Comp 125 - Visual Information Processing

Spring Semester 2018 - week 2 - friday

Dr Nick Hayward

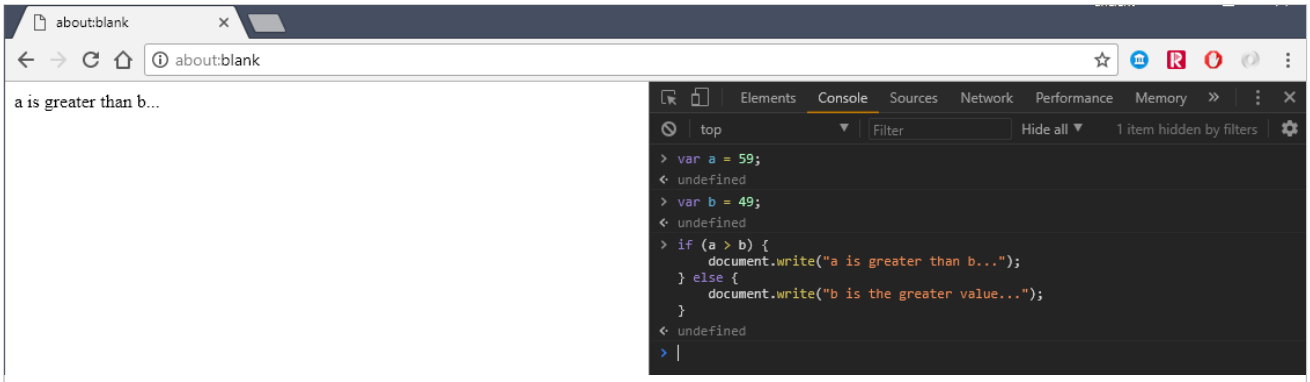
JS Basics - logic - blocks & conditionals - part 2

- additional option if this expression returns false
  - *using an **else** clause*

```
if (a > b) {
console.log("a is greater than b...");
} else {
console.log("no, b is greater...");
}
```

- for an `if` statement, JS expects a `boolean`
- JS defines a list of values that it considers *false*
  - *e.g. 0...*
- any value **not** on this list of *false* values will be considered true
  - *coerced to true when defined as a `boolean`*
- conditionals in JS also exist in another form
  - *the `switch` statement*
  - *more to come...*

JS Basics - logic - conditional statement



JavaScript - conditional statement

JS Basics - logic - loops

- loops allow repetition of sets of actions until a condition fails
- repetition continues whilst the requested condition holds
- loops take many different forms and follow this basic behaviour
- a loop includes the *test condition* as well as a *block*
  - *normally within curly braces*
  - *block executes, an iteration of the loop has occurred*
  - *four kinds of loop by default in JS,*
    - `for`
    - `for/in`
    - `while`
    - `do/while`

JS Basics - logic - loops - `for`

- `for` loop has three clauses, including
  - *initialisation clause*
  - *conditional test clause*
  - *update clause*

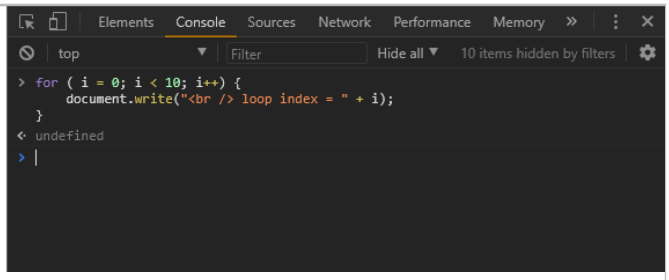
```
for (statement1; statement2; statement3) {
    ...code block...
}
```

- statement1 = executes before loop starts
  - *statement2 = condition for running the loop*
  - *statement3 = executes after each iteration of the loop*

JS Basics - logic - loops - `for`

Loop through a defined index from 0...

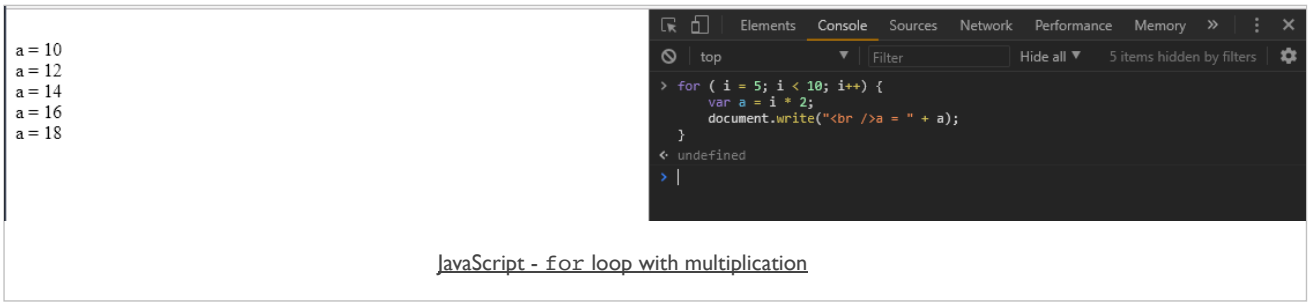
loop index = 0
loop index = 1
loop index = 2
loop index = 3
loop index = 4
loop index = 5
loop index = 6
loop index = 7
loop index = 8
loop index = 9



JavaScript - `for` loop

JS Basics - logic - loops - `for`

Create a custom index and multiply per loop iteration...



JavaScript - `for` loop with multiplication

JS Basics - logic - loops - `while` & `do/while`

- `while` and `do...while` loops
- basic difference between these loops, `while` and `do...while`
  - *conditional tested is before the first iteration (`while` loop)*
  - *after the first iteration (`do...while`) loop*
- if the condition is initially false
  - *a `while` loop will never run*
  - *a `do...while` will run through for the first time*
  - *other specialised forms of loop in JavaScript*
    - e.g. `for/in`...

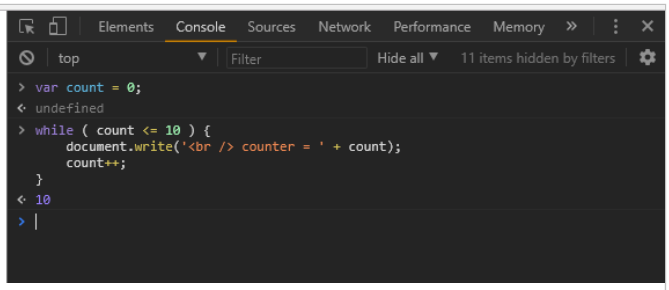
n.b. programming languages, and CS in general, start counting at `0`. i.e. an index of values...

JS Basics - logic - loops - `while`

`while` loop continues to execute whilst condition remains true...

```
while (condition is true) {
    ...code block...
}
```

counter = 0
counter = 1
counter = 2
counter = 3
counter = 4
counter = 5
counter = 6
counter = 7
counter = 8
counter = 9
counter = 10



JavaScript - `while` loop

`while` loop with counter increment before output...

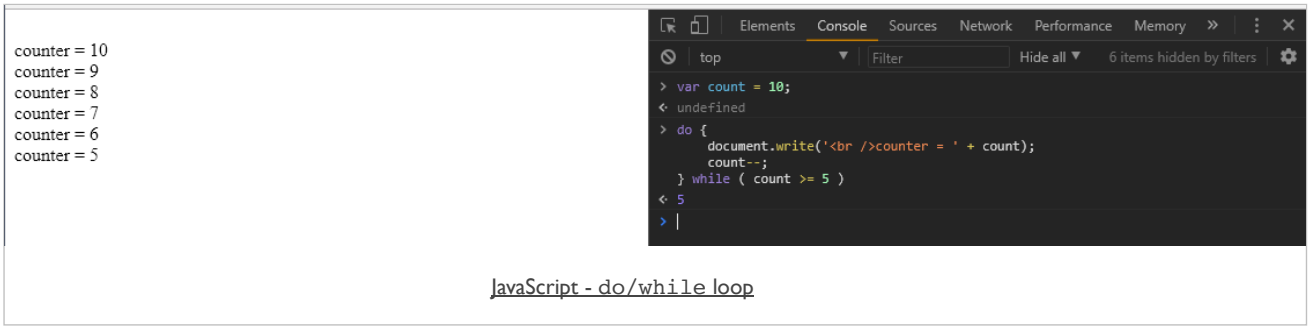
counter = 1
counter = 2
counter = 3
counter = 4
counter = 5
counter = 6
counter = 7
counter = 8
counter = 9
counter = 10
counter = 11

JavaScript - `while` loop

JS Basics - logic - loops - `do/while`

`do/while` loop executes `do` first, and then checks `while` condition...

```
do {
    ...code block...
} while (condition is true)
```



JavaScript - `do/while` loop