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# Web Technologies – Exercise 9

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This week's exercise is to use JavaScript and the DOM1 properties, methods and events.

## Outcomes:

By the end of this exercise you should be able to:

- Visualise the node tree and use the DOM to navigate it.
- Modify node style and node contents, delete nodes.

**Task 1:** Do the quiz!

**Task 2:** Modify, replace and delete nodes in a document:

This exercise uses the node stuff discussed in lectures 7—9 plus the `node.style` interface to modify CSS styles, so if you persevere and read through everything it will give you some practice with events, functions, tables, forms, nodes *and* CSS <phew>

- 1) Create an XHTML page in a file called `week9nodes.htm` entitled “Week 9: Manipulating nodes”.
- 2) Within it create a table like the one in the [picture](#)

Make it smile!	Make it smile twice!	Make it empty!
First cell	Second cell	Third cell
Reload page!		

which has:

- a) One row with table heading elements containing three buttons.
  - b) Another row containing some simple text in the cells.
    - ◆ Give this row an **id** for use with `getElementById`.
  - c) A third row with one cell that spans all three columns and contains a button.
- 3) Add an `<address>` block as usual and style it (as usual) using CSS.
  - 4) The three buttons in the 1<sup>st</sup> table row should each call a different function when clicked (using `onclick`) which alters the table cells in the 2<sup>nd</sup> row so that the page looks something like [the 2<sup>nd</sup> picture](#) as follows:
    - a) The 1<sup>st</sup> button's `onclick` event handler function adds a background picture to the 1<sup>st</sup> `<td>` node in the 2<sup>nd</sup> row using the node's `style` interface.
      - ◆ E.g. `node.style.backgroundImage = 'url(yourImage.gif)';`

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- ◆ Copy a small image off Blackboard, the module web page or elsewhere on the web. If you download one then add a comment to the HTML to identify the source.
- b) The 2<sup>nd</sup> button replaces the contents of the text node within the 2<sup>nd</sup> `<td>` with some alternate text using the text node's `nodeValue`.
- c) The 3<sup>rd</sup> button removes the text node inside the 3<sup>rd</sup> `<td>` using the node's `removeChild` method.

- **NB:** *Don't* delete the table cell, just the cell's contents...

You must use the *node* parent/child relationships to write the three functions:

`event.target` or `event.srcElement` only gives you a reference to the *button* that was clicked; it's easier to start from a node reference using `getElementById` to the `<tr>` you gave an ID to in 2) b) above...

- **NB:** Navigating the DOM tree using child/sibling node references can be complicated by empty text nodes, *e.g.*

```
<tr id="row">
  <td>...</td>
  <td>...</td>
</tr>
```

the `<tr>` above has 2 element children *but* in "some" browsers it'll also have 3 empty (white space) text node children for the new line/tab characters ... to equalise this behaviour in *all* browsers, write the HTML as

```
<tr id="row"><td>...</td><td>...</td></tr>
```

(so that `document.getElementById('row').firstChild` is a `<td>` not a "" node.)

- 5) The button in the third row resets the page ... the simplest way to do this is to reload it (again, something that's easily done using a *DOMO method*.)
- 6) Style the table using CSS to put a different background colour in each column as shown in the picture. Choose your own colours but make sure the text is visible. You could laboriously use several CSS classes to do this but it would be more interesting use the `<colgroup>` and/or `<col>` tags in the HTML to apply style to specific *columns*.

Here are a few general hints for Task 3:

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- Here's an example picture of the table after you press the buttons:

<input type="button" value="Make it smile!"/>	<input type="button" value="Make it smile twice!"/>	<input type="button" value="Make it empty!"/>
First cell	Smile smile	
<input type="button" value="Reload page!"/>		

- Visualise the nodes within the table ... sketch it if it helps!
- Validate! `<input>` button tags need to be inside `<form>` elements in XHTML and the `<form>` must have an action attribute, even an empty one!
- Internet Explorer happily discards empty text nodes (*i.e.* white space between HTML tags) whilst other browsers do not and these can mess up your assumptions about what is `firstChild` *etc.*, so it's a good idea to write the 2<sup>nd</sup> table row all on one line like this (choose your own text and `id`):  

```
<tr id="theRow"><td>First</td><td>Second</td><td>Third</td></tr>
```
- The "DOM" chapter in the DHTML book and "Nodes" in the JavaScript books discuss the DOM and nodes...

Don't forget to keep up with the reading!

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