

INTRO JS

CLASS 301

AGENDA

- Annotation Discussion
- Programming?
- Values, Types, Operators
- Arithmetic
- Conditionals
- Loops

A computer will do what you tell it to do.

WHAT IS A PROGRAM

A **program** is a set of instructions that you write to tell a computer what to do

WHAT IS PROGRAMMING

Programming is the task of writing those instructions in a language that the computer can understand.

THOSE LANGUAGES HAVE A SPECIFIC 'SYNTAX'

Syntax: Spelling and grammar rules of a programming language.

JS SYNTAX

- Semicolon
- Brackets
- Parentheses
- Quotation Marks

VARIABLES

What are variables?

VARIABLES

- We can tell our program to remember values for us to use later on.
- The action of saving a value to memory is called assignment
- The entity we use to store the value is called a variable

VARIABLES

- The action of getting the value from a variable is called accessing the variable
- We will use all the above techniques to store values into variables, and generate new values using existing variables

VARIABLES DECLARATION

Declaration: `var age;`

Assignment: `age = 32;`

Both at the same time: `var age = 32;`

VARIABLE RE-ASSIGNMENT

```
var name = "Bob";  
name = "Sam";
```

VARIABLE CONVENTIONS

- Variables start with a lower case letter
- If they contain multiple words, subsequent words start with an upper case letter.

```
var numberOfApples = 8;
```

VARIABLES & DATA TYPES

What can you store in a variables?

STRINGS

- Stores textual information
- String literal is surrounded by quotes
"How is the weather today?"
'Warm'

STRINGS

Double vs single quoted strings:

'They "purchased" it'

"It's a beautiful day"

STRINGS

Escaping:

"They \"purchased\" it"

'It\'s a beautiful day'

STRINGS

New Line + Tabs:

```
"1. Preheat over to 350\n2. Grease the pan"  
  \tBeginning of paragraph'
```

CONVERSION: STRING TO NUMBER

```
var intString = "7";  
var intNumber = parseInt(intString, 10);  
var floatString = "5.14673";  
var floatNumber = parseFloat(floatString);
```

CONVERSION: NUMBER TO STRING

```
var number = 6;  
number.toString(); => "6"
```

OR

```
number + ""; => "6"
```

NUMBERS

Represent numerical data

int: 37

float: 5.14673

NUMBERS

Signed

int: +3

float: -9.1

Can perform arithmetic on number data types

ARITHMETIC IN JAVASCRIPT

Operator	Meaning	Example
+	Addition	8 + 10
-	Subtraction	10 - 8
*	Multiplication	12 * 2
/	Division	10 / 5
%	Modulus	10 % 6

MAKING DECISIONS

Its either TRUE or FALSE (like booleans)

If you are greater than 18 you are an adult

```
if (age > 18){  
    console.log("You are an adult");  
}
```


COMPARISONS - EQUALITY

Are two things equal?

```
9 === 9 //true  
7 === 3 //false  
"Hello" === "Hello" //true
```

LOGICAL OPERATORS

x = 3

Logical Operators			
Operator	Description	Comparing	Returns
==	equal to	x == 8	FALSE
===	exactly equal to(value and type)	x === "3"	FALSE
		x === 3	TRUE
!=	is not equal	x != 8	TRUE
!==	is not equal(neither value nor type)	x !== "3"	TRUE
		x !== 3	FALSE
>	greater than	x > 8	FALSE
<	less than	x < 8	TRUE
>=	greater than or equal to	x >= 8	FALSE
<=	less than or equal to	x <= 8	TRUE

CONDITIONAL SYNTAX

```
if(condition is true) {  
    //Do cool stuff  
}
```

CONDITIONAL SYNTAX

```
if(condition is true) {  
    //Do cool stuff  
}else{  
    //Do other cool stuff  
}
```

CONDITIONAL SYNTAX

```
var animal = "dog";  
if (animal == "dog") {  
    console.log("Man's best friend!");  
} else if(topic == "Cat") {  
    console.log("Ruler of the interwebz!");  
} else {  
    console.log("You've got some other animal...");  
}
```

MULTIPLE CONDITIONS

```
if (name == "ResilientCoders" && password == "Ins1ghtSqu@red2"){  
    //Allow access to internet  
}
```

THE TRUTH TABLE

```
if (name == "Bruce"  
&& parents == "Dead"){  
    //Turn off the bat signal  
}
```

THE TRUTH TABLE

AND - &&	TRUE	FALSE
TRUE	true	false
FALSE	false	false

THE TRUTH TABLE

```
if (day == "Saturday" || day == "Sunday"){  
    //It is the weekend  
}
```

THE TRUTH TABLE

OR -	TRUE	FALSE
TRUE	true	true
FALSE	true	false

DANGER

Assignment vs. Comparison

LOOPS

- While
- For

WHILE LOOP

```
var number = 0;  
  
while (number < 12){  
    console.log(number);  
    number = number +1;  
}
```

FOR LOOP

```
for(var number = 0; number <= 12; number++){  
    console.log(number);  
}
```

EXERCISES

Looping a Triangle

<http://jsbin.com/gutizumonu/2/edit?js,console>

<http://eloquentjavascript.net/code/#2.1>

EXERCISES

Fizzbuzz

<http://jsbin.com/miqaginuza/1/edit?js,console>
<http://eloquentjavascript.net/code/#2.2>

FUNCTIONS

```
function name( parameters ){  
    //action  
}  
  
name( arguments );    //calling the function
```

FUNCTIONS

```
function addTwo( zebra, lion ){  
    alert(zebra+lion);  
}  
  
addTwo( 2,3 );    //calling the function
```

LET'S BUILD A SIMPLE CALCULATOR

Click Event:

```
document.getElementById('zero').onclick = zero;
```

Update the DOM:

```
document.getElementById('result').innerHTML = total;
```

PRACTICE PROBLEM 1

2520 is the smallest number that can be divided by each of the numbers from 1 to 10 without any remainder.

What is the smallest positive number that is evenly divisible by all of the numbers from 1 to 20?

PRACTICE PROBLEM 2

A palindromic number reads the same both ways. The largest palindrome made from the product of two 2-digit numbers is

$$9009 = 91 \times 99.$$

Find the largest palindrome made from the product of two 3-digit numbers.