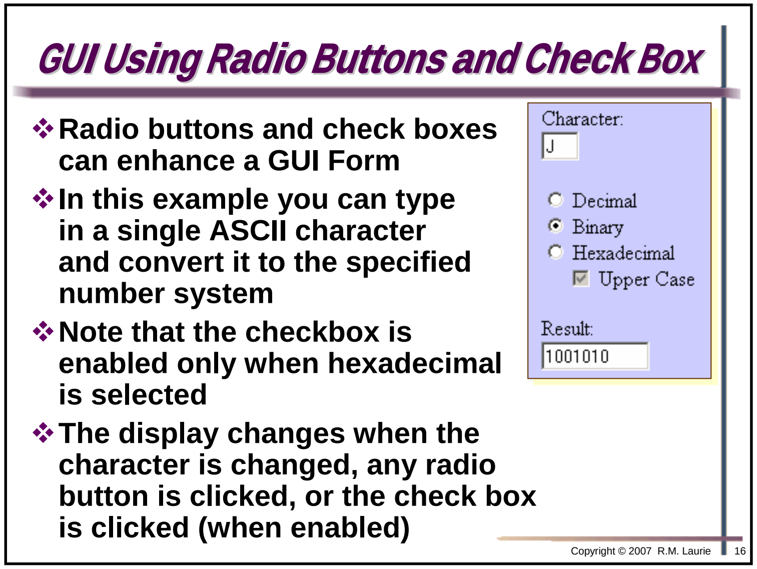
Result: 720



Linking to External JavaScript Files

- JavaScript functions can be stored in a separate files and linked to from multiple XHTML documents
- Advantages:
  - Code Reuse and HTML Coding Simplification
  - Caching of a shared script improves performance
  - Can be shared across multiple servers using URL
  - Can link to common functions
- Simply use a SRC attribute in <SCRIPT> tag

```
<head>
<title>Forms Example</title>
<script type="text/javascript" src="../mathop.js"></script>
</head>
```



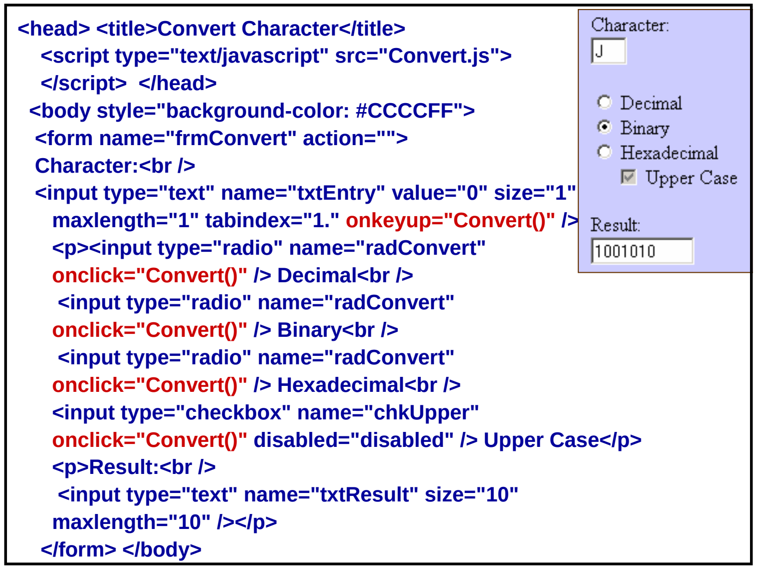
GUI Using Radio Buttons and Check Box

- Radio buttons and check boxes can enhance a GUI Form
- In this example you can type in a single ASCII character and convert it to the specified number system
- Note that the checkbox is enabled only when hexadecimal is selected
- The display changes when the character is changed, any radio button is clicked, or the check box is clicked (when enabled)

Character: J

○ Decimal
● Binary
○ Hexadecimal
☑ Upper Case

Result: 1001010

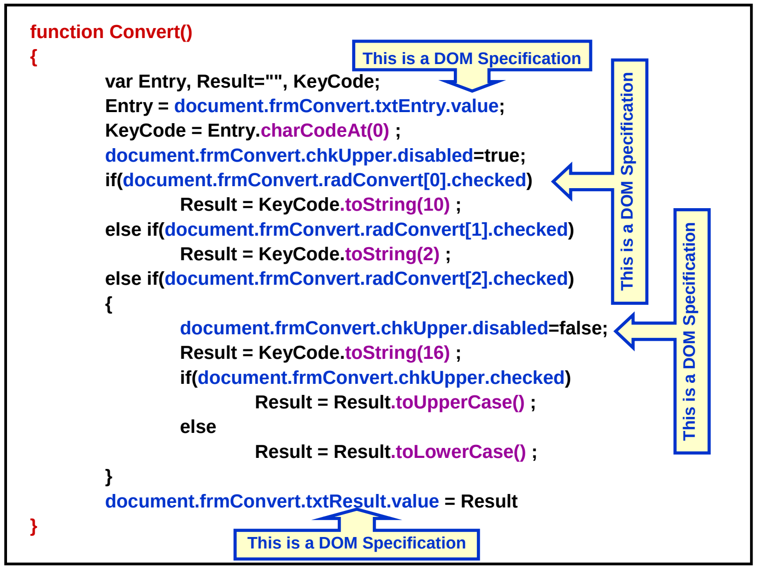


```
<head> <title>Convert Character</title>
   <script type="text/javascript" src="Convert.js">
   </script>  </head>
 <body style="background-color: #CCCCFF">
  <form name="frmConvert" action="">
  Character:<br />
  <input type="text" name="txtEntry" value="0" size="1"
    maxlength="1" tabindex="1." onkeyup="Convert()" />
    <p><input type="radio" name="radConvert"
    onclick="Convert()" /> Decimal<br />
     <input type="radio" name="radConvert"
    onclick="Convert()" /> Binary<br />
     <input type="radio" name="radConvert"
    onclick="Convert()" /> Hexadecimal<br />
    <input type="checkbox" name="chkUpper"
    onclick="Convert()" disabled="disabled" /> Upper Case</p>
    <p>Result:<br />
     <input type="text" name="txtResult" size="10"
    maxlength="10" /></p>
   </form> </body>
```

Character:
J

○ Decimal
● Binary
○ Hexadecimal
☑ Upper Case

Result:
1001010



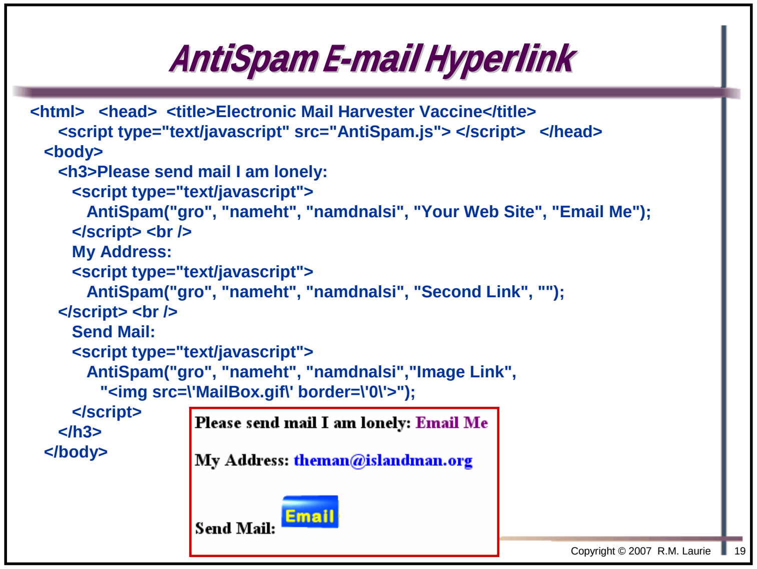
```
function Convert()
{
          var Entry, Result="", KeyCode;
          Entry = document.frmConvert.txtEntry.value;
          KeyCode = Entry.charCodeAt(0) ;
          document.frmConvert.chkUpper.disabled=true;
          if(document.frmConvert.radConvert[0].checked)
                    Result = KeyCode.toString(10) ;
          else if(document.frmConvert.radConvert[1].checked)
                    Result = KeyCode.toString(2) ;
          else if(document.frmConvert.radConvert[2].checked)
          {
                    document.frmConvert.chkUpper.disabled=false;
                    Result = KeyCode.toString(16) ;
                    if(document.frmConvert.chkUpper.checked)
                              Result = Result.toUpperCase() ;
                    else
                              Result = Result.toLowerCase() ;
          }
          document.frmConvert.txtResult.value = Result
}
```

This is a DOM Specification

This is a DOM Specification

This is a DOM Specification

This is a DOM Specification



AntiSpam E-mail Hyperlink

```
<html>   <head>  <title>Electronic Mail Harvester Vaccine</title>
    <script type="text/javascript" src="AntiSpam.js"> </script>   </head>
  <body>
    <h3>Please send mail I am lonely:
      <script type="text/javascript">
        AntiSpam("gro", "nameht", "namdnalsi", "Your Web Site", "Email Me");
      </script> <br />
      My Address:
      <script type="text/javascript">
        AntiSpam("gro", "nameht", "namdnalsi", "Second Link", "");
    </script> <br />
      Send Mail:
      <script type="text/javascript">
        AntiSpam("gro", "nameht", "namdnalsi","Image Link",
          "<img src=\'MailBox.gif\' border=\'0\'>");
      </script>
    </h3>
  </body>
```

Please send mail I am lonely: Email Me

My Address: theman@islandman.org

Send Mail: Email

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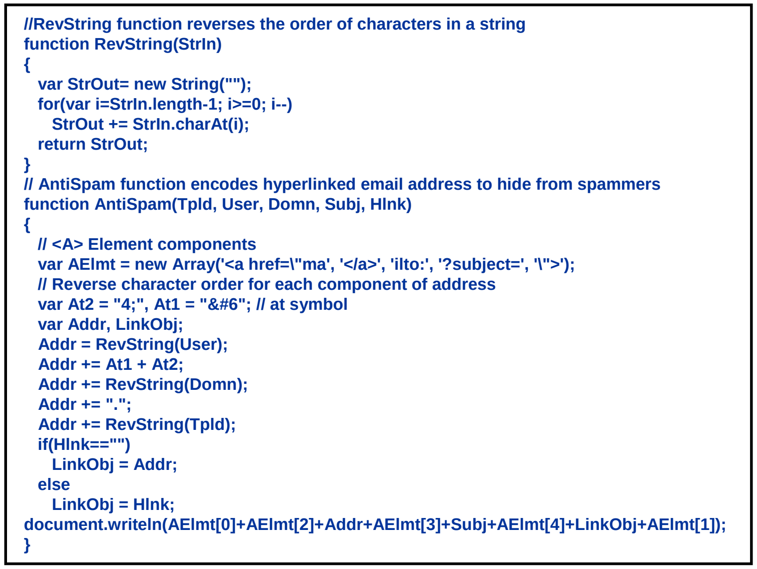

```
//RevString function reverses the order of characters in a string
function RevString(StrIn)
{
  var StrOut= new String("");
  for(var i=StrIn.length-1; i>=0; i--)
    StrOut += StrIn.charAt(i);
  return StrOut;
}
// AntiSpam function encodes hyperlinked email address to hide from spammers
function AntiSpam(TpId, User, Domn, Subj, Hlnk)
{
  // <A> Element components
  var AElmt = new Array('<a href=\"ma', '</a>', 'ilto:', '?subject=', '\">');
  // Reverse character order for each component of address
  var At2 = "4;", At1 = "&#6"; // at symbol
  var Addr, LinkObj;
  Addr = RevString(User);
  Addr += At1 + At2;
  Addr += RevString(Domn);
  Addr += ".";
  Addr += RevString(TpId);
  if(Hlnk=="")
    LinkObj = Addr;
  else
    LinkObj = Hlnk;
document.writeln(AElmt[0]+AElmt[2]+Addr+AElmt[3]+Subj+AElmt[4]+LinkObj+AElmt[1]);
}
```