

JAVASCRIPT DEVELOPMENT

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JAVASCRIPT DEVELOPMENT

CONDITIONALS AND FUNCTIONS

LEARNING OBJECTIVES

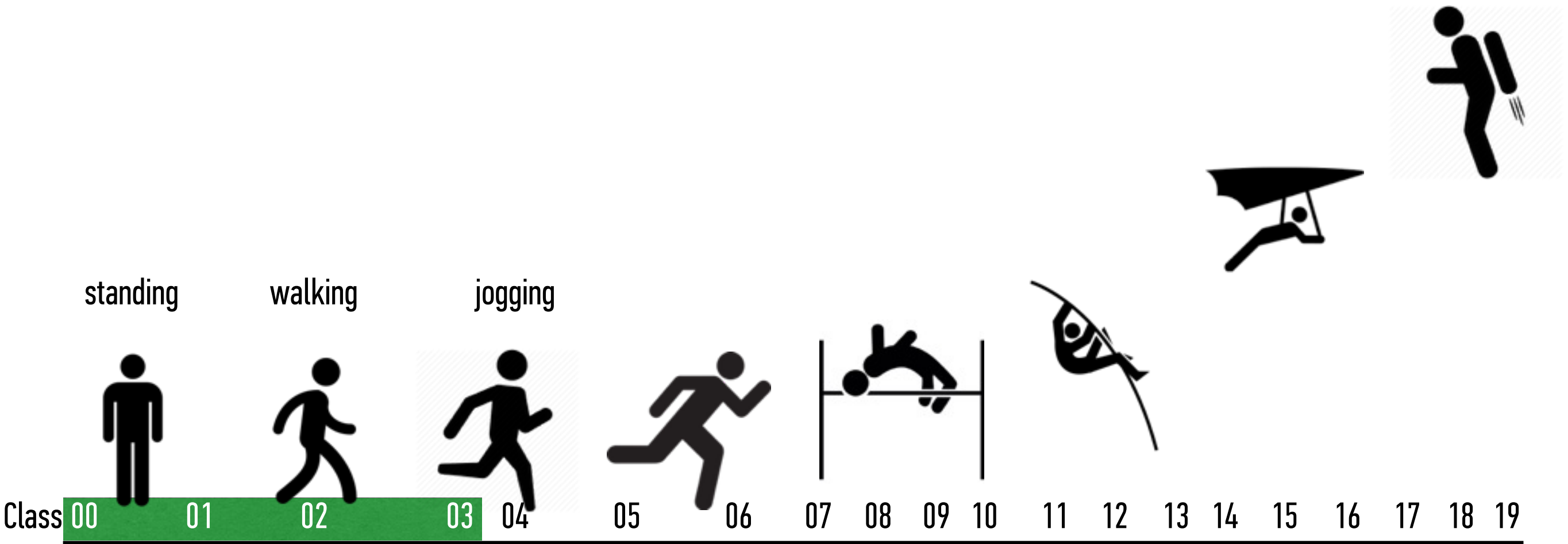
At the end of this class, you will be able to

- Use Boolean logic to combine and manipulate conditional tests.
- Use `if/else` conditionals to control program flow based on Boolean tests.
- Differentiate among `true`, `false`, `truthy`, and `falsy`.
- Describe how parameters and arguments relate to functions
- Create and call a function that accepts parameters to solve a problem
- Return a value from a function using the `return` keyword
- Define and call functions with argument-dependent return values

AGENDA

Timing	Topic
5 min	Opening
15 min	Comparison operators
15 min	Conditional statements
25 min	Logical operators
5 min	Break
25 min	Lab
25 min	switch statements
5 min	Break
10 min	while & do/while statements
10 min	Iteration (for statements)
30 min	Fizzbuzz code challenge
10 min	Final Questions & Exit Tickets

Where we are



Checkin and questions

- The **most significant thing** I learned about using Conditionals and Functions is _____.
- My **biggest outstanding question** about using Conditionals and Functions is _____.

Make sure you can see exit tix before this class, so you can reflect back the feedback they've been giving

using Conditionals and

ng Conditionals and

How to you decide what to have for dinner?

- What factors do you consider?
- How do you decide between them?

CONDITIONALS

CONDITIONAL STATEMENTS

- Decide which blocks of code to execute and which to skip, based on the results of tests that we run

if STATEMENT

```
if (expression) { code }
```

```
if (expression) {  
    code  
}
```

BOOLEAN VALUES

- A separate data type
- Only valid values are `true` or `false`
- Named after George Boole, a mathematician



COMPARISON OPERATORS

>	greater than
>=	greater than or equal to
<	less than
<=	less than or equal to
===	strict equal (use this one)
==	coercive equal (AVOID)
!==	strict not equal (use this one)
!=	coercive not equal (AVOID)

TYPE COERCION

- JavaScript “feature” that attempts to make it possible to run a comparison operation on two objects of different data types
- Results are sometimes unpredictable
- `==` and `!=` use coercion if necessary to arrive at an answer — avoid them
- `===` and `!==` do not use coercion — best practice is to use these rather than the coercive operators

if STATEMENT

```
var weather = "sunny";  
  
if (weather === "sunny") {  
    console.log("Grab your sunglasses");  
}
```

if/else STATEMENT

```
var weather = "sunny";

if (weather === "sunny") {
  console.log("Bring your sunglasses");
} else {
  console.log("Grab a jacket");
}
```

else if STATEMENT

```
var weather = "sunny";

if (weather === "sunny") {
    console.log("Bring your sunglasses");
} else if (weather === "rainy") {
    console.log("Take an umbrella");
} else {
    console.log("Grab a jacket");
}
```


TERNARY OPERATOR

- A compact `if/else` statement on a single line
- “ternary” means that it takes 3 operands

TERNARY OPERATOR

(expression) ? trueCode : falseCode;

TERNARY OPERATOR

- Can produce one of two values, which can be assigned to a variable in the same statement

```
var name = (expression) ? trueCode : falseCode;
```

BLOCK STATEMENTS

- Statements to be executed after a control flow operation are grouped into a block statement
- A block statement is placed inside braces

```
{  
    console.log("Grab your sunglasses.");  
    console.log("Enjoy the beach!");  
}
```

LOGICAL OPERATORS

LOGICAL OPERATORS

- Operators that let you chain conditional expressions

&&	AND	Returns <code>true</code> when both left and right values are <code>true</code>
	OR	Returns <code>true</code> when at least one of the left or right values is <code>true</code>
!	NOT	Takes a single value and returns the opposite Boolean value

TRUTHY AND FALSY VALUES



TRUTHY AND FALSY VALUES

- All of these values become `false` when converted to a Boolean:
 - `false`
 - `0`
 - `""`
 - `NaN`
 - `null`
- These are known as **falsy values** because they are equivalent to `false`
- All other values become `true` when converted to a Boolean and are known as **truthy values** because they are equivalent to `true`

VERIFYING TRUTHINESS AND FALSINESS

- Adding ! before a value returns the inverse of the value as a Boolean
- Adding !! before a value gives you the original value as a Boolean
- This is a simple shortcut to verifying truthiness and falsiness

SHORT-CIRCUIT LOGIC

- A way of making sure things like variables exist before running conditional code

BREAK (5 MINUTES)

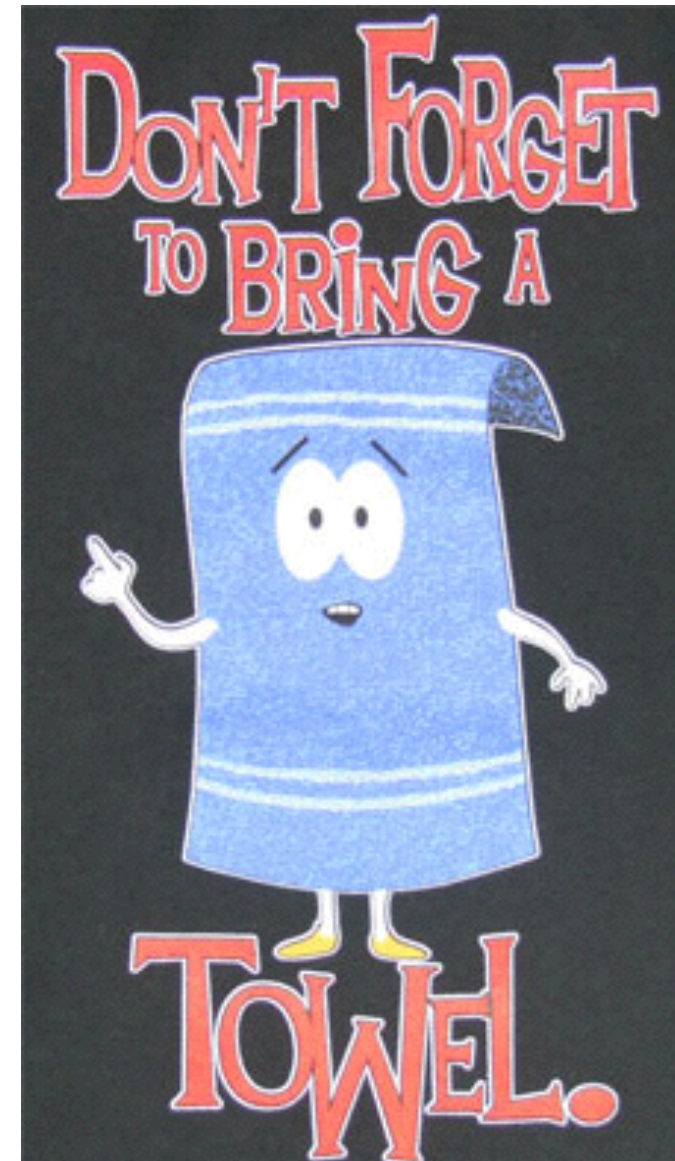
LAB: AGES

FUNCTIONS

- A **function** is a reusable statement, or a group of reusable statements, that can be called anywhere in a program.
- A function avoids the need to rewrite the same statement(s) over and over.
- Functions enable software developers to segment large, unwieldy applications into smaller, more manageable pieces.

DRY (DON'T REPEAT YOURSELF)

- A key tenet of engineering.
- Our goal is to create programs with as little code as possible, while maintaining complete clarity.
- Functions are a critical component of doing this.



FUNCTION DECLARATION EXAMPLE

```
function speak() {  
    console.log("Hello!");  
}
```

FUNCTION EXPRESSION EXAMPLE

```
var speak = function () {  
    console.log("Hello!");  
};
```


CALLING A FUNCTION

- Invoking, or **calling**, a function executes the code defined inside this function.
- Calling a function is different from defining it. A function is not called when it's defined.
- You call a function by specifying the function name with parentheses after it

FUNCTION EXPRESSION VS FUNCTION DECLARATION

- Function expressions define functions that can be used anywhere in the scope where they're defined.
- You can call a function that is defined using a function declaration before the part of the code where you actually define it.
- Function expressions must be defined before they are called.

FUNCTION DECLARATION SYNTAX

```
function name(parameter) {  
    statement;  
}
```

FUNCTION EXPRESSION SYNTAX

```
var variable = function (parameter) {  
    statement;  
}
```

OBJECTS

- A separate data type
- defined by code enclosed in braces { } — but not the same thing as a function
- Can contain properties and methods
- Functions are used to define methods

OBJECT EXAMPLE

```
var person = {  
  fName: 'Barack',  
  lName: 'Obama',  
  speak: function () {  
    console.log("Hello world!");  
  }  
}
```

```
person.speak()  
=> 'Hello world!'
```

LAB: ROLLING DICE

document.getElementById()

- Part of the Document Object Model (DOM)
- Lets us access an HTML element by specifying the value of its id attribute
- Also lets us change attribute values or text content of that HTML element by specifying values

document.getElementById()

HTML

```

```

JavaScript

```
var desc = document.getElementById("photo");  
desc.src = "elephant.png";
```

HTML

```

```

BREAK (5 MINUTES)

PARAMETERS


DOES THIS CODE SCALE?

```
function helloDonald () {  
  console.log('hello, Donald');  
}
```


```
function helloHillary () {  
  console.log('hello, Hillary')  
}
```

USING A PARAMETER

```
function sayHello (name) {  
  console.log('Hello ' + name);  
}
```

 parameter

```
sayHello('Donald');  
=> 'Hello Donald'
```

 argument

```
sayHello('Hillary');  
=> 'Hello Hillary'
```

USING MULTIPLE PARAMETERS

```
function sum(x, y, z) {  
  console.log(x + y + z)  
}
```

```
sum(1, 2, 3);  
=> 6
```

THE return STATEMENT

return STATEMENT

- Ends function's execution
- Returns a value — the result of running the function

return STOPS A FUNCTION'S EXECUTION

```
function speak (words) {  
    return words;
```

```
    // The following statements will not run:
```

```
    var x = 1;  
    var y = 2;  
    console.log(x + y)  
}
```

LAB: FIZZ BUZZ

LEARNING OBJECTIVES – REVIEW

- Use `if/else` conditionals to control program flow based on Boolean tests.
- Use Boolean logic to combine and manipulate conditional tests.
- Differentiate among `true`, `false`, `truthy`, and `falsy`.
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NEXT CLASS PREVIEW

Scope and Closures

- › Determine the scope of local and global variables
- › Create a program that hoists variables
- › Understand and explain closures

Exit Tickets!

Q&A