GENERAL ASSEMBLY

JAVASCRIPT DEVELOPMENT

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HELLO!

1. Pull changes from the `svodnik/jsd6` repo to your computer
2. Open the `starter-code` folder in your code editor

JAVASCRIPT DEVELOPMENT

SCOPE AND CLOSURES

LEARNING OBJECTIVES

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

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

AGENDA

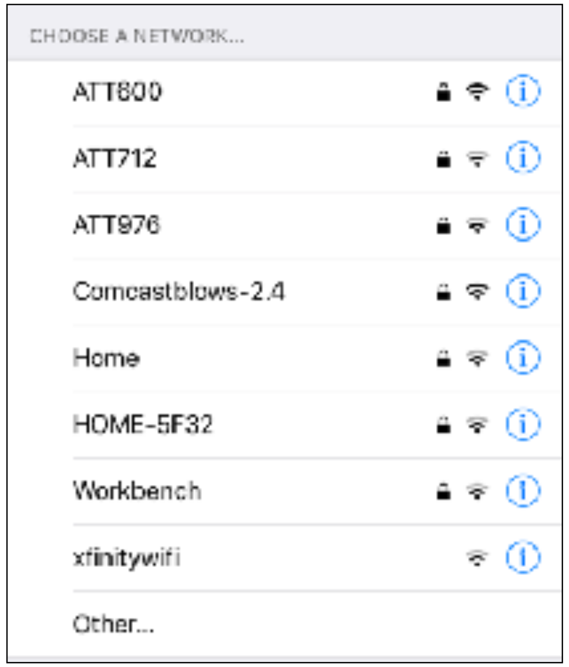
- Variable scope
- The `var`, `let`, and `const` keywords
- Hoisting
- Closures
- Lab

Checkin and questions

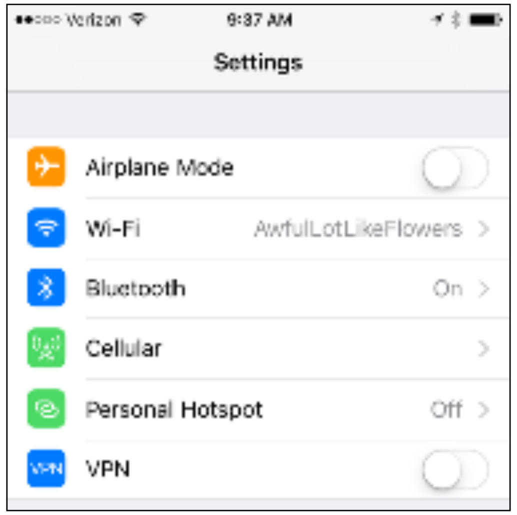
- The **most significant thing I learned** about using Conditionals and Functions is __________.
- My **biggest outstanding question** about using Conditionals and Functions is __________.

Why do we use different networks to connect to the Internet when we're in different places?

- home
- GA
- in a car/on MUNI


CHOOSE A NETWORK...

ATT800
ATT712
ATT976
Comcastblows-2.4
Home
HOME-5F32
Workbench
xfinitywifi
Other...


●●○○○ Verizon 9:37 AM

Settings

Airplane Mode	
Wi-Fi	AwfulLotLikeFlowers
Bluetooth	On
Cellular	
Personal Hotspot	Off
VPN	

SCOPE

SCOPE

- Describes the set of variables you have access to

GLOBAL SCOPE

- A variable declared outside of a function is accessible everywhere, even within functions. Such a variable is said to have **global scope**.

LOCAL SCOPE

- A variable declared within a function is not accessible outside of that function. Such a variable is said to have **local scope**.

`var`, `let`, `const`, AND SCOPE

- `var` obeys the scoping rules we've just seen
  - "generic" way to create variables
- `let` and `const` are newer keywords with different scoping rules
  - local scope within functions **and** within any block (including loops and conditionals)

`let`

- used in the same situations as `var`, but with different scoping rules for code blocks

```
let results = [0,5,2];
```

`const`

- used to declare constants
  - once you’ve declared a value using `const`, you can’t change the value in that scope
- by convention, constant names use all capital letters

```
const SALESTAX = 0.0875;
```

`var`, `let`, `const`, AND BROWSER SUPPORT

- `let` and `const` are not supported by older browsers
  - see caniuse.com, search on `let`
- babel.js (babeljs.io) allows you to transpile newer code into code that works with older browsers as well
- we will use `var` in class, but feel free to explore `let` and `const` on your own

`var`, `let`, AND `const`

keyword	local scope	can you change the value in the current scope?	browser support
`var`	within the code block of a **function** only	yes	all browsers
`let`	within any code block	yes	**only modern browsers**
`const`	within any code block	**no**	**only modern browsers**

HOISTING

- JavaScript’s behavior of moving declarations to the top of a scope.
- This means that you are able to use a function or a variable before it has been declared.

FUNCTIONS AND HOISTING

- Function expressions are treated like other variables
  - only the name is hoisted, not the value
- Function declarations are treated differently
  - the code for the entire function is hoisted along with a function declaration

BUILDING BLOCKS OF CLOSURES

- nested functions
- scope
  - inner function has access to outer function’s variables
- `return` statements
  - inner function returning reference to outer function’s variables

CLOSURES

- A **closure** is an inner function that has access to the outer (enclosing) function’s variables.
- You create a closure by adding a function inside another function.
- A closure is also known as **lexical scope**

CLOSURES — KEY POINTS

- Closures have access to the outer function's variables (including parameters) **even after the outer function returns**.
- Closures store **references** to the outer function's variables, not the actual values.

LEARNING OBJECTIVES - REVIEW

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

NEXT CLASS PREVIEW

Hubot Lab

- Install and configure all utilities needed to run a Hubot
- Write scripts that allow your Hubot to interact with users of the class Slack organization

Exit Tickets!

Q&A