Comp 125 - Visual Information Processing - Notes

Spring Semester - 22nd January 2018

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JS Basics - operators

- operators allow us to perform
  - *mathematical calculations*
  - *assign one thing to another*
  - *compare and contrast*
  - ...
- we can perform multiplication
  - ***
  - e.g.

```
2 * 4
```

- we can also add, subtract, and divide numbers
  - *+, –, /*
  - e.g.

```
2 + 4
4 - 2
4 / 2
```

JS Basics - some common operators - part I

Assign values to variables, perform mathematical calculations, and compare values...

Assignment

- =
  - *e.g.*

```
a = 4;
b = 4 + 6;
```

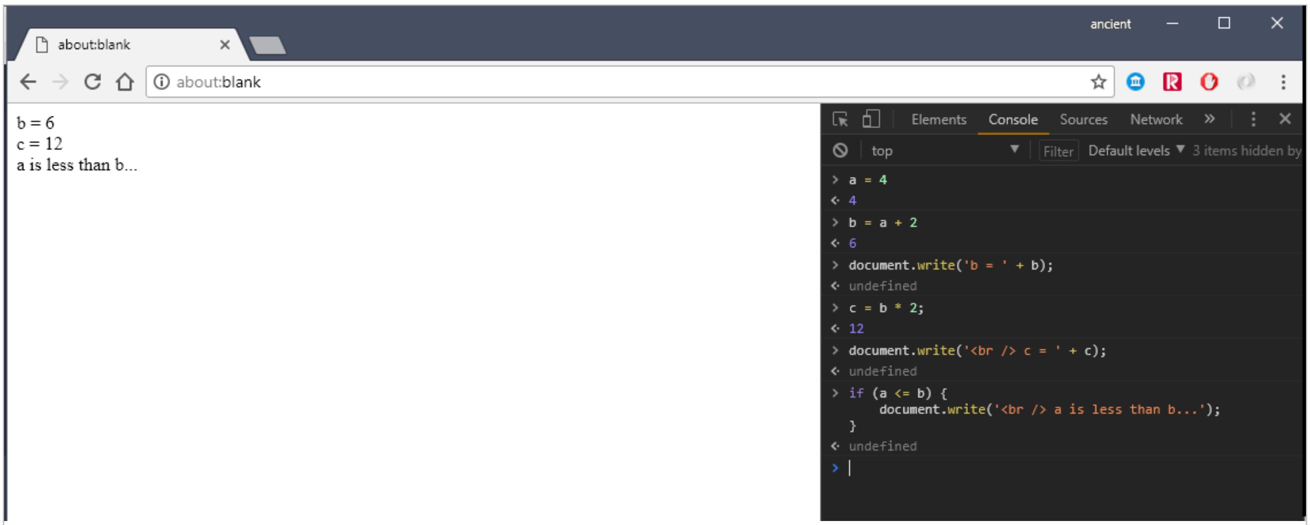
Comparison

- <, > <=, >=
  - *e.g.*

```
a <= b
```

JS Basics - example operator usage

Assign values to variables, perform mathematical calculations, and compare values...



```
b = 6
c = 12
a is less than b...
```

```
> a = 4
<· 4
> b = a + 2
<· 6
> document.write('b = ' + b);
<· undefined
> c = b * 2;
<· 12
> document.write('<br /> c = ' + c);
<· undefined
> if (a <= b) {
      document.write('<br /> a is less than b...');
  }
<· undefined
>
```

JavaScript - assignment and comparison

JS Basics - some common operators - part 2

Compound assignment

- `+=`, `-=`, `*=`, `/=`
- compound operators are used to combine a mathematical operation with assignment
- same as `result = result + expression`
  - e.g.

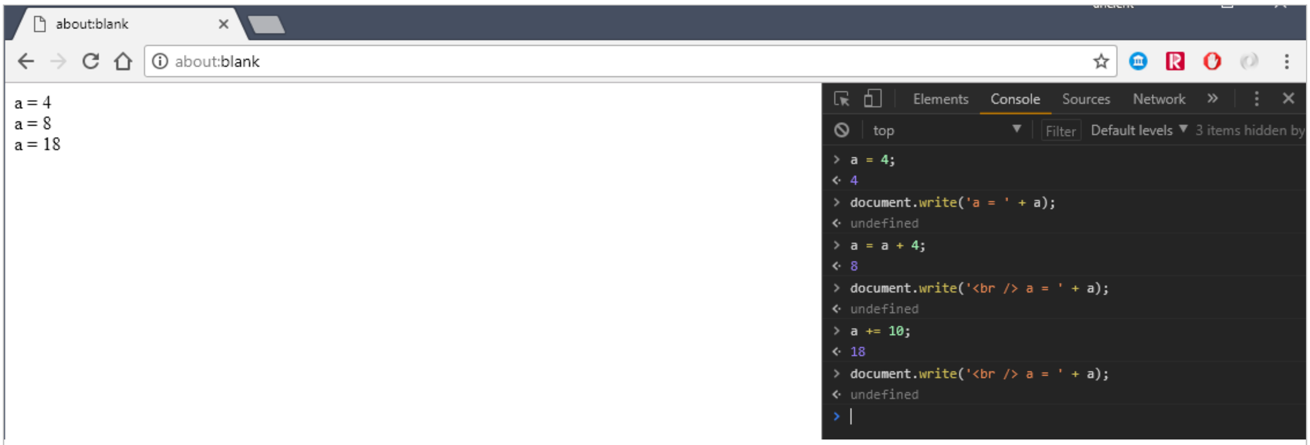
```
a = 4;
a += 4;
```

is the same as

```
a = 4;
a = a + 4;
```

JS Basics - example operator usage

Combine a mathematical operation with assignment of value to variable.



```
a = 4
a = 8
a = 18
```

```
> a = 4;
<· 4
> document.write('a = ' + a);
<· undefined
> a = a + 4;
<· 8
> document.write('<br /> a = ' + a);
<· undefined
> a += 10;
<· 18
> document.write('<br /> a = ' + a);
<· undefined
>
```

JavaScript - compound assignment

JS Basics - some common operators - part 3

Equality

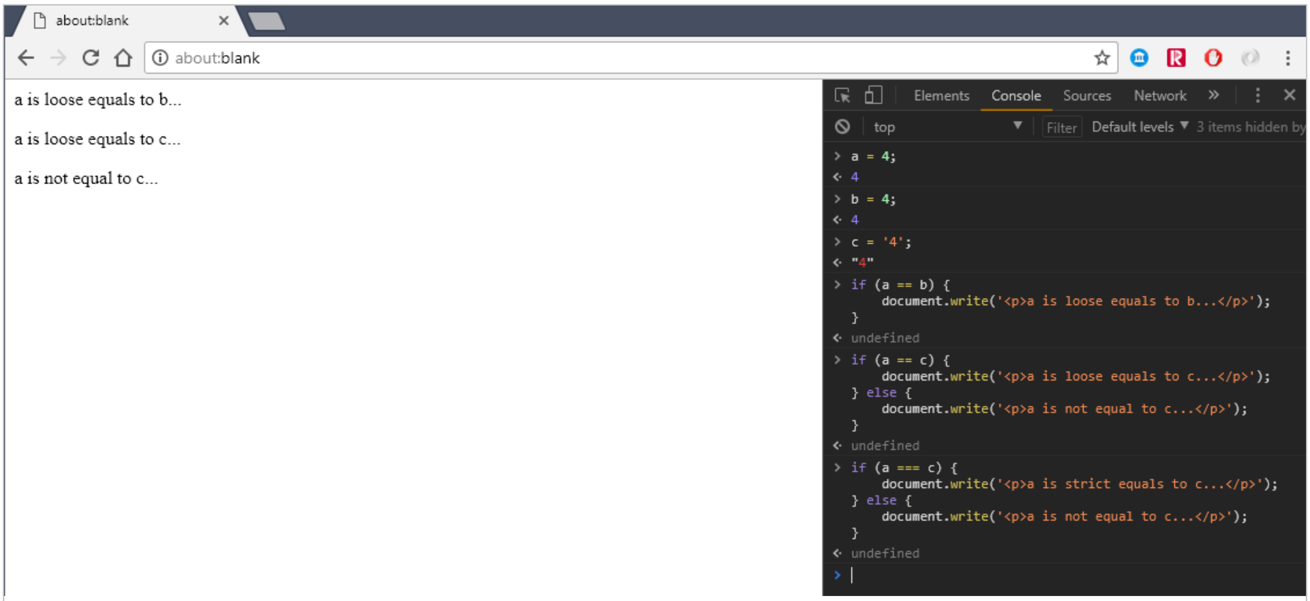
operator	description
==	loose equals
===	strict equals
!=	loose not equals
!==	strict not equals

- e.g.

```
a == b
a === b
```

JS Basics - example operator usage

Equality options for value, and value and type.



```
a is loose equals to b...

a is loose equals to c...

a is not equal to c...
```

```
> a = 4;
<· 4
> b = 4;
<· 4
> c = '4';
<· "4"
> if (a == b) {
      document.write('<p>a is loose equals to b...</p>');
  }
<· undefined
> if (a == c) {
      document.write('<p>a is loose equals to c...</p>');
  } else {
      document.write('<p>a is not equal to c...</p>');
  }
<· undefined
> if (a === c) {
      document.write('<p>a is strict equals to c...</p>');
  } else {
      document.write('<p>a is not equal to c...</p>');
  }
<· undefined
> |
```

JavaScript - equality

JS Basics - some common operators - part 4

Logical

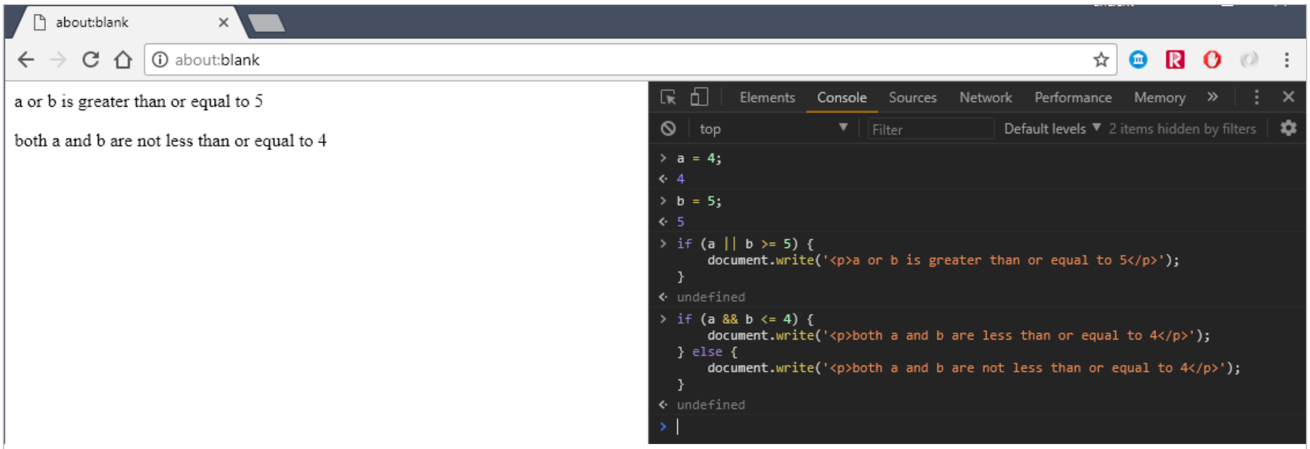
- used to express compound conditionals - **AND**, **OR**
  - *&&, ||*
  - *e.g. **a** or **b***

```
a || b
```

JS Basics - example operator usage

Check compound conditionals, e.g.

- a **AND** b
- a **OR** b



a or b is greater than or equal to 5

both a and b are not less than or equal to 4

```
> a = 4;
<· 4
> b = 5;
<· 5
> if (a || b >= 5) {
      document.write('<p>a or b is greater than or equal to 5</p>');
  }
<· undefined
> if (a && b <= 4) {
      document.write('<p>both a and b are less than or equal to 4</p>');
  } else {
      document.write('<p>both a and b are not less than or equal to 4</p>');
  }
<· undefined
> |
```

JavaScript - equality

JS Basics - values and types

- able to express different representations of values
  - *often based upon need or intention*
  - *known as **types***
- JS has built-in types
  - *allow us to represent **primitive** values*
  - *e.g. **numbers**, **strings**, **booleans***
  - ***n.b.** boolean is either **TRUE** or **FALSE***
- such values in the source code are simply known as **literals**
- **literals** can be represented as follows,
  - *string literals use double or single quotes*
  - *e.g. `"some text"` or `'some more text'`*
  - *numbers and booleans are represented without being escaped*
  - *e.g. `49`, `TRUE`*
- also consider arrays, objects, functions...