Coding for Journalists

UC Berkeley Graduate School of Journalism

Structure of a webpage

Where is JavaScript kept?

```
<html>
<head>
   <title>Here is my title</title>




</head>
<body>




</body>
</html>
```

Where is JavaScript kept?

```
<html>
<head>
   <title>Here is my title</title>

   <script type="text/javascript">
      var i=0;
   </script>


</head>
<body>
```

```
   <script type="text/javascript">
      var i=0;
   </script>

</body>
</html>
```

in the **<head>**

Loads before the webpage loads. Use this for scripts that need to load instantly. It will slow the loading of the page if the script is large.

in the **<body>**, before the closing tag.

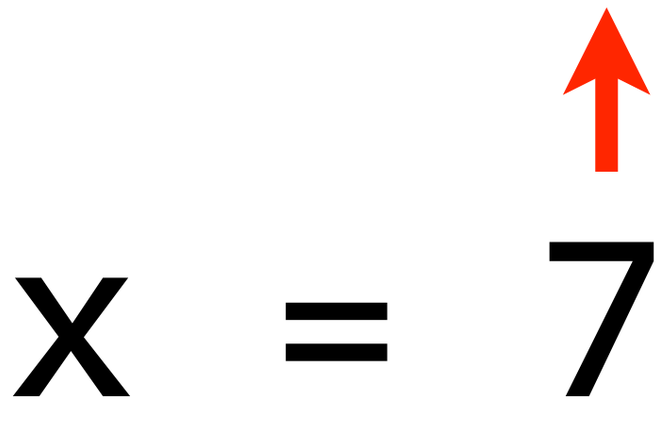
Is the last thing to load, so it won't stall the web page loading.

Variables

Assignment operator

$$x = 7$$

Assignment operator



Assignment operator

$$x = 7$$

Assignment operator

$$x = 7$$

$$x = 9$$

Assignment operator

$$x = 7$$

$$x = 9$$

What is the value of x?

Assignment operator

$$x = 7$$

$$x = 9$$

What is the value of x?

Pop Quiz

x = 343859348759 8

x = 2

What is the value of x?

Pop Quiz

```
x = 343859348759 8
x = 2
```

What is the value of x?

Answer: 2

Pop Quiz

```
x = 234
x = 3
x = 4634
x = 1
```

What is the value of x?

Pop Quiz

```
x = 234
x = 3
x = 4634
x = 1
```

What is the value of x?

Answer: 1

Pop Quiz

y = 4

x = 686

x = 3445

y = 8888899

y = 1

What is the value of x?

Pop Quiz

$y = 4$

$x = 686$

$x = 3445$

$y = 8888899$

$y = 1$

What is the value of x?

Answer: 3445

Assign values from other variables

```
y = 27
x = y
```

What is the value of x?

Assign values from other variables

```
y = 27
x = y
```

What is the value of x?

Answer: 27

Pop Quiz

$y = 3$

$x = 44$

$z = 22$

$k = 38953892$

$x = y$

What is the value of x?

Pop Quiz

$y = 3$

$x = 44$

$z = 22$

$k = 38953892$

$x = y$

What is the value of x?

Answer: 3

Rules about variables

- The assignment operator (=) takes value from right side, and saves it into the left side.
- You can replace the value of variables.
- If a variable is assigned to another variable, it takes its value.

Basic arithmetic

```
x = 1 + 1
```

What is the value of x?

Basic arithmetic

```
x = 1 + 1
```

What is the value of x?

Answer: 2

Basic arithmetic

```
x = 45
y = 2
k = 33

x = y + k
```

What is the value of x?

Basic arithmetic

```
x = 45
y = 2
k = 33

x = y + k
```

What is the value of x?

Answer: 35

Basic arithmetic

```
y = 7
k = 4
z = 10

x = y + k - z
```

What is the value of x?

Basic arithmetic

```
y = 7
k = 4
z = 10

x = y + k - z
```

What is the value of x?

Answer: 1

Basic arithmetic

```
y = 5
k = 10
j = 20
x = y + (k * j)
```

What is the value of x?

Basic arithmetic

```
y = 5
k = 10
j = 20
x = y + (k * j)
```

What is the value of x?

Answer: 205

Assigning a variable to itself

```
x = 10
x = x + 1
```

What is the value of x?

Assigning a variable to itself

```
x = 10
x = x + 1
```

What is the value of x?

Answer: 11

Assigning a variable to itself

```
x = 5
x = x + 5
```

What is the value of x?

Assigning a variable to itself

```
x = 5
x = x + 5
```

What is the value of x?

Answer: 10

Assigning a variable to itself

```
x = 10
x = x + 2
x = x + 3
```

What is the value of x?

Assigning a variable to itself

```
x = 10
x = x + 2
x = x + 3
```

What is the value of x?

Answer: 15

Assigning a variable to itself

```
x = 10
x = x * 2
```

What is the value of x?

Assigning a variable to itself

```
x = 10
x = x * 2
```

What is the value of x?

Answer: 20

Adding / Subtracting

```
x = x + 1
```

is the same as

```
x += 1
```

Adding / Subtracting

```
x = x + 1
```

is the same as

```
x += 1
```

Adding / Subtracting

```
x = x + 1
```

is the same as

```
x += 1
```

Adding / Subtracting

```
x = x - 1
```

is the same as

```
x -= 1
```

Adding / Subtracting

```
x = x - 1
```

is the same as

```
x -= 1
```

Adding / Subtracting

```
x = x - 1
```

is the same as

```
x -= 1
```

Assigning a variable to itself

```
x = 20
x += 1
```

What is the value of x?

Assigning a variable to itself

```
x = 20
x += 1
```

What is the value of x?

Answer: 21

Assigning a variable to itself

```
x = 10
x += 5
```

What is the value of x?

Assigning a variable to itself

```
x = 10
x += 5
```

What is the value of x?

Answer: 15

Variable naming rules

- Variables must start with a letter*
- Variables can only contain letters, numbers or an underscore
- No spaces
- Variables in JavaScript are case sensitive, which means the variable `mytotal` is a different variable than `myTotal`.
- Can’t be reserved by JavaScript

Variable Names

```
numOfPhotos  = 10
currentPhoto = 4
photosToEnd  = numOfPhotos-currentPhoto
```

How many photos before they reach the end?

Variable Names

```
numOfPhotos  = 10
currentPhoto = 4
photosToEnd  = numOfPhotos-currentPhoto
```

How many photos before they reach the end?

Answer: 6

Assigning a variable to itself

```
fb_likes = 22
fb_likes += 1
```

How many facebook likes now?

Assigning a variable to itself

```
fb_likes = 22
fb_likes += 1
```

How many facebook likes now?

Answer: 23

Strings

```
firstName = "Jeremy"
```

Strings must be surrounded by quotes or else the program will think you are trying to assign another variable

```
firstName = Jeremy
```

Strings

```
firstName = "Jeremy"
```

Strings must be surrounded by quotes or else the program will think you are trying to assign another variable

```
firstName = Jeremy
```

Concatenation

```
name = "Jeremy" + "Rue"
```

When you add two numbers together,
you get the sum of those numbers.

When you add two strings together, it
"concatenates" or connects them.

Value of `name`:

`JeremyRue`

Concatenation

```
firstName = "Jeremy"
lastName  = "Rue"
fullName  = firstName + lastName
```

What is the value of fullName?

Concatenation

```
firstName = "Jeremy"
lastName  = "Rue"
fullName  = firstName + lastName
```

What is the value of fullName?

Answer: JeremyRue

Concatenation

```
firstName = "John"
lastName  = "Smith"
fullName  = firstName + " " + lastName
```

What is the value of fullName?

Concatenation

```
firstName = "John"
lastName  = "Smith"
fullName  = firstName + " " + lastName
```

What is the value of fullName?

Answer: John Smith

Concatenation

```
firstName = "Joe"
lastName  = "Smith"
firstName = "Peter"
fullName  = firstName + lastName
```

What is the value of fullName?

Concatenation

```
firstName = "Joe"
lastName  = "Smith"
firstName = "Peter"
fullName  = firstName + lastName
```

What is the value of fullName?

Answer: PeterSmith

Concatenation

```
space  = " "
myName = "john" + space + "jacob" +
         space + "jingleheimer" +
         space + "schmidt"
```

What is the value of myName?

Concatenation

```
space  = " "
myName = "john" + space + "jacob" +
         space + "jingleheimer" +
         space + "schmidt"
```

What is the value of myName?

Answer: john jacob jingleheimer schmidt

Concatenation

```
first  = "Jeremy"
first  += " "
first  += "Rue"
```

What is the value of first?

Concatenation

```
first  = "Jeremy"
first  += " "
first  += "Rue"
```

What is the value of first?

Answer: Jeremy Rue

Adding numbers and strings

```
name = "Apple" + 5
```

When adding a string to a number the result will always be a concatenation of the two

```
Apple5
```

Concatenation with Number

```
firstName = "Joe"
connector = 4
lastPart  = "Prez"
tagline   = firstName + connector
          + lastPart
```

What is the value of tagline?

Concatenation with Number

```
firstName = "Joe"
connector = 4
lastPart  = "Prez"
tagline   = firstName + connector
          + lastPart
```

What is the value of tagline?

Answer: Joe4Prez

Concatenation with Number

```
firstNumber  = 3
secondNumber = 3
result = firstNumber + secondNumber
```

What is the value of result?

Concatenation with Number

```
firstNumber  = 3
secondNumber = 3
result = firstNumber + secondNumber
```

What is the value of result?

Answer: 6

Concatenation with Number

```
firstNumber  = "3"
secondNumber = "3"
result = firstNumber + secondNumber
```

What is the value of result?

Concatenation with Number

```
firstNumber  = "3"
secondNumber = "3"
result = firstNumber + secondNumber
```

What is the value of result?

Answer: 33

Concatenation with Number

```
firstNumber  = "3"
secondNumber = 3
result = firstNumber + secondNumber
```

What is the value of result?

Concatenation with Number

```
firstNumber  = "3"
secondNumber = 3
result = firstNumber + secondNumber
```

What is the value of result?

Answer: 33

Escape Backslash

```
sentence = "Just \"do\" it"
```

What if you want quotes in the string itself? You will need to use an escape backslash. It means the next character has special meaning or should not be interpreted literally.

```
Just "do" it
```

Escape Backslash

```
sentence = "To-Do List \n Sleep"
```

The next character after a backslash has some type of meaning. `\n` means new line, and will create a carriage return (return key).

```
To-do List
Sleep
```

Escape Backslash

```
sentence = "you \"really\" should
           have seen it"
```

What is the value of sentence?

Escape Backslash

```
sentence = "you \"really\" should
           have seen it"
```

What is the value of sentence?

you "really" should have seen it

Escape Backslash

```
sentence = "one \n two \n three \n
           four"
```

What is the value of sentence?

Escape Backslash

```
sentence = "one \n two \n three \n
           four"
```

What is the value of sentence?

one
two
three
four

Escape Backslash

```
sentence = "c:\\\\file"
```

What is the value of sentence?

Escape Backslash

```
sentence = "c:\\\\file"
```

What is the value of sentence?

c:\\file

Data Types

```
numberVariable  = 42
```

Data Types

```
numberVariable  = 42
stringVariable  = "Hello World"
```

Data Types

```
numberVariable  = 42
stringVariable  = "Hello World"
booleanVariable = true
```

Data Types

```
numberVariable  = 42
stringVariable  = "Hello World"
booleanVariable = true
booleanVariable = false
```

Data Types

```
numberVariable  = 42
stringVariable  = "Hello World"
booleanVariable = true
booleanVariable = false
```

Boolean variables have either a **`true`** or **`false`** value. The words "true" and "false" are recognized, and will not be interpreted as other variables.

Syntax

Semi-colon at the end of each line

```
firstName = "John";
lastName  = "Smith";
age       = 42;
from      = "Oakland";
isMale    = true;
```

Semi-colon at the end of each line

```
firstName="John"; lastName="Smith";
age=42; from="Oakland"; isMale=true;
```

The VAR keyword

```
var firstName = "John";
var lastName  = "Smith";
var location  = "Oakland";
location      = "Richmond";
```

The ***first*** time you use a new variable, you need to declare it using the **`var`** keyword. This word tells the program that you are establishing a new variable, and use it in this space here on out. You only need to do this once.

The VAR keyword

```
var firstName = "Jeremy"

firstName = "Joe"
firstName = firstName + " "
firstName += "Smith"
```

What is the value of firstName?

The VAR keyword

```
var firstName = "Jeremy"

firstName = "Joe"
firstName = firstName + " "
firstName += "Smith"
```

What is the value of firstName?

Joe Smith

Breathe

Arrays

Arrays

```
var myArray = ["john", "joe", "peter"];
```

An array is a method of storing multiple values into a single variable.

Arrays

```
["john", "joe", "peter"];
```

Arrays

```
["john", "joe", "peter"];
```

square brackets

Arrays

each item separated by commas

```
["john", "joe", "peter"];
```

Arrays

```
["john", "joe", "peter"];
```

```
myArray
```

Arrays

```
myArray
```

Arrays

```
var myArray = ["john", 42, true];
```

These values can be any data type that can be in a typical variable.

Arrays

```
var myArray = ["john", 42, true];
```

These values can be any data type that can be in a typical variable.

Arrays

```
var myArray = ["john", 42, true];
```

These values can be any data type that can be in a typical variable.

Arrays

```
var myArray = ["john", 42, true];
```

These values can be any data type that can be in a typical variable.

Arrays

```
var myArray = ["john"+"Smith", 42-1, true];
```

...anything that you might put on the right side of the equals symbol when assigning the variable

Arrays

```
var arr = ["one", "two", "three", "four"]
```

Set the array data.

Arrays

```
var arr = ["one", "two", "three", "four"]
```

Set the array data.

...then later, recall each item

Arrays

```
var arr = ["one", "two", "three", "four"]
```

"one"

Set the array data.

...then later, recall each item

```
arr[0]
```

Arrays

```
var arr = ["one", "two", "three", "four"]
           "one"  "two"
```

Set the array data.

...then later, recall each item

```
arr[0]  arr[1]
```

Arrays

```
var arr = ["one", "two", "three", "four"]
           "one"  "two"  "three"
```

Set the array data.

...then later, recall each item

```
arr[0]  arr[1]  arr[2]
```

Arrays

```
var arr = ["one", "two", "three", "four"]
           "one"  "two"  "three"  "four"
```

Set the array data.

...then later, recall each item

```
arr[0]  arr[1]  arr[2]  arr[3]
```

Arrays

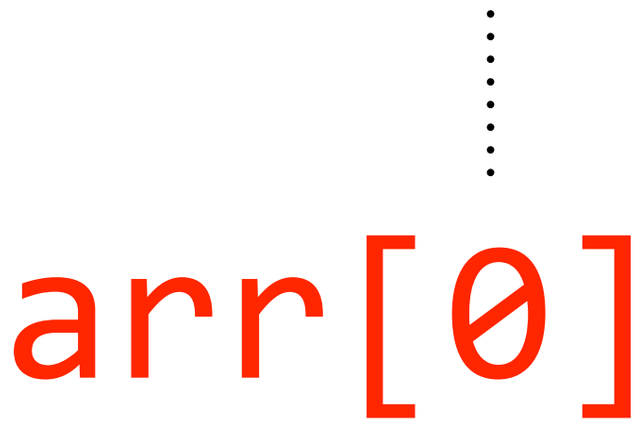
```
arr[0]
```

Arrays

```
arr[0]
```

Arrays

This is the index



```
arr[0]
```

Arrays

This is the index

```
arr[0]
```

It determines which value in the array we want to recall

Arrays

```
arr = ["John", "Joe", "Jack", "Jim"];
```

Arrays

```
arr = ["John", "Joe", "Jack", "Jim"];
```

Arrays

```
          arr[0]
arr = ["John", "Joe", "Jack", "Jim"];
```

Arrays

```
          arr[0]
arr = ["John", "Joe", "Jack", "Jim"];
```

Arrays

```
          arr[0] arr[1]
arr = ["John", "Joe", "Jack", "Jim"];
```

Arrays

```
          arr[0] arr[1]
arr = ["John", "Joe", "Jack", "Jim"];
```

Arrays

```
          arr[0] arr[1] arr[2]
arr = ["John", "Joe", "Jack", "Jim"];
```

Arrays

```
          arr[0] arr[1] arr[2]
arr = ["John", "Joe", "Jack", "Jim"];
```

Arrays

```
          arr[0] arr[1] arr[2] arr[3]
arr = ["John", "Joe", "Jack", "Jim"];
```

Arrays

```
var myArray = ["joe", "mary", "jane"];
```

What is the value of `myArray[0]`?

Arrays

```
var myArray = ["joe", "mary", "jane"];
```

What is the value of `myArray[0]`?

joe

Pop Quiz

```
var myArray = [2, 4, 6, 8, 10];

var total = myArray[4] + myArray[2];
```

What is the value of `total`?

Pop Quiz

```
var myArray = [2, 4, 6, 8, 10];

var total = myArray[4] + myArray[2];
```

What is the value of `total`?

16

Pop Quiz

```
var arr = ["joe", "jane", " ", "Smith"];

var thename = arr[1] + arr[2] + arr[3];
```

What is the value of thename?

Pop Quiz

```
var arr = ["joe", "jane", " ", "Smith"];

var thename = arr[1] + arr[2] + arr[3];
```

What is the value of thename?

jane smith

Pop Quiz

```
var arr = [546, 5464, 43, 234, 546];

var total = arr[2 + 2];
```

What is the value of `total`?

Pop Quiz

```
var arr = [546, 5464, 43, 234, 546];

var total = arr[2 + 2];
```

What is the value of `total`?

546

Pop Quiz

```
var arr = [546, 5464, 43, 234, 546];

var i = 3;
var total = arr[i];
```

What is the value of total?

Pop Quiz

```
var arr = [546, 5464, 43, 234, 546];

var i = 3;
var total = arr[i];
```

What is the value of `total`?

234

Pop Quiz

```
var arr = [2, 4, 2, 6, 8, 0, 2, 7];

var i = 3;
var j = 0;
```

```
var total = arr[i] + arr[j] + arr[i+j];
```

What is the value of total?

Pop Quiz

```
var arr = [2, 4, 2, 6, 8, 0, 2, 7];

var i = 3;
var j = 0;
```

```
var total = arr[i] + arr[j] + arr[i+j];
```

What is the value of total?

14

Pop Quiz

```
var photoNames = [
   "mygreatphoto.jpg",
   "twocats.jpg",
   "thedog.jpg",
   "somegraphic.gif"
];
var currentPhoto = 0;
photoNames[currentPhoto];
currentPhoto += 1;
photoNames[currentPhoto];
```

What are the two values before/after incrementing?

Multi-dimensional Arrays

```
var arr1 = [1, 2, 3];
var arr2 = [4, 5, 6];
var arr3 = [7, 8, 9];
```

```
var arr2d = [arr1, arr2, arr3];

arr2d[0][1]
```

Multi-dimensional Arrays

```
var arr1 = [1, 2, 3];
var arr2 = [4, 5, 6];
var arr3 = [7, 8, 9];
```

```
var arr2d = [arr1, arr2, arr3];

arr2d[0][1]
```

Answer: 2

Multi-dimensional Arrays

```
var arr1 = [1, 2, 3];
var arr2 = [4, 5, 6];
var arr3 = [7, 8, 9];
```

```
var arr2d = [arr1, arr2, arr3];
```

What's the value of `arr2d[2][2]`?

Multi-dimensional Arrays

```
var arr1 = [1, 2, 3];
var arr2 = [4, 5, 6];
var arr3 = [7, 8, 9];
```

```
var arr2d = [arr1, arr2, arr3];
```

What's the value of `arr2d[2][2]`?

Answer: 9

Multi-dimensional Arrays

```
var arr1 = [1, 2, 3];
var arr2 = [4, 5, 6];
var arr3 = [7, 8, 9];
```

```
var arr2d = [arr1, arr2, arr3];
```

What's the value of `arr2d[1][1]`?

Multi-dimensional Arrays

```
var arr1 = [1, 2, 3];
var arr2 = [4, 5, 6];
var arr3 = [7, 8, 9];
```

```
var arr2d = [arr1, arr2, arr3];
```

What's the value of `arr2d[1][1]`?

Answer: 5

Multi-dimensional Arrays

```
var arr1 = [1, 2, 3];
var arr2 = [4, 5, 6];
var arr3 = [7, 8, 9];
```

```
var arr2d = [arr1, arr2, arr3];
```

What's the value of `arr2d[0][0]`?

Multi-dimensional Arrays

```
var arr1 = [1, 2, 3];
var arr2 = [4, 5, 6];
var arr3 = [7, 8, 9];
```

```
var arr2d = [arr1, arr2, arr3];
```

What's the value of `arr2d[0][0]`?

Answer: 1

Multi-dimensional Arrays

```
var names = ["joe", "mary", "jane"];
var ages  = [47, 85, 62];
var loc   = ["Oakland", "Mission", "Richmond"];

var people = [names, ages, loc];
```

What's the value of `people[0][0]`?

Multi-dimensional Arrays

```
var names = ["joe", "mary", "jane"];
var ages  = [47, 85, 62];
var loc   = ["Oakland", "Mission", "Richmond"];

var people = [names, ages, loc];
```

What's the value of `people[0][0]`?

Answer: joe

See my code

```
console.log("awesome");
```

```
awesome
```