What is the purpose of JavaScript when writing webpages?

Between which HTML tags should JavaScript be added?

What will the following code produce?

```
<script>
      document.write("Hello There!");
</script>
```


What will the following code produce and how does it work?

```
<script>
      var x = 5;
      var xstring = "Hello There!";
      document.write(x, " ", xstring);
</script>
```

JavaScript is added between <script> tags, when embedded in an HTML file.

JavaScript is a 'Client Side' scripting language used to give webpages the ability to perform calculations, validate data entry and generally make webpages more interactive.


```
<script>
      var x = 5;
      var xstring = "Hello There!";
      document.write(x, " ", xstring);
</script>
```

This code will display the text '5 Hello There!', on the webpage.

Two variables are declared and assigned values and then these variables are joined together and displayed on the screen.


```
<script>
      document.write("Hello There!");
</script>
```

This code will display the text 'Hello There!' on the webpage.

What will the following code produce?

```
<script>
        alert("Error!");
</script>
```


What will the following code produce and how does it work?

```
<script>
        var cheese = ["Stilton", "Cheddar", "Brie", "Baby Bell"];
        var text = "";
        var i;
        for (i = 0; i < cheese.length; i++) {
            text += cheese[i] + "<br>";
        }
        document.write(text);
</script>
```


What will the following code produce and how does it work?

```
<script>
    var x = 11;
    if (x === 10) {
        document.write("It is a 10!!");
        }
    else {
        document.write("It is not a 10!");
        }
</script>
```


What will the following code produce and how does it work?

```
<script>
  function whileLoop() {
    var outputtext = "";
    var i = 0;
    while (i < 10) {
          outputtext += "<br> The number is " + i;
              i++;
          }
    chosenElement = document.getElementById("While_Loop");
    chosenElement.innerHTML = outputtext;
    }
  </script>
```

```
<script>
        var cheese = ["Stilton", "Cheddar", "Brie", "Baby Bell"];
        var text = "";
        var i;
        for (i = 0; i < cheese.length; i++) {
            text += cheese[i] + "<br>";
        }
        document.write(text);
</script>
```

*
 is a break tag. Basically it means 'new line'.*

The code will list the words 'Stilton', 'Cheddar', 'Brie' and 'Baby Bell' on the webpage.

An array is declared and assigned 4 words. A variable is declared and assigned 'blank'. A FOR loop then iterates for the number of items in the array, adding each cheese and a
 to a variable, which is later outputted to the screen, after the loop has ended.


```
<script>
        alert("Error!");
</script>
```

This code will produce an alert box (pop up window) with the text 'Error!' being displayed.


```
<script>
  function whileLoop() {
    var outputtext = "";
    var i = 0;
    while (i < 10) {
          outputtext += "<br> The number is " + i;
               i++;
          }
    chosenElement = document.getElementById("While_Loop");
    chosenElement.innerHTML = outputtext;
    }
  </script>
```

This will print out numbers from 0 to 9, along with the text 'The number is'.

A function is declared containing a while loop which loops whilst 'i' is less than 10. In each iteration, 'i' is incremented by 1 and a variable ('outputtext') is appended to with the text 'the number is' along with the latest value of 'i'. After the loop, the HTML element with ID='While_Loop' displays the contents of the 'outputtext' variable.


```
<script>
    var x = 11;
    if (x === 10) {
       document.write("It is a 10!!");
       }
    else {
       document.write("It is not a 10!");
       }
</script>
```

This code will result in the text 'It is not a 10!' being outputted to the screen.

A variable (x) is assigned the value '11'. Then an IF statement is executed. IF 'x' is equal to 10, then 'It is a 10!!' is outputted to the screen. But in this case, because 'x' is actually equal to 11, the alternative statement is outputted.

What will the following code produce and how does it work?

```
<script>
  var x = 3;
  switch (x) {
  case 1:
      text = "x equals 1";
      break;
  case 2:
      text = "x equals 2";
      break;
  case 3:
      text = "x equals 3";
      break;
  }
  document.write(text);
</script>
```


What will the following code produce and how does it work?

```
<script>
  str = "Please visit London!";
  var x = str.replace(/London/g,"Exeter");
  document.write(x);
</script>
```


What will the following code produce and how does it work?

```
<script>
    var str = "Where is Exeter?";
    var pos = str.search("Exeter");
    document.write("Starts at position ", pos);
</script>
```


What will the following code produce and how does it work?

```
<p id="functions_example"></p>

<script>
        function myFunction(a, b) {
                return a * b;
                }
        chosenElement = document.getElementById("functions_example")
        chosenElement.innerHTML = myFunction(10, 5);
</script>
```

```
<script>
  str = "Please visit London!";
  var x = str.replace(/London/g,"Exeter");
  document.write(x);
</script>
```

This code will result in the text 'Please visit Exeter!' being outputted to the screen.

A variable ('str') is assigned the string 'Please visit London!'. Then a new variable ('x') is assigned the result of a string manipulation method being carried out on the string, where 'London' is replaced with the word 'Exeter'.


```
<script>
  var x = 3;
  switch (x) {
  case 1:
      text = "x equals 1";
      break;
  case 2:
      text = "x equals 2";
      break;
  case 3:
      text = "x equals 3";
      break;
  }
  document.write(text);
</script>
```

This code will result in the text 'x equals 3' being outputted to the screen. A variable (x) is assigned the value '3'. Then a case statement is executed. In the case of 'x' equalling 3, a variable called 'text' is assigned the string 'x equals 3'. After the case statement is executed, the contents of the variable 'text' is outputted to the screen.


```
<p id="functions_example"></p>

<script>
        function myFunction(a, b) {
                return a * b;
                }
        chosenElement = document.getElementById("functions_example")
        chosenElement.innerHTML = myFunction(10, 5);
</script>
```

This code will display the output '50'.

The <p> tags are given the id='functions_example' and as such will later display the result of the function's calculation.
The function in this example is given the values 10 and 5 and returns the result of the multiplication of the two numbers.
This result is returned to 'chosenElement' which in turn updates the <p> tags to display the number 50.


```
<script>
    var str = "Where is Exeter?";
    var pos = str.search("Exeter");
    document.write("Starts at position ", pos);
</script>
```

This code will result in the output 'Starts at position 9'.

A variable ('str') is assigned the string 'Where is Exeter?'. Then a new variable ('pos') is assigned the result of a string manipulation method being carried out on the string which seeks to find the index where the word 'Exeter' begins, which is at index position 9. The program then outputs the text "Starts at position ", followed by the index of 9.