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WEEK 4

MORE JAVASCRIPT

Plan

- Homework review and support groups!
- Javascript
  - Review of last week
  - Some new concepts
- Homework Overview

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SUPPORT TEAMS

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SUPPORT TEAM

A sub-network of diversely skilled people who you can work with and use as resources.

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TEAM GLADIATORS

GROUP 1

Lindsey Mischner
Jesse Tordoff
Grier Barnes
Marcus Moretti
Onagh MacKenzie
Jessie Garland
Andrew Crouch

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TEAM KIWIS

GROUP 2

Andrew Cheruiyot
Caroline Lester
Senem Cilingiroglu
Bernardo Saravia
Nathan Yohannes
Deanna Zhang
Derrik Petrin

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TEAM FLASH

GROUP 3

Aly Moore
Casper Alexander
Shanaz Chowdhery
Susannah Shattuck
Zoe Jacoby
Chika Ota
Jenner Fox

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TEAM AQUA

GROUP 4

Brian Loeb
Abby Reisner
Kat Oshman
Brandon Blaesser
Mike Wolner
Erin Burke
Erin Miller

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TEAM ZEUS

GROUP 5

Kathryn Redford
Jen Downing
Alina Sidorova
Sara Stalla
Drew MacMahon
Connor Wiik
Andrew Goble

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HOMEWORK REVIEW

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HACKYALE OSCARS
OVERTAKING FACEBOOK

MOST AMERICAN

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JENNER FOX

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MOST TECHNO-LOGICAL

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SHANAZ CHOWDHERY

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MOST PROVACATIVE

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KATHRYN REDFORD

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HARDEST TO DECIDE WHAT TO TYPE IN

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CAROLINE LESTER

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WONDERFUL WORK!

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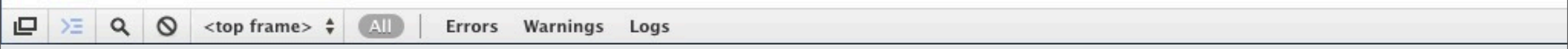
COMMON SLIP-UP

DEBUGGING

CHROME CONSOLE

command + option + j
or
view -> developer -> javascript console


```
> alert("hey");
  undefined
> var answer = prompt("what's your name");
  undefined
> alert(answer);
  undefined
> answer === "Zack";
  true
>
```



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THE CONSOLE IS YOUR FRIEND

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WHEN SOMETHING ISN'T WORKING..

The first thing you should check is the console.

- Most of the time, it will have a little message waiting for you, telling you exactly where you forgot a curly brace, or called a nonexistent function.

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LOGGING TO THE CONSOLE

`console.log(`*`message`*`);`

- Use `console.log` liberally when developing.
- Yeah, it's better to write tests as you develop, but at this point, console.log is simpler and will do the trick.
- Most experienced programmers still use console.log from time-to-time to debug small errors.

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RESOURCES

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JAVASCRIPT RESOURCES

- jsforcats.com
  - Max Ogden's JavaScript introduction tutorial
- learn.js.nodejitsu.com
  - James Halliday (SubStack) tutorial
- codecademy.com
  - Interactive JavaScript tutorials

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JAVASCRIPT RESOURCES

- cloudchill.in/s/javascript_intro
  - Rafi's JS introduction
- eloquentjavascript.net
  - Marijn Haverbeke's book on JavaScript
- JavaScript: The Good Parts
  - Douglas Crockford's JavaScript book
  - Much more advanced

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BEGINNING JAVASCRIPT

REVIEW

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SYNTAX AND SEMANTICS

SOME CORE RULES

VARIABLES

What is a variable? A named object to which we can assign a value (of any data type desired)

- e.g.

```
var name = “Rafi”;
```

- This says: Assign the string “Rafi” to the variable “name”

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VARIABLE NAMING

Most people use camelCase in JavaScript

- Always begin with a lowercase letter
- Never use spaces in the name
- CAMELCASE: `myMultiWordVariable`

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ASSIGNMENT VS. EQUALITY

To **assign** a value to a variable, put the variable name on the left, the value on the right, and a single = in between

```
var name = “Rafi”;
```

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ASSIGNMENT VS. EQUALITY

To test for equality between values or variables, use a triple ===

```
name === “Rafi”;
```

- The parser would evaluate this expression to the boolean values `true` or `false` depending on the value stored in `name`

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CONTROL FLOW

YOUR APP'S "LOGIC"

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CONTROL FLOW

Javascript control flow is similar to many other programming languages

- `if` / `else if` / `else`
- `for` loops
- `while` loops

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CONDITIONAL OPERATORS

- ==
  - Equality, allows for type conversion
- ===
  - Strict equality, no type conversion
- !==
  - Not equal to
- > or <
  - “Greater than” or “less than”
- >= or <=
  - “Greater than or equal to” or “less than or equal to”
- &&
  - Requires that both conditions are true
- ||
  - One or both conditions are true

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ELSE IF

If you want to specify more than 1 condition, each with different actions, you can use `else if`

```
var name = "Zack";
if ( name === "Zack" ) {
    console.log( "Wow, you're awesome." );
} else if( name === "Jared" ) {
    console.log( "Yeah, you're awesome too." );
} else {
    console.log( "Seek a better name…" );
}
```

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FOR

Iterates a block of code **for** a “determinate” period

```
var name = "Jared";
for ( var i = 0; i < name.length; i++ ){
    console.log( "Letter #" + i + " is " + name[i] );
}

/* OUTPUT:
    Letter #0 is J
    Letter #1 is a
    Letter #2 is r
    Letter #3 is e
    Letter #4 is d
*/
```

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WHILE

Iterates a block of code **while** a condition is true

```
var name = "Jared";
var i = 0;
while ( i < name.length ){
    console.log( "Letter #" + i + " is " + name[i] );
    i++;
}

/* OUTPUT:
    Letter #0 is J
    Letter #1 is a
    Letter #2 is r
    Letter #3 is e
    Letter #4 is d
*/
```

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FUNCTIONS

NEW MATERIAL

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WHY DO WE USE FUNCTIONS

- Functions let us reuse code
  - Instead of typing the same code over and over again, we just call a function
  - We can take parameters to enhance code flexibility
  - We can call functions from other functions or automatically after some predefined event
  - Pretty much every language has functions…so know what they do and why they do it!

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FUNCTION TYPE

Declare functions as follows

- `function func_name(arg1, ... , argN) { /* body */ }`
- e.g.

```
function multiplyThreeNumbers(x, y, z){
    return x * y * z;
}
```

- then use them later:

```
multiplyThreeNumbers(12, 7, 5);
```

```
// ==> 420
```

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EXAMPLE

```
function printFiveXs(){
    console.log("x");
    console.log("x");
    console.log("x");
    console.log("x");
    console.log("x");
}

printFiveXs();
printFiveXs();
```

vs.

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

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FUNCTIONS CAN TAKE PARAMETERS

```
function printFive( letter ){
    /* letter is a parameter. It is automatically
    declared as a variable only accessible within
    this function “printFive”. */
}
```

```
function printFive(letter){
    for(var i = 0; i < 5; i++){
        console.log(letter);
    }
}

printFive('A');
printFive('B');
```

vs.

```
for(var i = 0; i < 5; i++){
    console.log('A');
}
for(var i = 0; i < 5; i++){
    console.log('B');
}
```

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TWO KEY TYPES OF FUNCTIONS

Returning

- These functions are used to process an input and return something to the caller that is then used for further processing
- End the function's code with: `return expression;`
- Return is the parser's keyword to return the value of *expression*
- Expression can be a variable, a function, or any other expression you would write on its own in Javascript
  - e.g. `return die1 + die2; // => sum of die1 and die2`

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TWO KEY TYPES OF FUNCTIONS

Non-returning

- These functions do not return a value to the caller
- Sometimes accept input
- Usually manipulate data that is globally accessible and will be worked with by another function later on

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FUNCTIONS ARE FIRST CLASS OBJECTS

This means they can be:

- Stored in variables
- Passed as arguments to functions
- Returned as values from functions

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HOMEWORK REVIEW

LINE BY LINE

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HOMEWORK REVIEW

BUILDING IT FROM SCRATCH

NEW HOMEWORK

NO MORE WORKING
FOR THE MAN

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HOMEWORK

- Touch base with you're support team
  - send an email to them and carbon copy me.
- In your email
  - Ask a question about programming or about them as people.
  - Do your best to answer your teammates emails
  - Awkward is cool.

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HOMEWORK

- If you are not in a support team
  - Fill out the support team questionnaire.
  - You will be added to one.

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HOMEWORK

- With your support team
  - submit a proposal for a final project.
  - you will build it!

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ADMIN

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ADMIN

- Office Hours
  - Rafi Khan (Thursday 8pm - 10pm)
  - Zack Reneau-Wedeen (Monday 3pm - 5pm)
  - Location TBA in the wrap-up email

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- Workshops
  - Two big ones this week
    - Twitter Bootstrap with Rafi Khan
    - Adobe Photoshop and Illustrator with Chika Ota
  - Get on the mailing list at hackyale.com!

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THANKS!

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QUESTIONS EVEN GOOGLE CANT ANSWER?

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