Analytical Inquiry I  
Study Guide - Mid-quarter Exam

General Guidelines

1. The exam covers Chapter 2 (HTML) and Chapter 3 (JavaScript).
2. You can use your notes and your computer on the exam.
3. The exam will last for about one hour.
4. Bring your laptop computer and Internet connection to the exam.
5. Be sure to have the handouts organized so that you can quickly refer to them. I suggest that you put them in a three-ring notebook.
6. It will be useful to have a summary of all the HTML tags we work with, and all the JavaScript statements we work with.
7. There may be questions like the following:
   (a) What does this HTML or JavaScript statement do?
   (b) What is the purpose of an HTML or JavaScript concept (such as an HTML form, JavaScript function, JavaScript if statement etc.)?
   (c) What is displayed by this HTML or JavaScript code?
   (d) How would you modify the HTML or JavaScript code to obtain a particular result.
   (e) Give a fragment of HTML code or JavaScript code that performs a given operation.
8. Be sure you understand all the HTML and JavaScript statements in the assignments and projects.

Review Questions

These questions will help you review for the exam. I will ask questions like these on the exam.

1. Consider the HTML source code shown in Figure 1 and answer the following questions.
   (a) What is displayed by a Web browser for this source code.
   (b) What does the following statement do?
      
      <title> Sample web page</title>
(c) What does the following statement do?

    <!-- This is an example of a Web page. -->

(d) What do the following statements do?

    <h1>
    Sample Web Page
    </h1>

(e) What do the <tr> and <td> tags do?

(f) How would you modify the code so that the there is a border around the table?

(g) How would you modify the code so that the table is centered?
<html>
<head>
  <title>Sample web page</title>
</head>
<body>
<!-- This is an example of a Web page. -->
<h1>Sample Web Page</h1>
<p>The following is a distribution for grades on an exam.</p>
<table>
<tr>
  <td>A</td> <td>2</td>
</tr>
<tr>
  <td>B</td> <td>5</td>
</tr>
<tr>
  <td>C</td> <td>8</td>
</tr>
<tr>
  <td>D</td> <td>2</td>
</tr>
<tr>
  <td>F</td> <td>1</td>
</tr>
</table>
</body>
</html>

Figure 1: HTML code for problem 1
2. What is an HTML form used for?

3. (a) Give an HTML form with the following:
   - The name of the form is `compute`
   - The form has an input tag of type `text`. The variable name is `studentname`, and it is initially given the value `Student Name`.
   - The form has an input tag of type `button`, which is given the value `Click here`. When the button is clicked, it calls on the JavaScript function `DisplayName()`.
   - The form has a text area with name `display`. Initially, nothing is displayed in the text area.

(b) Give a picture of memory showing all the variables associated with this form.

(c) How would a JavaScript program refer to the `studentvariable` storage location used by the form?

4. Consider the fragment of JavaScript code:

```javascript
function Printgreeting()
{
    var content
        content = "Hello \
";
        content = content + "George W. Bush";
        content = content + "\n";
        content = content + "How does it feel to be president?";
    alert(content);
}
```

(a) What is displayed in the alert box by this function?

(b) What does the statement `var content` do?

(c) What does `\r` do?

(d) Suppose the `alert` statement is changed to

```
alert("content");
```

How would that change what is displayed the alert box?

5. Consider the fragment of JavaScript code:
if ((age <=0) || (age >= 125))
{
    alert("Your age is not valid.");
}
if ((age >0) && (age < 18))
{
    alert("You are too young to vote.");
}
if ((age >=21) && (age <=125))
{
    alert("Please exercise your right to vote in the next election.");
}

(a) What is the meaning of the || in the first if statement?
(b) Suppose age = 130. What is displayed by the alert box. Explain how you arrived at your answer.
(c) What is the meaning of the && in the second if statement?
(d) Suppose age = 17. What is displayed by the alert box. Explain how you arrived at your answer.

6. Consider the source code with a form and JavaScript function shown in Figure 2.
(a) What does the Web page produced by this source code look like?
(b) What is displayed in the text area if you enter 40 in the text box? Explain how you arrived at your answer.
(c) What does the var statement in the JavaScript program do?
(d) Give a picture of memory for the form and the JavaScript program.
(e) What does the statement

\[ x = \text{parseFloat}(\text{document.DoCalculations.data.value}); \]

in the JavaScript program do?
(f) What does the statement

\[ \text{document.DoCalculations.display.value} = x + 10; \]

in the JavaScript program do?
Figure 2: The HTML code and JavaScript code for Problem 6.
7. Consider the following part of an HTML form:

```
<form name="online">
    Cat Food ($5)
    <br>
    <input type="radio" name = "cattype"> Dry
    <input type="radio" name = "cattype"> Moist (add $2.00)
    <br>
    Number of pounds <input type=text name="catamount" size=2 value=0>
```

(a) How would this source display in a browser?
(b) Notice that there are two radio buttons with the same name. How does this affect the operation of the radio buttons?
(c) How would a JavaScript program determine if the radio button’s were checked?

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**Answers to Review Problems**

1. (a) Download *Review exam 1.html.*

   (b) It creates the title *Sample web page* which is displayed at the top of the browser.

   (c) This is an HTML comment. It is not displayed by the browser.

   (d) These statements create a heading *Sample Web Page* in a large type font.

   (e) The `<tr>` creates a new row in the table and the `<td>` creates a new data location in the row.

   (f) Change `<table>` to `<table border>`.

   (g) Put `<center>` before `<table>` and `</center>` after `</table>`.

2. A form is used to input and output data to the web page. For example, the data can be text, numbers, selections of radio buttons or check boxes.
3. (a) `<form name="compute">
    <input type="text" name="studentname" value="Student Name">
    <input type="button" value="Click here" onclick="DisplayName();">
    <textarea name="display"></textarea>
</form>`

(b) There are two boxes in memory for the locations `studentname` and `display`.

(c) `document.compute.studentname.value`

4. (a) The alert box displays

   Hello
   George W. Bush
   How does it feel to be president?

(b) The statement `var content` creates a variable storage location in memory with the name `content`.

(c) The `\r` puts the succeeding text to start on a new line.

(d) The word `content` appears in the alert box.

5. (a) The symbol `||` means `or`.

(b) The alert box displays `Your age is not valid`. Since `age=130`, the condition

   `((age <= 0) || (age >= 125))`

   is true and the alert box associated with this `if` condition appears.

(c) The symbol `&&` means `and`.

(d) The alert box displays `You are too young to vote`. Since `age=17`, the condition

   `((age > 0) && (age < 21))`

   is true and the alert box associated with this `if` condition appears.

6. (a) Download `Review exam 2.html`.

(b) 50.

(c) The `var` statement creates a variable location in memory for `x`.

(d) The form `DoCalculations` has two boxes in memory for the locations `data` and `display`. The JavaScript program has one box in memory for `x`.

(e) The statement

   `x = parseFloat(document.DoCalculations.data.value);`

changes the value in the form memory location `data` to a number and then stores this value in the JavaScript memory location `x`.  

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(f) The statement

\[ \text{document.DoCalculations.display.value} = x + 10; \]

adds 10 to the value of \( x \) and then stores this value in the form memory location \( \text{display} \).

7. (a) See Java17.html.
(b) Only one of the two buttons with the memory location \( \text{cattype} \) can be checked.
(c) Either

\[ \text{document.online.cattype[0].checked} \]

or

\[ \text{document.online.cattype[1].checked} \]

is true. These can be checked in an if condition.