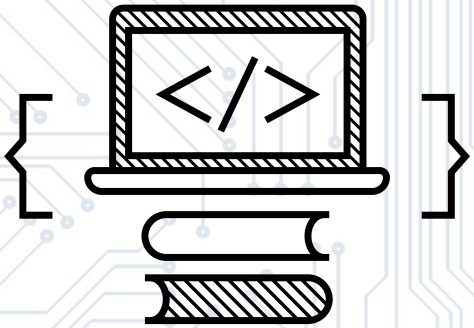
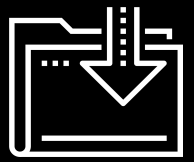


The Joys of JavaScript

Web Development

Lesson 3.1



Admin Items

- **Homework 1**
  - Overthink it?
  - Forced you to really research a topic
  - Broke the homework submission ice
  - README’s
  - Grades are coming in
- **Homework 2** is due next Tuesday Sept 15th
  - Ask for help: come to office hours!

Today’s Class

Class Objectives

In today's class, we will introduce:

- JavaScript Definitions
- JavaScript Basics:
  - Variables
  - Logging, alerting, prompting
  - Arrays
  - If/else statements

JavaScript

Prepare to become true coders!

How to Learn JavaScript

Your Brain on JavaScript

Time to Take Notes!


And Stay Organized!

Learning JavaScript

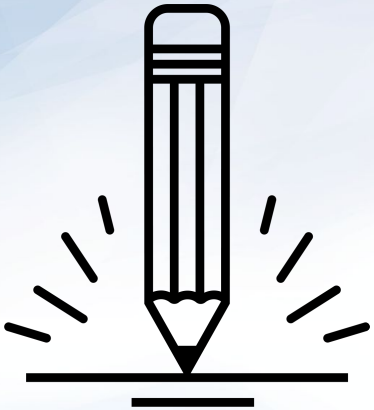
Follow these general tips:

Review classwork immediately.

Redo class activities at home.

Come to office hours and keep asking questions.

Do not fear—you will get this!



Partner Activity:
Code Dissection

A big part of being a developer is learning on the fly!

`01-CodeDissection`

Suggested Time:
7 minutes

Partner Activity: Code Dissection

01 Download the file sent to you via Slack.

02 Open it in Chrome and observe what happens.

03 With a partner, try to explain how the code connects to the events that happen on the page.

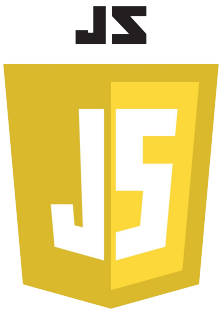
When downloading code from Slack, make sure you choose **Download**.
If you copy and paste directly from Slack, your code will not work!

Suggested Time: 7 minutes

What Is JavaScript?

JavaScript Definition

JavaScript is one of the three fundamental programming languages of the modern web (the others are HTML and CSS).

HTML	CSS	JavaScript
Used to write content. 	Used to format content. 	Used to create dynamic web applications that take in user inputs, change what's displayed to users, animate elements, and much more. 

Where do I put the Javascript?

Where to put Javascript - HTML Document

In an HTML document, you can write Javascript in a **<script>** tag.

<script> tags can be in the **<head>** or the **<body>**.

```
<!-- This is html -->
<script type="text/javascript">
  // this is Javascript
  var fullName = "Snow White";
</script>
```

Where to put Javascript - Javascript files

You can also write Javascript in its own file (or files). Javascript files have the `.js` extension.

To include in an HTML document, you use a `<script>` tag with a `src` attribute that links to it (kinda like the `<link>` tag for css files):

index.html

```
<!-- This is in an html doc -->
<script type="text/javascript" src="scripts/app.js"></script>
<!-- The javascript is in app.js -->
```

app.js

```
// In app.js - this is Javascript
var fullName = "Snow White";
```

Variables

Variables

A **variable** is a place **store a value** and from which you can later **retrieve that value**.

In essence, it is like a “**cubby hole**”:

So a variable is really two things:

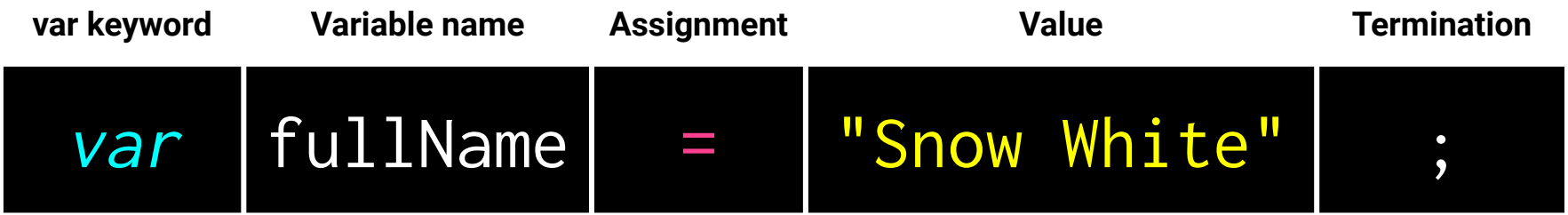
1. An **labelled space** to store some stuff
2. The stuff that is stored there. The “stuff” is called a **value**.

Variables

- The *nouns* of programming
- Numbers, strings, Booleans, etc.
- Made up of a **name** (i.e., the cubby hole address) and a **value** (i.e., the stuff in the cubby hole)

```
var fullName = "Snow White";
var dwarfCount = 7;
var isSleeping = true;
```

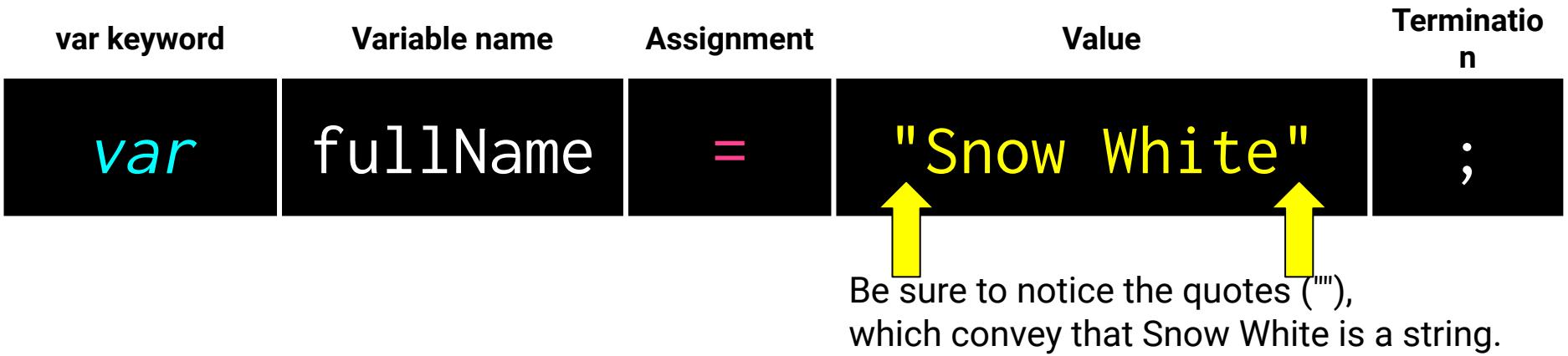
Variable Basics: Syntax

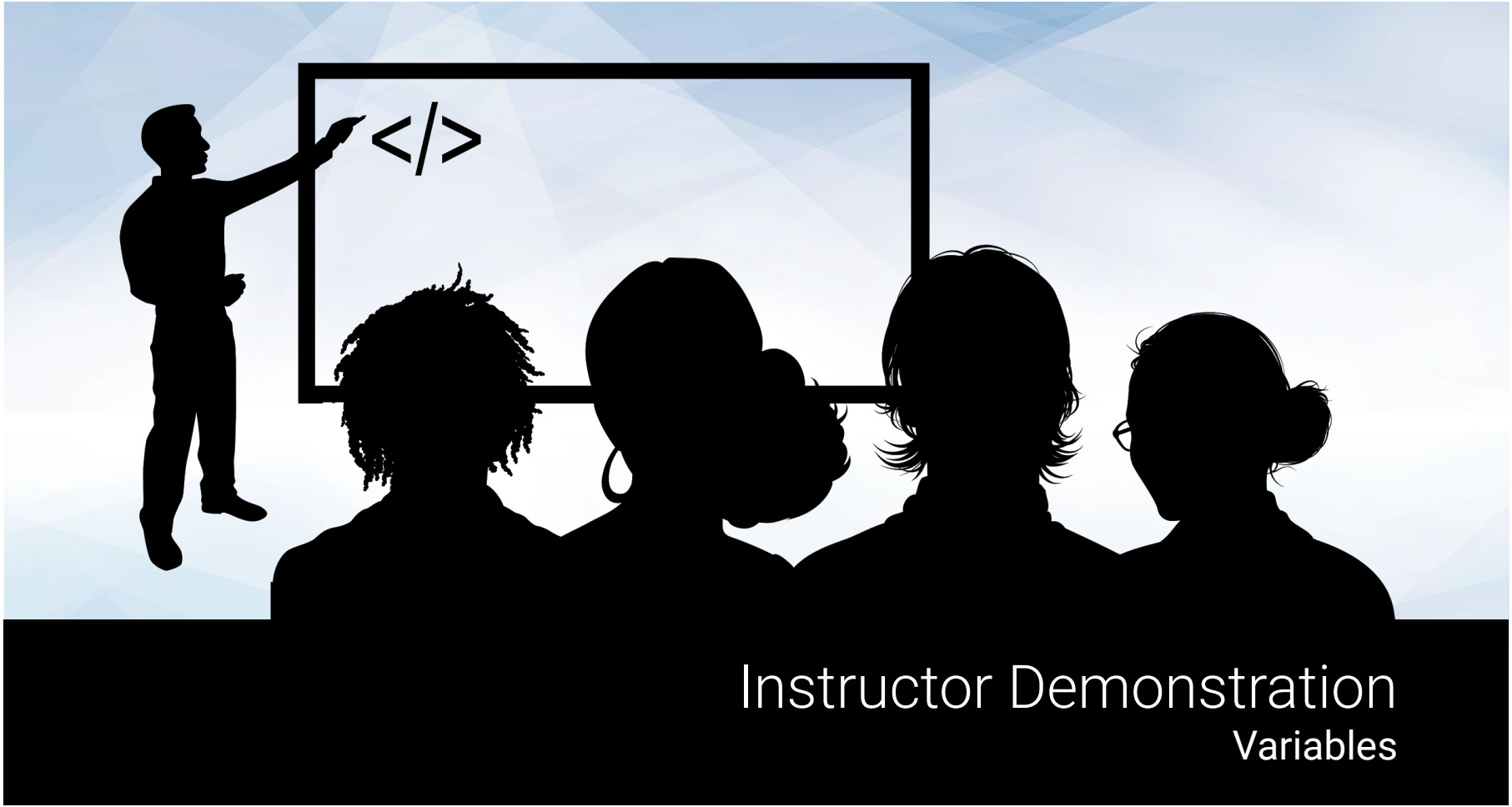


This is an **instruction**. A **keyword** (in this case `var`) is reserved by the language and is used to instruct the computer to do something.

In this case, we are instructing the computer to create a cubby hole called `fullName` and to put the text (aka a string) `Snow White` inside of it.

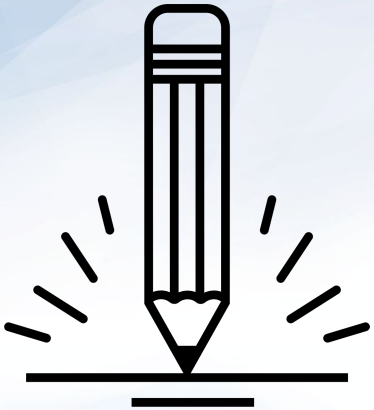
Variable Basics: Syntax





Instructor Demonstration

Variables



Activity: Variables

In this activity, you will fill in the missing JavaScript code to create variables.

`03-PizzaVariables`

Suggested Time:
10 minutes

Activity: Variables

01 Using the instructions in the file sent to you, fill in the missing JavaScript code to create variables.

02 When you are done, open the file in Chrome and check the output.

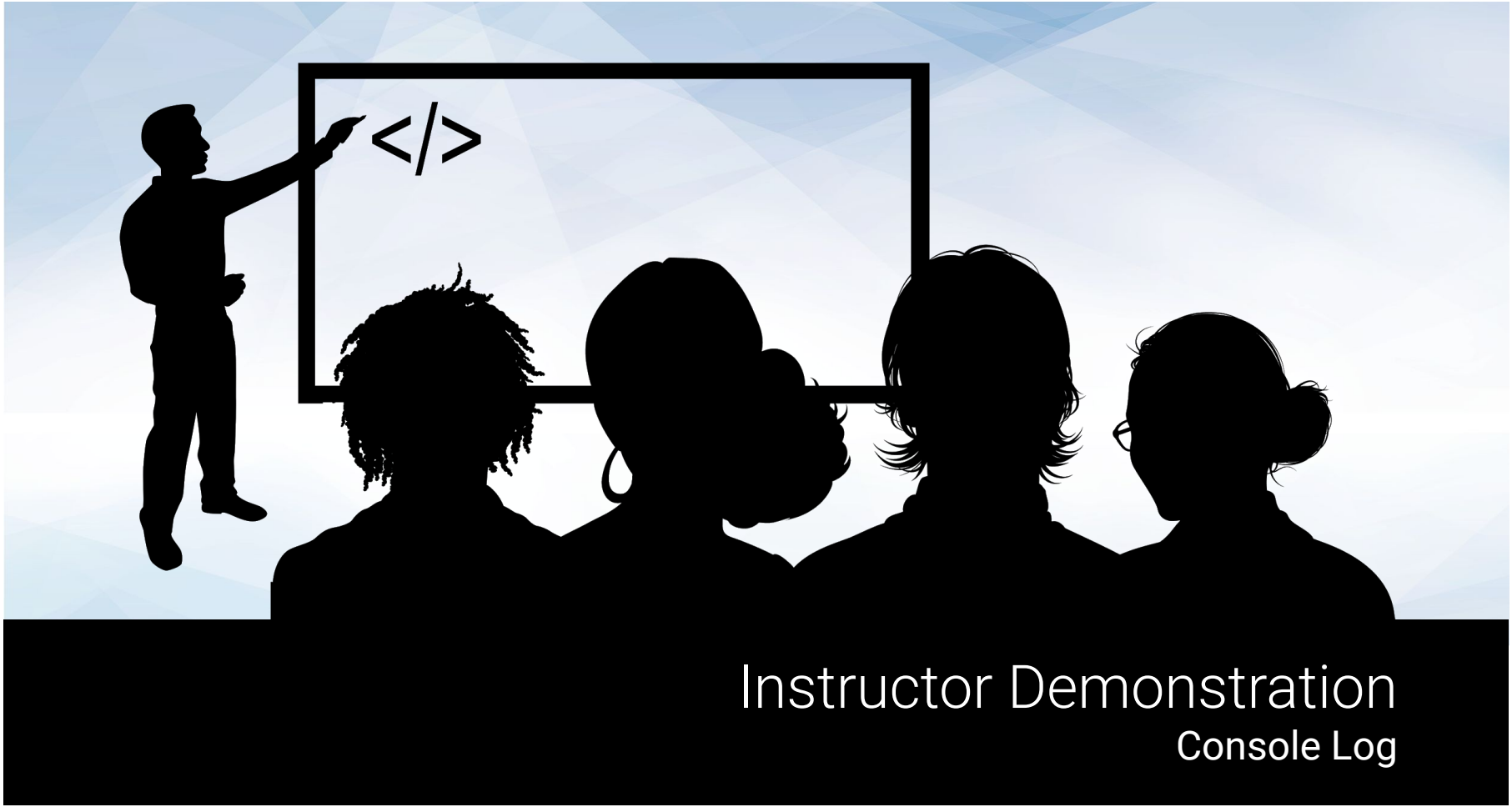
03 If you successfully complete the activity, you will see a series of pop-up windows with text inside.

04 Finally, look at the rest of the code and try to figure out why the text displayed the way it did.

Suggested Time: 10 minutes

Time’s Up! Let’s Review.

Console Log



Instructor Demonstration

Console Log

Console.log

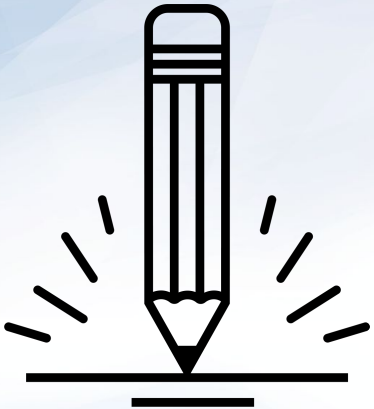
`console.log` is a quick expression that prints content to the debugger—very useful during development and debugging!

```
var quick = "Fox";
var slow = "Turtle";
var numbers = 121;

// The console.log() method is used to display data in the the browser's console.
// We can log strings, variables, and even equations.

console.log("Teacher");
console.log(quick);
console.log(slow);
console.log(numbers + 15);
```

How do you comfort a **JavaScript bug**?

How do you comfort a **JavaScript bug**?

You `"console"` it!



Activity: Console Log

`05-PizzaConsole`

Suggested Time:
7 minutes

Activity: Console Log

01 Using the file sent to you as a guide, modify the code so that is uses `console.log` instead of alerts to display messages.

02 Then open the file in the browser and open up Chrome Developer Tools -> Console to confirm that the changes worked.

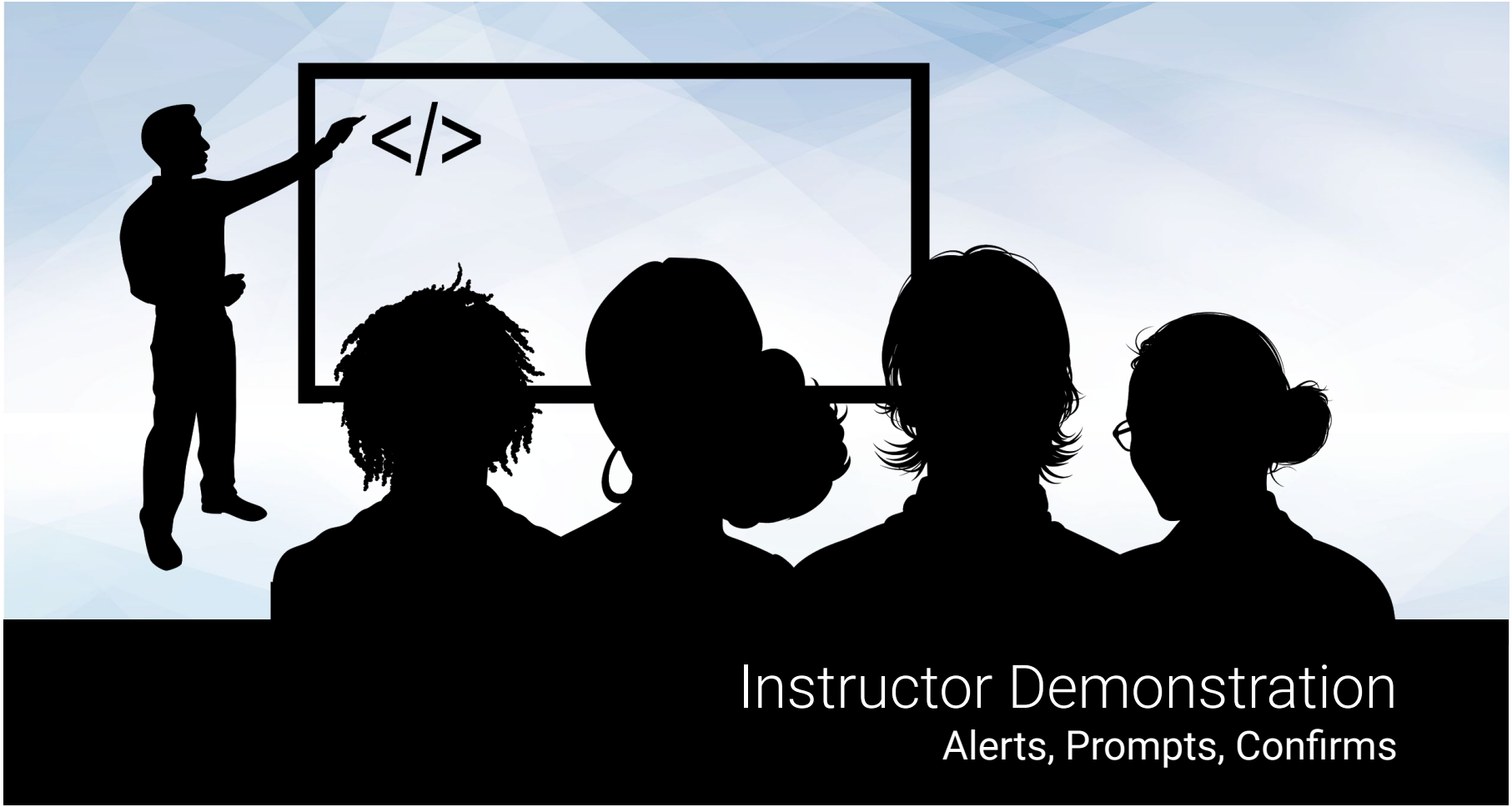
03 With a partner, discuss the difference between `console.log` and `alert`.

```
alert("Welcome: " + name);
alert("Pizzas cost $5 each");
alert("Your total is: $" + totalCost);
alert("Still Hungry: " + isHungry);
```

Suggested Time: 7 minutes

Take a Break!

Alerts, Prompts, Confirms



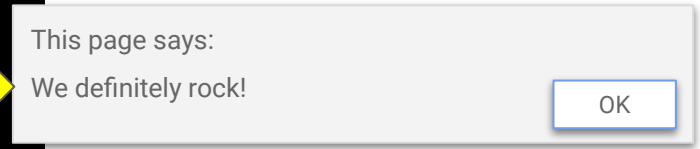
Instructor Demonstration

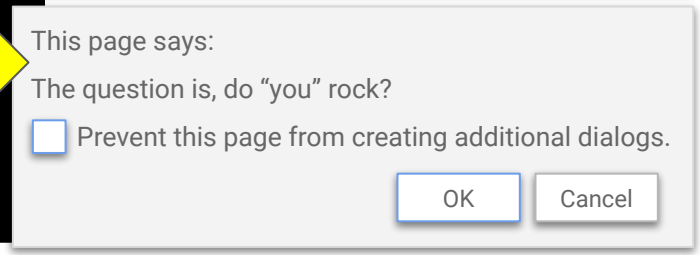
Alerts, Prompts, Confirms

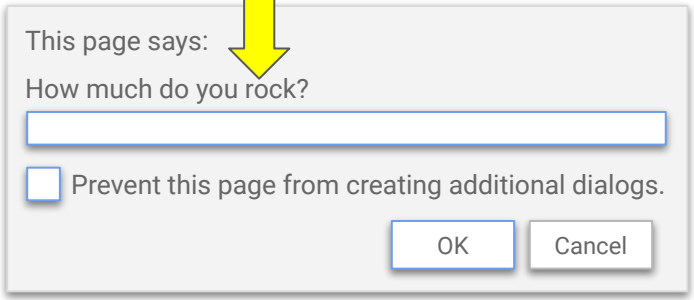
Alerts, Prompts, Confirms

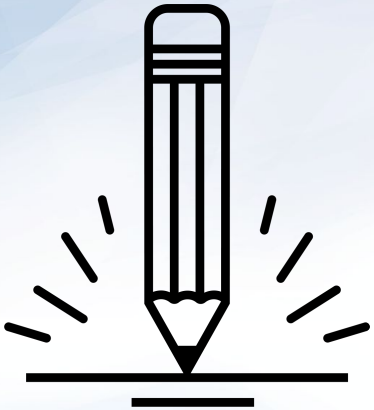
Alerts, prompts, and confirms create a popup in the browser when run.
These are also useful for development and debugging.

```
// Alert
alert("We definitely rock!");

// Confirm
var doYouRock = confirm("The question is, do *you* rock?");

// Prompt
var howMuchRock = prompt("How much do you rock?");
```









Activity: Alerts

`07-PromptSushi`

Suggested Time:
15 minutes

Activity: Alerts

Write JavaScript code that does the following:

01 Using a `confirm`, ask the user “Do you like _____?” and store their response in a variable.

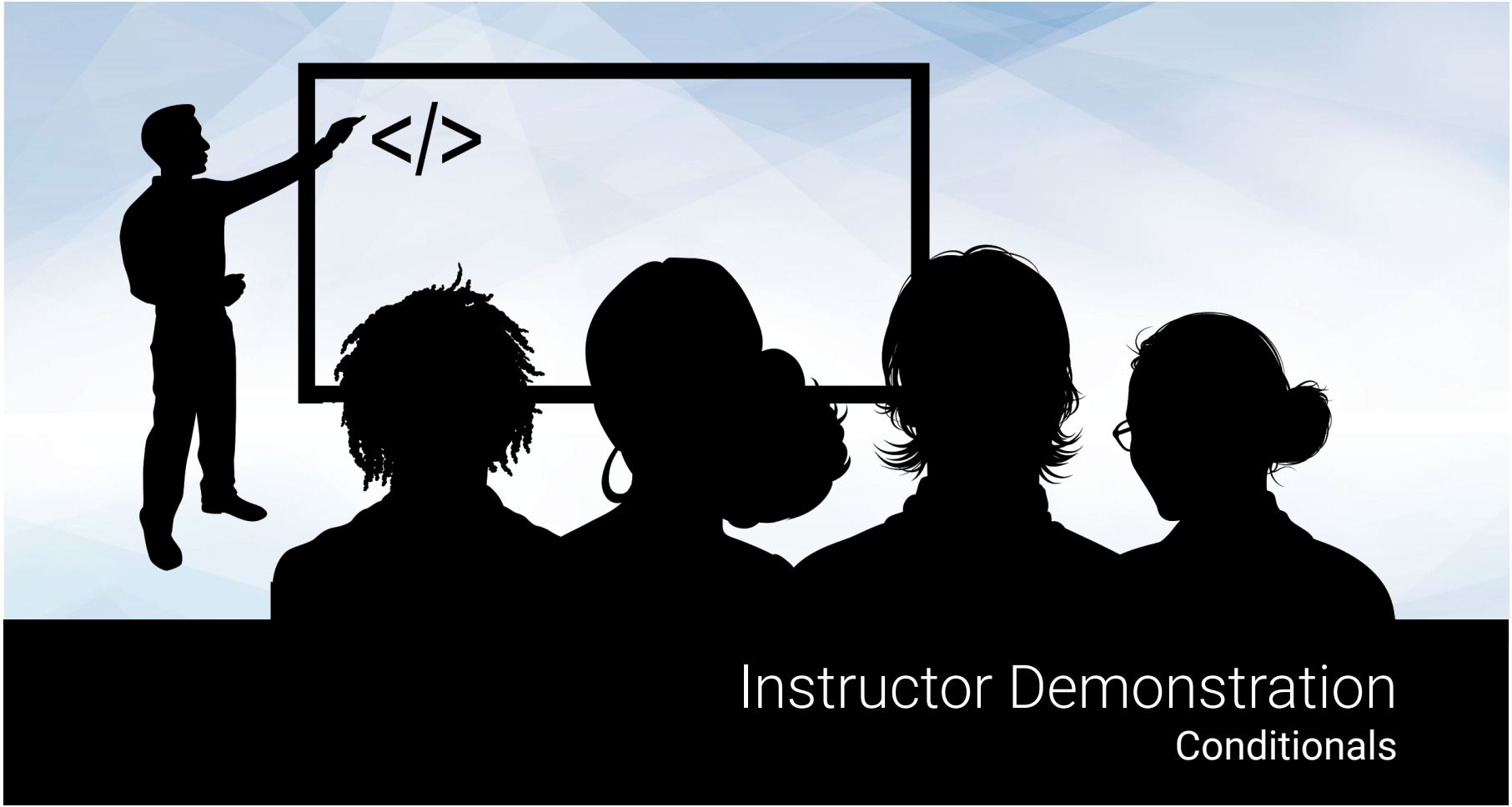
02 Using a `prompt`, ask the user: “What kind of _____ do you like?” and store their response in a variable.

03 `alert` both variables to the screen.

Suggested Time: 15 minutes

Time’s Up! Let’s Review.

If/Else Statements



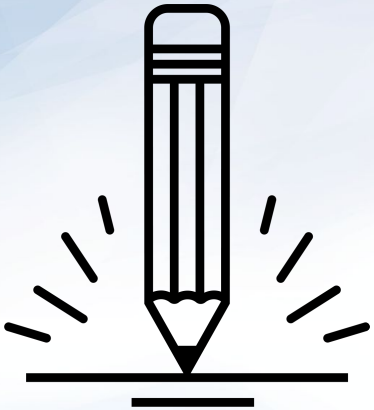
Instructor Demonstration

Conditionals

If/Else Statements Are Critical

Each statement is composed of an if, else-if, or else (keyword), a condition, and the resulting code in curly brackets { }.

```
// If the user likes sushi (confirmSushi === true), we run the following block of code.
if (confirmSushi) {
  alert("You like " + sushiType + "!");
}
// If the user likes ginger tea (confirmGingerTea === true), we run the following block of code.
else if (confirmGingerTea) {
  alert("You like ginger tea!!");
}
// If neither of the previous condition were true, we run the following block of code.
else {
  alert("You don’t like sushi or ginger tea.");
```



Partner Activity: If/Else Part 1

With a partner you will create a website (from scratch) that asks users if they eat steak.

`09-ConditionalActivity`

Suggested Time:
15 minutes

Partner Activity: If/Else Part 1

01 With a partner, create a website (from scratch) that asks users if they eat steak.

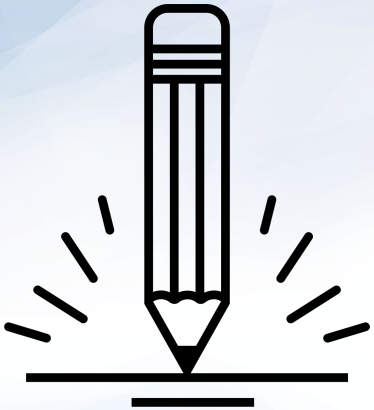
02 If they respond with yes, alert the following to the page: *“Here’s a Steak Sandwich!”*.

03 If they respond with no alert the following to the page: *“Here’s a Tofu Stir-Fry!”*.

Bonus: Ask what the user’s birth year is. If they are under 21, alert the following: *“No sake for you!”*

Suggested Time: 15 minutes

Time’s Up! Let’s Review.



Activity: If/Else Part 2

As a class, we will go through and predict what the result of a conditional statement will be.

`09-ConditionalActivity2`

Suggested Time:
10 minutes

Activity: If/Else Part 2

Do this activity as a class.

- Open the file sent to you in your code editor.
- As a class, go through and predict what the result of each conditional statement will be (i.e., will the “if” or the “else” be triggered).
- Then run the program to check if you are right. Note any that you got wrong and ask about it in class.

Suggested Time: 10 minutes

Arrays (an introduction)

An **array** is an ordered collection of variables

Arrays

An ordered collection of variables

- Arrays are a type of **data structure** (composed of other variables)
- An array is **stored as a variable**: it has a variable name and storage
- Each variable in an array has an **index** in that array.
- The **order** of the variables in an array matters
- Arrays can be made up of **different types**: strings, numbers, Booleans, other arrays, objects
- **Zero-indexing**: The 1st variable in an array has an index of 0 (zero).

Example: The Zoo Pen

Array Name: zooAnimals

The Zoo Pen: Coded

Array Name: zooAnimals

Coded in JavaScript using an array:

```
// Our array of zoo animals.
var zooAnimals = ["Zebra", "Rhino", "Giraffe", "Owl"];
```

Array analogy

Kinda like a row of house on a street

The street name (e.g. Dayton Ave NE) is like the array variable name

The house number (e.g. 1) is like the index

Arrays - mix anything

These collections can be made up of strings, numbers, Booleans, other arrays, objects … anything.

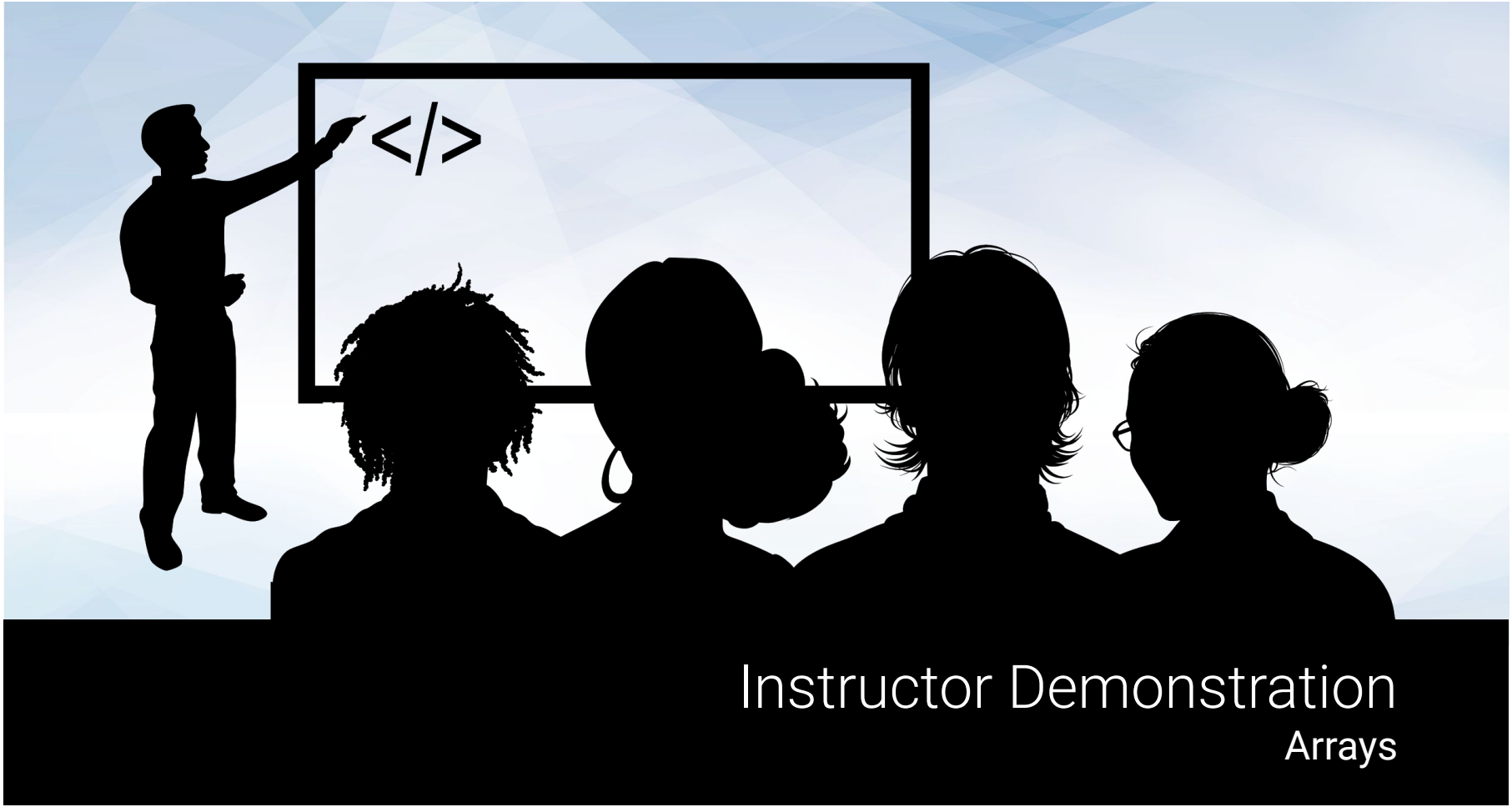
```
var nickCharacters = ["Tommy", "Doug", "Oblina"];

var diceNumbers = [1, 2, 3, 4, 5, 6,];

var mixedArray = ["Zoo", 12, "Carrot", 3];
```

Arrays: Indices

To recover the value at any specific index, include the name of the array with a square bracket `[ ]` and inside the bracket is the element's index.

You can easily grab the number of elements in the array using the method `array.length`.

```
// Our array of zoo animals.
var zooAnimals = ["Zebra", "Rhino", "Giraffe", "Owl"];

// Prints 4 to the console because there are 4 items in our zooAnimals array.
console.log(zooAnimals.length);

// Prints Rhino to the console. Remember, the first item in an array has an index position of 0!
console.log(zooAnimals[1]);

// Prints undefined...because the last index ("Owl") is 3.
console.log(zooAnimals[4]);
```



Instructor Demonstration

Arrays

Partner Activity: Code Dissection

With a partner, take a few moments to look over the code in **`12-ArraysActivity`**.

Above each `console.log()`, write a comment predicting what you think the output will be.

Suggested Time: 7 minutes

Questions?

Challenge: Favorite Band Array

In this challenge, you will create an array of your favorite bands.

Suggested Time:
15 minutes

Challenge: Favorite Band Array

Create a website that accomplishes the following:

01 Create an array of your favorite bands.

02 With a prompt, ask the user's favorite band.

03 If it's one of your favorites, alert: *"YEAH, I LOVE THEM!"*

04 If it's not, alert: "*Nah. They're pretty lame.*"

Hint: You will need to research how to use `.indexOf()`

Hint: You will also need to research how to use `.toLowerCase()`

Suggested Time: 15 minutes

Challenge: Code Dissection (Re-examined)

Re-examine the file sent to you at the start of class. See if you can better understand how it works after having completed today's class.

Suggested Time:
12 minutes