DOM – LAB

GETTING TO KNOW THE DOM

Open the file *index.html*. Here is a standard HTML document with the usual mix of images and text.

Things to try:

1. Change the `<h1>` with content of 'Browser Based Applications' to read 'Web Applications Development'.

2. Add the class 'currentPage' to the first `<li>` in the menu.

3. Change the link on 'home' to point to *http://www.google.co.uk*.

4. Insert a new HTML `<div>` element after the `<h1>` and include in the `<div>` today's date.

5. Use the red 'Calculator' button to launch a new window to view the calculator app file *calculator.html*.

6. Centre the 'pop up' in the middle of the page both vertically and horizontally.

Tip: Make use of `getElementsByTagName`, `getElementById`, `date`, `screen.width`, `screen.height`, `window.open,` `setAttribute.`

TIPS FOR EXTENDING THE CALCULATOR

Things to do:

- Create code as external file
- Place at bottom of file

Try adding one event handler ie:

```
document.getElementById('b4').onclick = function(){

    console.info(this);

}
```

Now pass the event object through to it like so and investigate the event object via the console.

```
document.getElementById('b4').onclick = function(ev){

    console.info(ev);

    console.info(ev.target);

}
```

Alternatively use `addEventListener()` ie:

```
document.getElementById('b5').addEventListener('click', function(ev){

    console.info(ev);

    console.info(ev.target);

});
```

Reduce repetitive code by caching ie:

```
var displayScreen = document.getElementById('display');

document.getElementById('b4').addEventListener('click', function(ev){

    //console.info(displayScreen);

    displayScreen.innerHTML = ev.target.innerHTML;

});
```

QUERYSELECTORALL

Add an event to all the buttons. The code is as follow:

```
var myNoButtons = document.querySelectorAll(".button");

      var totalNoButtons = myNoButtons.length;

      for (var i=0;i<totalNoButtons;i++) {

            myNoButtons[i].onclick = update;

      }
```

Then update is:

```
var calcType;

function update(ev){

      var pickedVal = ev.target.innerHTML;

      var currentDisplay = document.getElementById("display").innerHTML;

      if(currentDisplay == '0' || calcType == 'none'){

                  currentDisplay = '';

      }

      if(calcType == 'none'){

                  calcType = 'newStart';

      }

      document.getElementById("display").innerHTML = String(currentDisplay
+ pickedVal);

}
```

Same technique for the Maths buttons:

```
var myMathButtons = document.querySelectorAll(".buttonMath");

var totalMathButtons = myMathButtons.length;

for (var i=0;i<totalMathButtons;i++) {

        myMathButtons[i].onclick = calc;

}
```

To call the function:

```
function calc(ev){

     calcType = ev.target.getAttribute('id');

     console.info(calcType);

     value1 = document.getElementById("display").innerHTML;

     document.getElementById("display").innerHTML = "0"

     if(calcType == 'clear'){

          value1 = 0;

          document.getElementById("display").innerHTML = "0"

     }

     console.info('calc: '+calcType);

     console.info('value1: '+value1);

}
```

Add the event listener for the 'equals' sign:

```
document.getElementById("buttonFinish").onclick = finish;
```

and then the function `finish()`

```
function finish(){

      console.info('Finish calc: '+calcType);
      console.info('Finish value1: '+value1);
      var currentDisplay = document.getElementById("display").innerHTML;
      var newDisplay = 0;

      switch(calcType){

              case 'multiply' :
              newDisplay = Number(value1) * Number(currentDisplay);
              break;

              case 'minus' :
              newDisplay = Number(value1) - Number(currentDisplay);
              break;

              case 'add' :
              newDisplay = Number(value1) + Number(currentDisplay);
              break;

              case 'divide' :
              newDisplay = Number(value1) / Number(currentDisplay);
              break;
        }

        console.info('Finish calc: '+calcType);
        console.info('Finish value1: '+value1);
        console.info('Finish currentDisplay: '+currentDisplay);
        console.info('Finish newDisplay: '+newDisplay);

        calcType = 'none';

        value1 = 0;

    document.getElementById("display").innerHTML = String(newDisplay);


}
```

There is more to do to tidy this up (ie the handling of decimal places) but you have the basis of the calculator.

SOLUTIONS

The simple DOM page tasks 1-5.

```
function init(){

      document.getElementsByTagName('h1').item(0).innerHTML = "Web
Application Development";

      var myNode = document.createElement('div');

      var myDate = new Date();

      myDate = myDate.toDateString();

      document.getElementById('logo').appendChild(myNode);

      myNode.innerHTML = myDate;

      document.getElementsByTagName('li').item(0).setAttribute('class',
'currentPage');

      document.getElementById('showCalc').onclick = function(){

            var x = (screen.width/2) - 360/2;

            var y = (screen.height/2) - 480/2;

            var myOptions =
'resizable=yes,scrollbars=yes,height=480,width=360,left='+x+',top='+y;

            window.open('js-calc-dom.html', 'MyCalc', myOptions);

      }

}
```