Objects, ES6, and Tables

Data Boot Camp

Lesson 14.2


WELCOME

Class Objectives

By the end of today's class you will be able to:

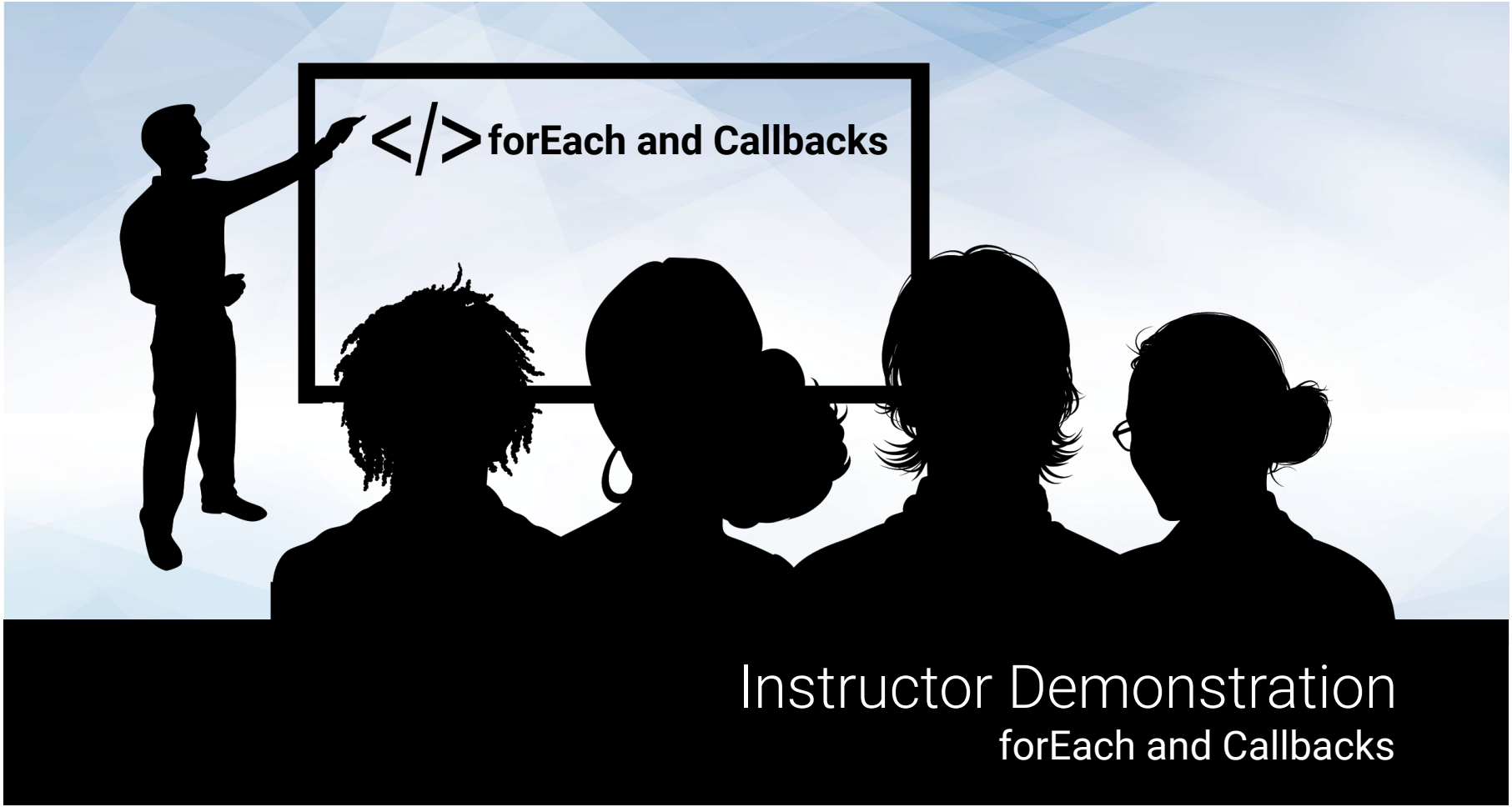
Use forEach and callback functions and how to use them.

Create, update, and iterate JavaScript Objects.

Understand how to apply map and filter to parse data.

Create and use arrow functions to simply code.

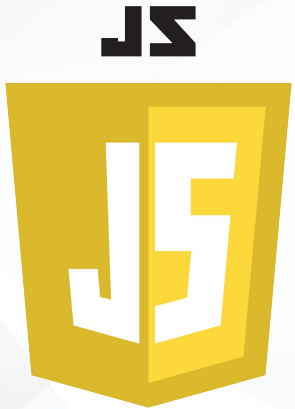
Understand the basic structure of a Bootstrap HTML table.



Instructor Demonstration

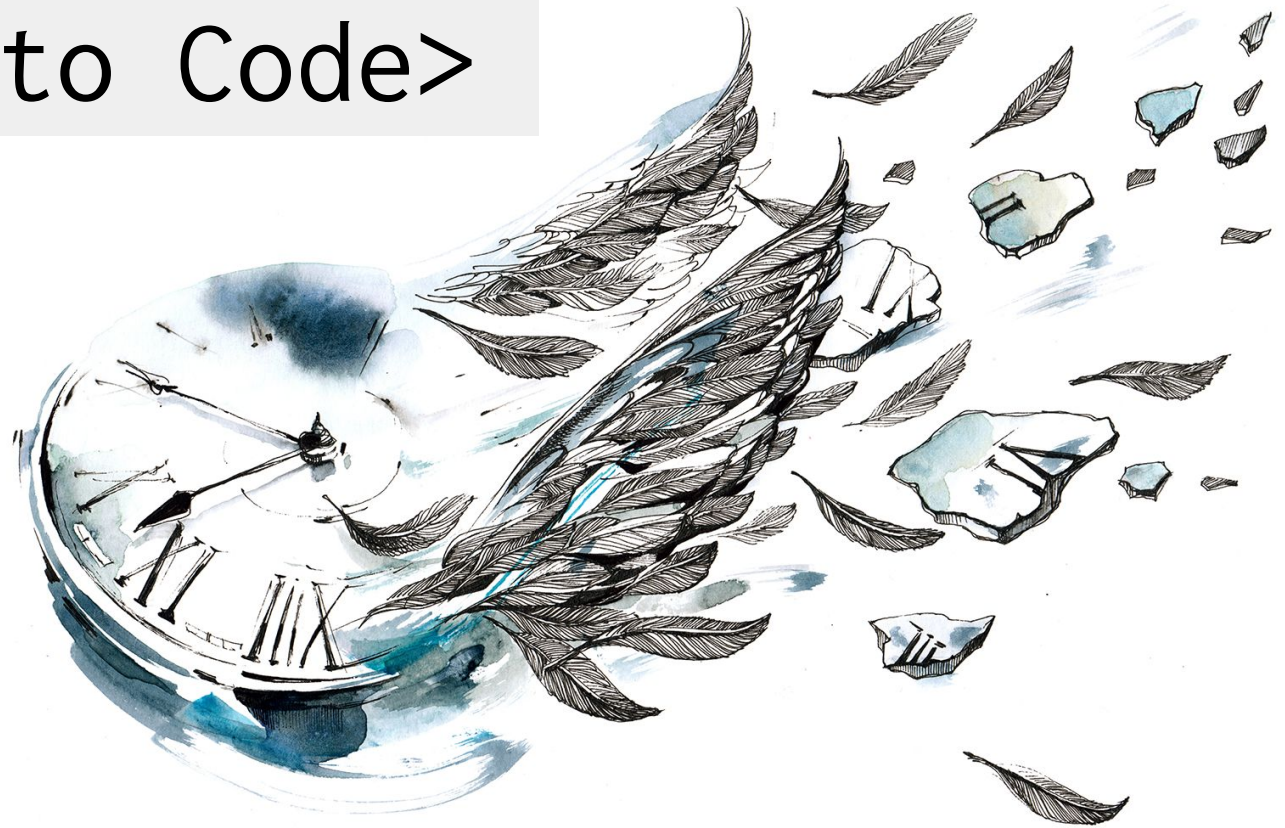
forEach and Callbacks

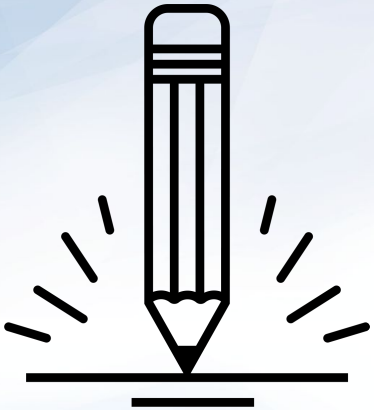

forEach
for loop



JavaScript is a language that will provide you different ways of doing something. For instance `forEach` and `for loops`.

<Time to Code>





Activity: Movie Scores - forEach

In this activity, you will revisit the activity Movie Scores from the previous class and refactor the code using the `forEach` method instead of a `for loop`.

Suggested Time:
15 Minutes

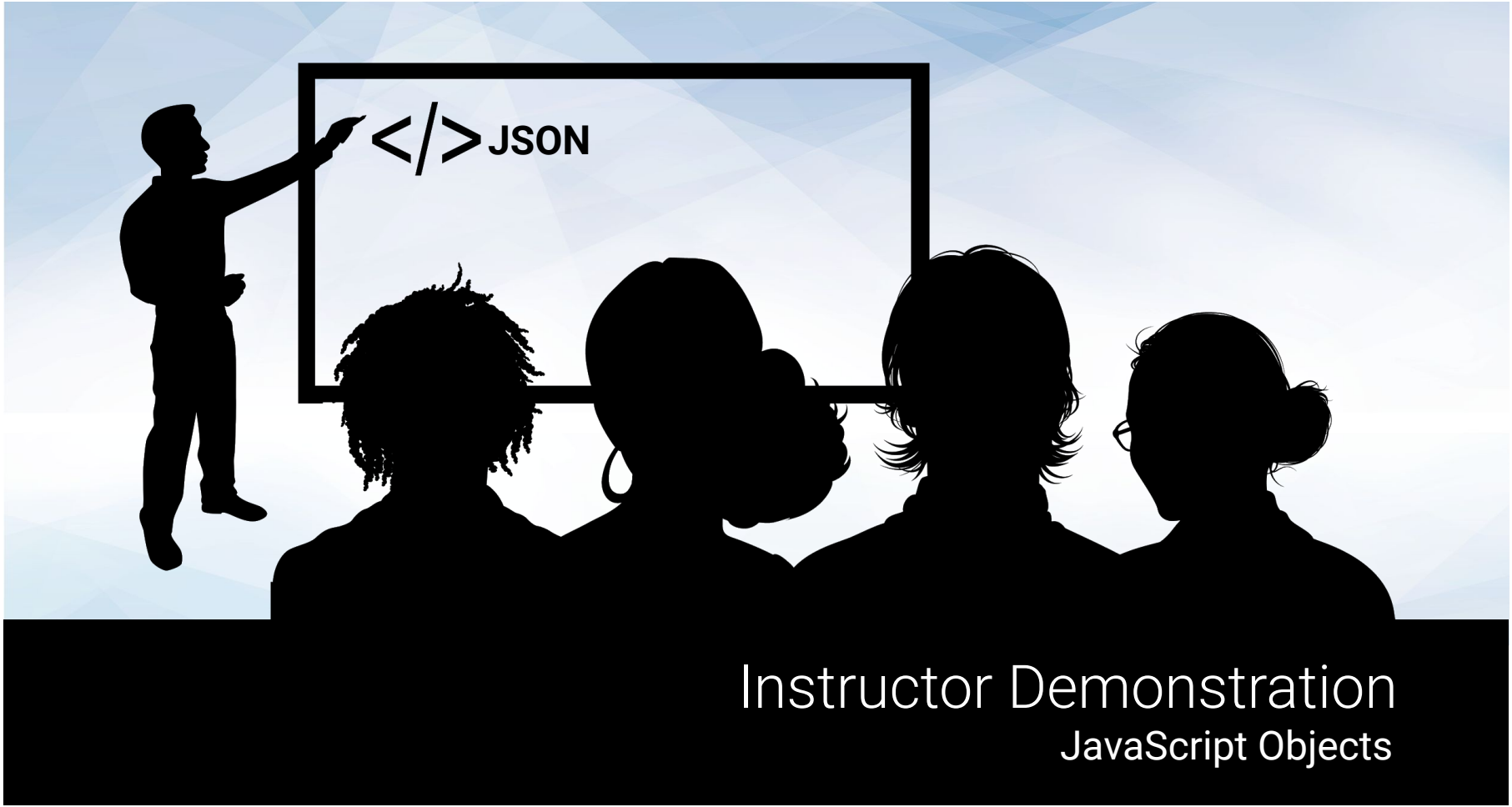
Activity: Movie Scores - forEach

Instructions:

- Revisit the MovieScore activity from the previous class.
- Refactor the code to use the `forEach` method instead of a `for loop`.

- **Hint:**
  - Remember that `forEach` will pass a function to each element in an array.

Time’s Up! Let’s Review.



Instructor Demonstration

JavaScript Objects

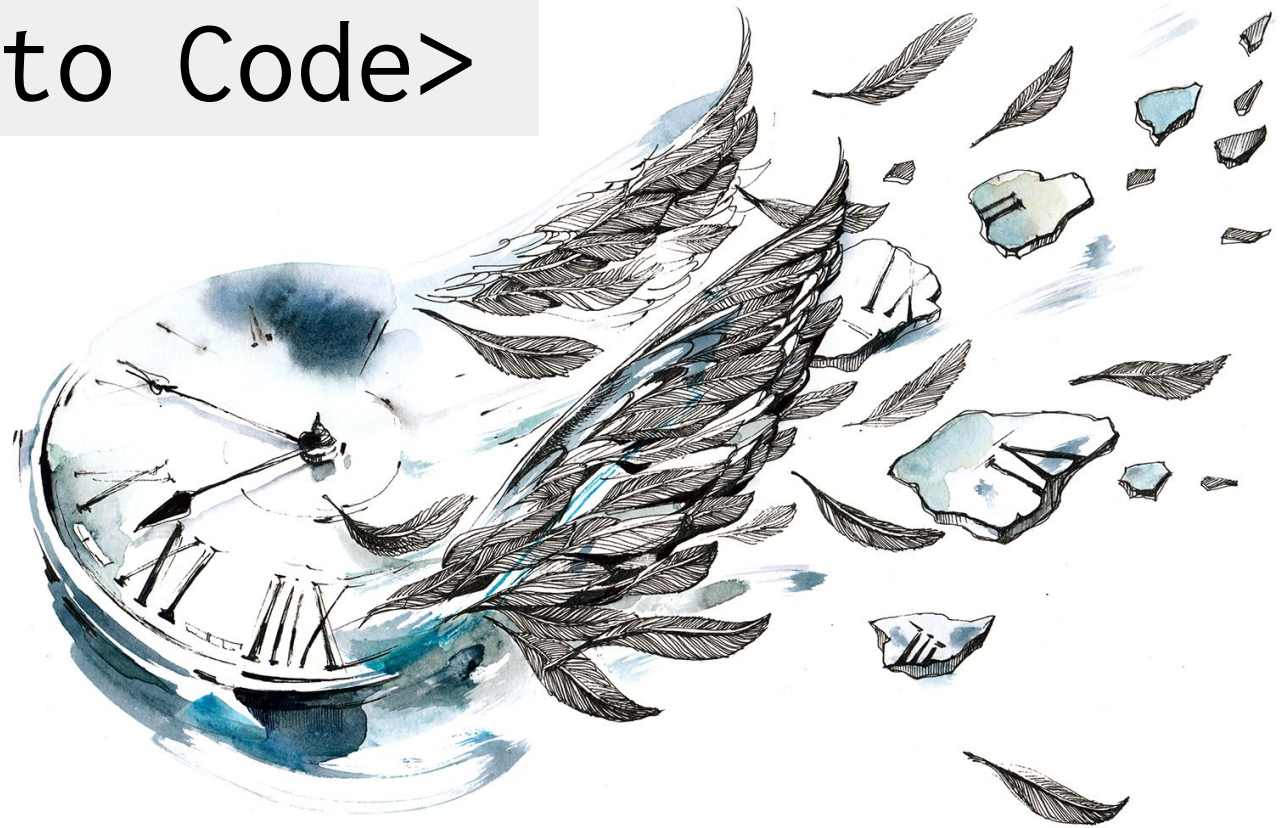
What is JSON?

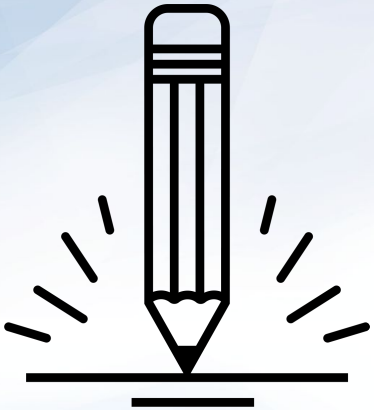
{JSON}

JavaScript Object Notation

- A Syntax for storing and exchanging data.
- Is similar to a Python dictionary in many ways:
  - Organize information in `key` and `value` pairings.
  - They are unordered.
  - `key` is used to access the `value`.

<Time to Code>





Activity: Word Frequency Counter

In this activity, you will create a function in JavaScript that counts the number of occurrences of each word in a string.

Suggested Time:
15 Minutes

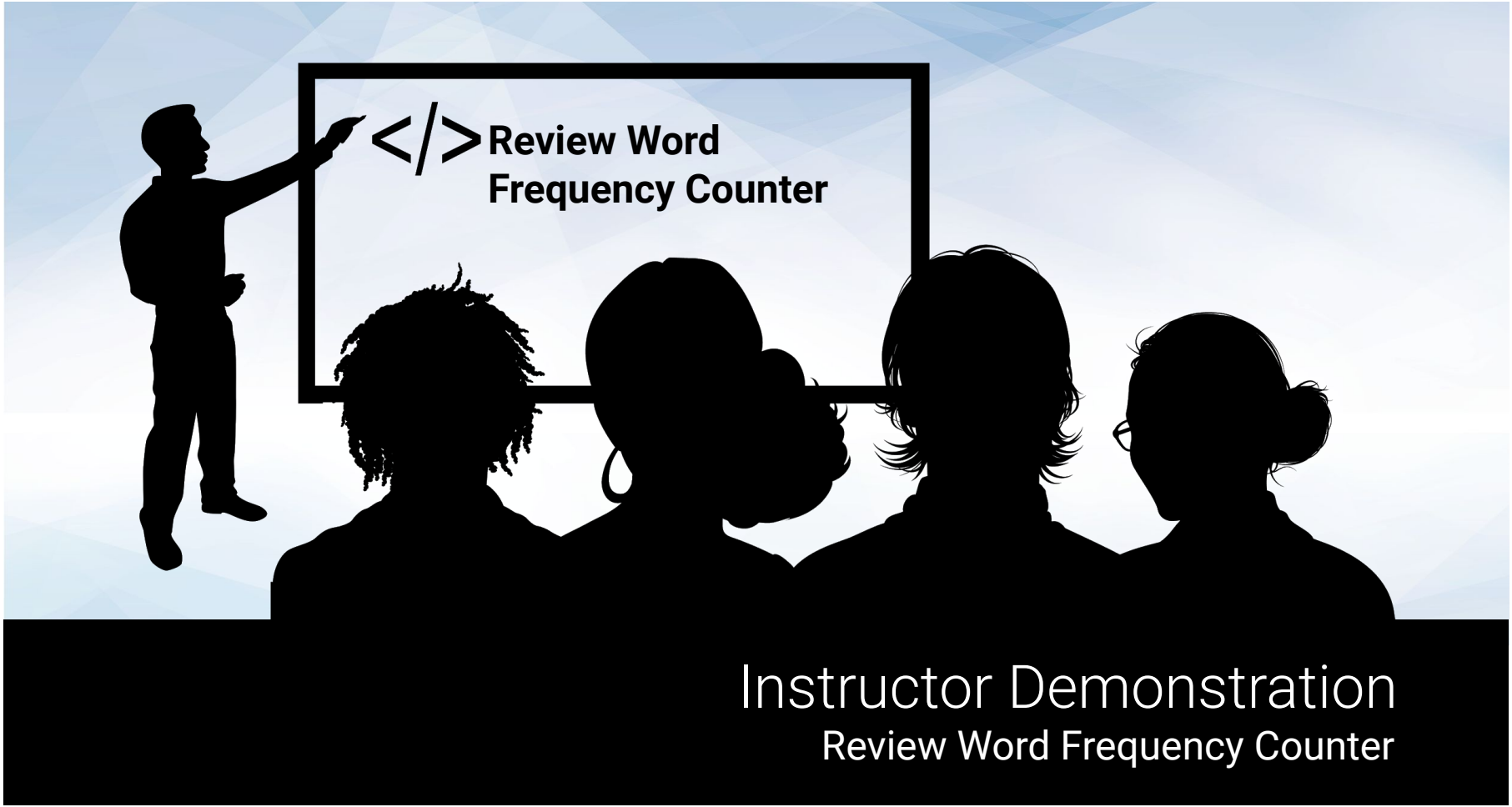
Activity: Word Frequency Counter

Instructions:

- Create a function in JavaScript that counts the number of occurrences of each word in a string.
- The function should take in a string as its parameter.
- Use an object to hold word frequency in key-value pairs. For example, the following will be the frequency list for the string **"I yam what I yam and always will be what I yam"**

- **Hint:** 
  - How would you split a string into an array of words?
  - Start the word frequency counter an empty object.
  - How would you determine whether a word already exists in the object?

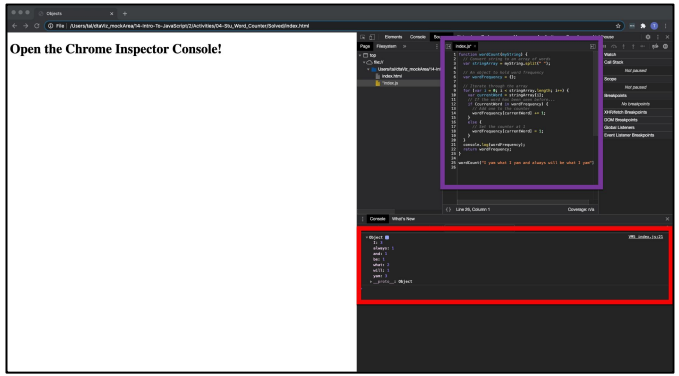
```
{
  I: 3,
  always: 1,
  and: 1,
  be: 1,
  what: 2,
  will: 1,
  yam: 3
}
```

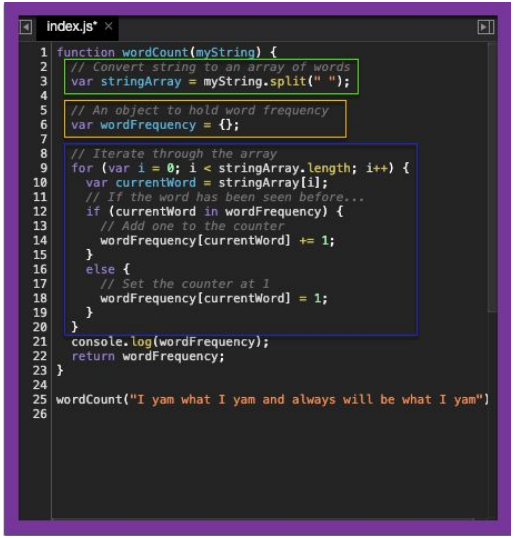


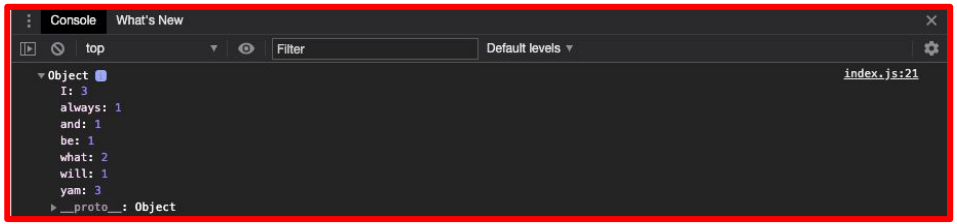
Instructor Demonstration

Review Word Frequency Counter

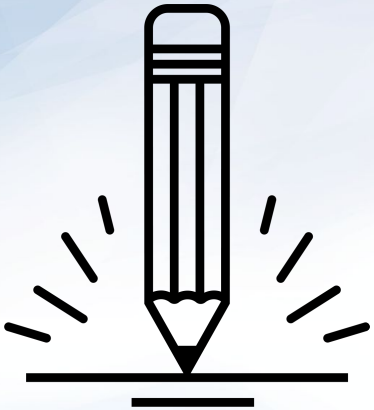
Review Word Frequency Counter







1. Convert string to an array of words.
2. An empty object is created to hold values.
3. Iterates through the array and increases the count by 1 for repeated words.
4. The function outcome.



Everyone do: Map

In this activity, everyone will have the opportunity to cover the use of the `map` function.

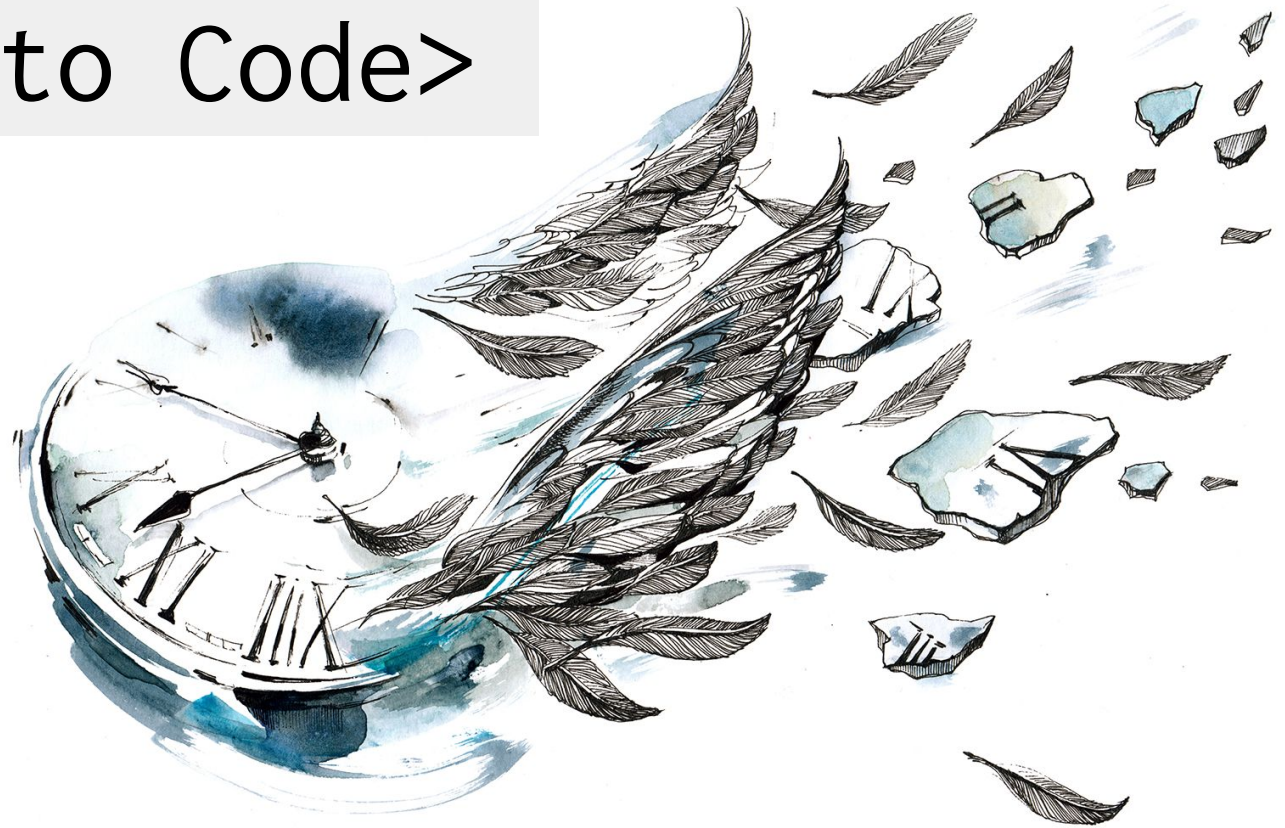
Suggested Time:
15 Minutes

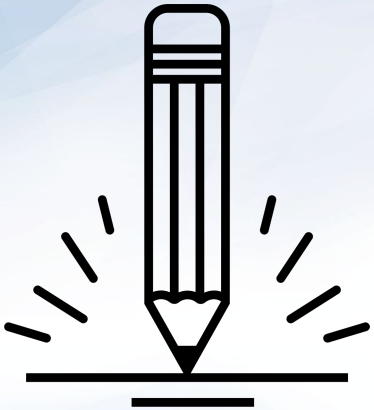
What is the `map()` method?

`map()`

- A method that creates a new array with the results of calling a function for every element array.
- A method that calls the provided function in order and once for each element in an array.

<Time to Code>





Everyone do: Arrow Functions

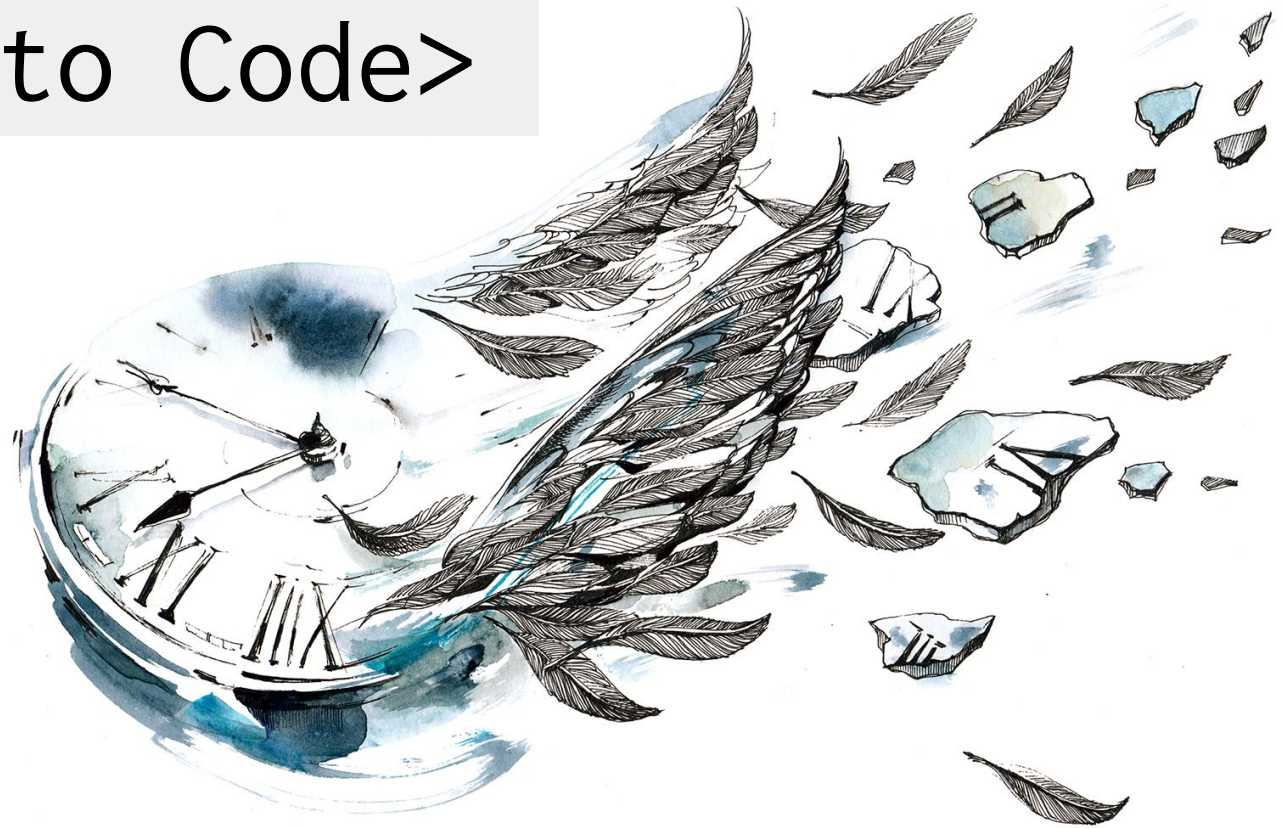
In this activity, everyone will be presented to the `arrow functions`.

Suggested Time:
15 Minutes

What is the `arrow functions` ?

- The arrow function is an alternative way to write functions in JavaScript.
- It was introduced in ES6 and allow us to write shorter functions syntax.

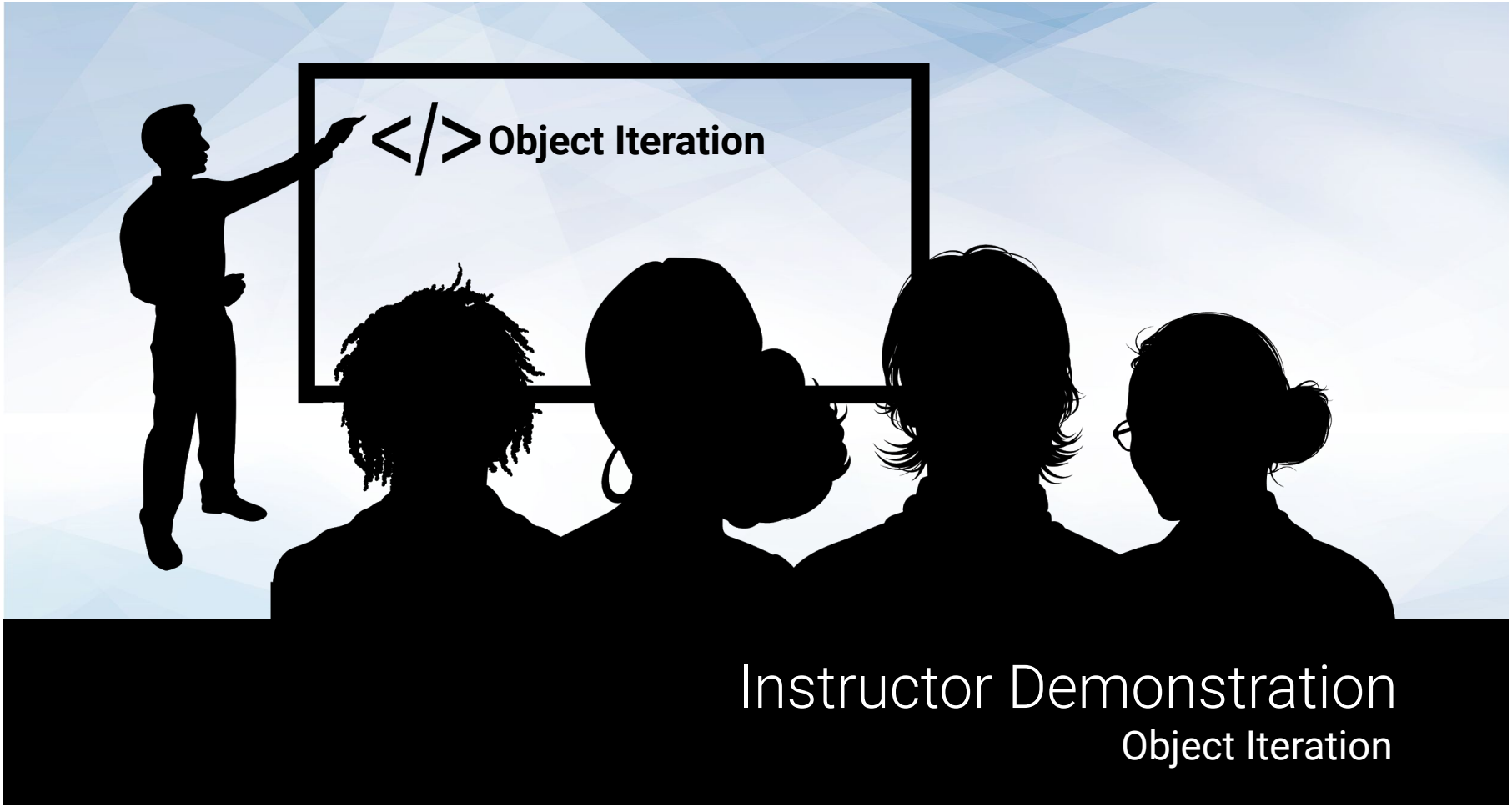
<Time to Code>



Countdown timer

15:00

(with alarm)



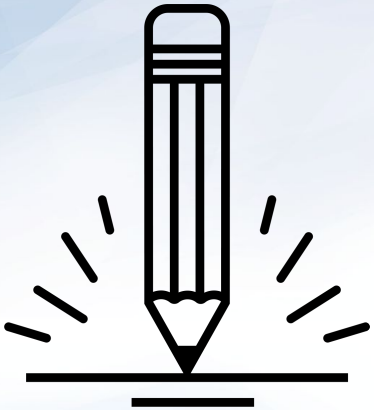
Instructor Demonstration

Object Iteration

What is the `forEach()` method?

`forEach()`

- A method used with Object.keys() that calls a function to iterate over Object keys and values, in order.



Activity: Recipe Iteration

In this activity, you will practice iterating over arrays of objects.

Suggested Time:
15 Minutes

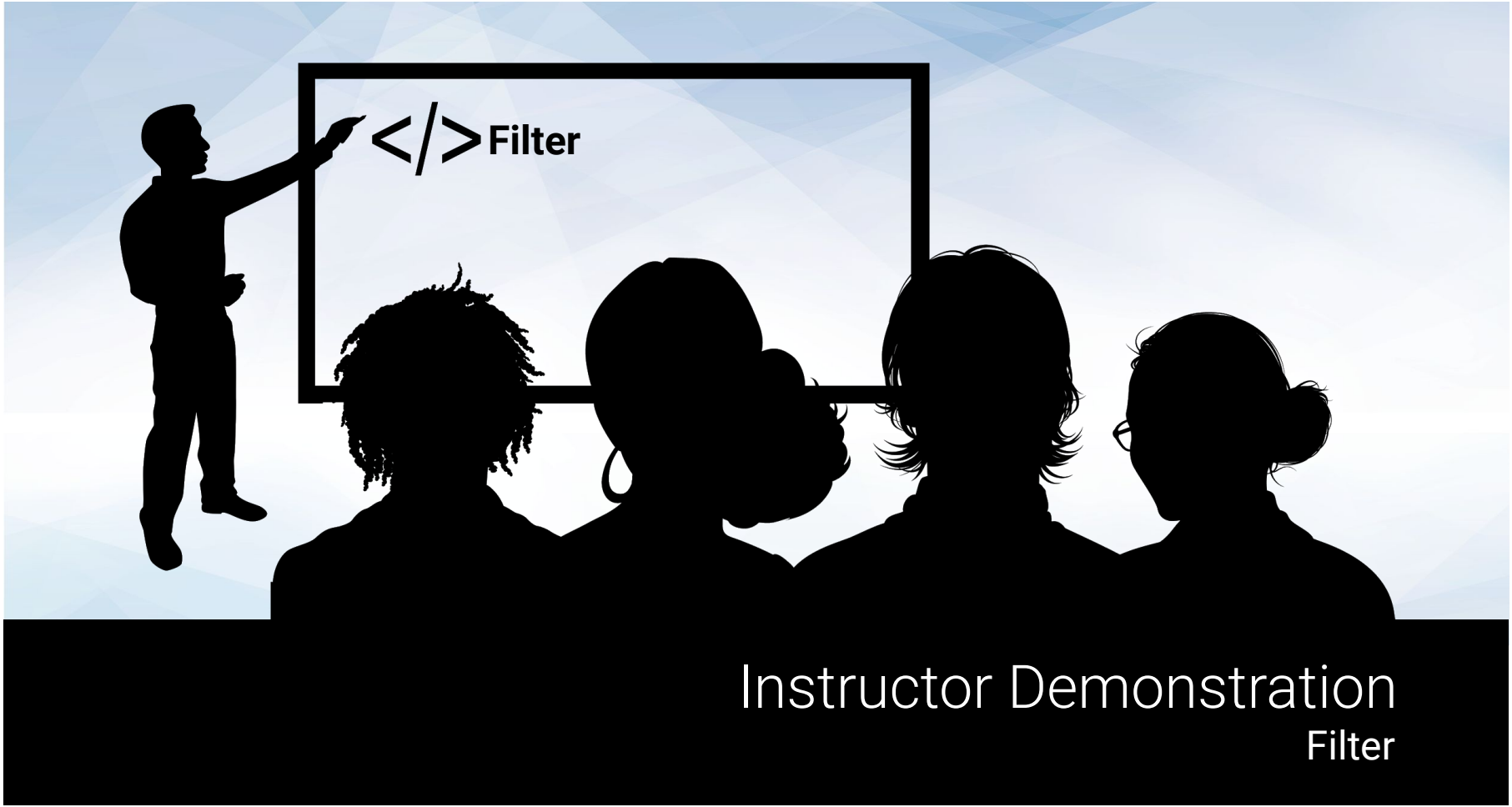
Activity: Recipe Iteration

Instructions:

- Create two empty arrays called `dishes` and `spices`.
- Use `Object.entries` and `forEach()` to iterate over an array of recipe objects.
- Push each dish into the `dishes` array.
- Push each spice into the `spices` array.
- Log each final array to the console.

- **Bonus:**
  - Create both arrays using `map` instead of `forEach`.

Time’s Up! Let’s Review.



Instructor Demonstration

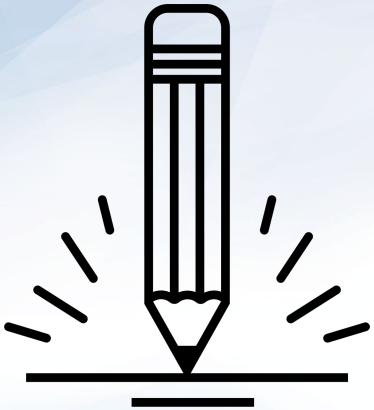
Filter

What is the `filter()` method?

`filter()`

- A method that creates an array with elements that pass a test provided as a function.

```
// Create a custom filtering function
function selectYounger(person) {
 return person.age < 30;
}
// filter() uses the custom function as its argument
var youngSimpsons = simpsons.filter(selectYounger);
```



Activity: Filters

In this activity, you will use the `filter()` method to determine which players have made the team and which have not.

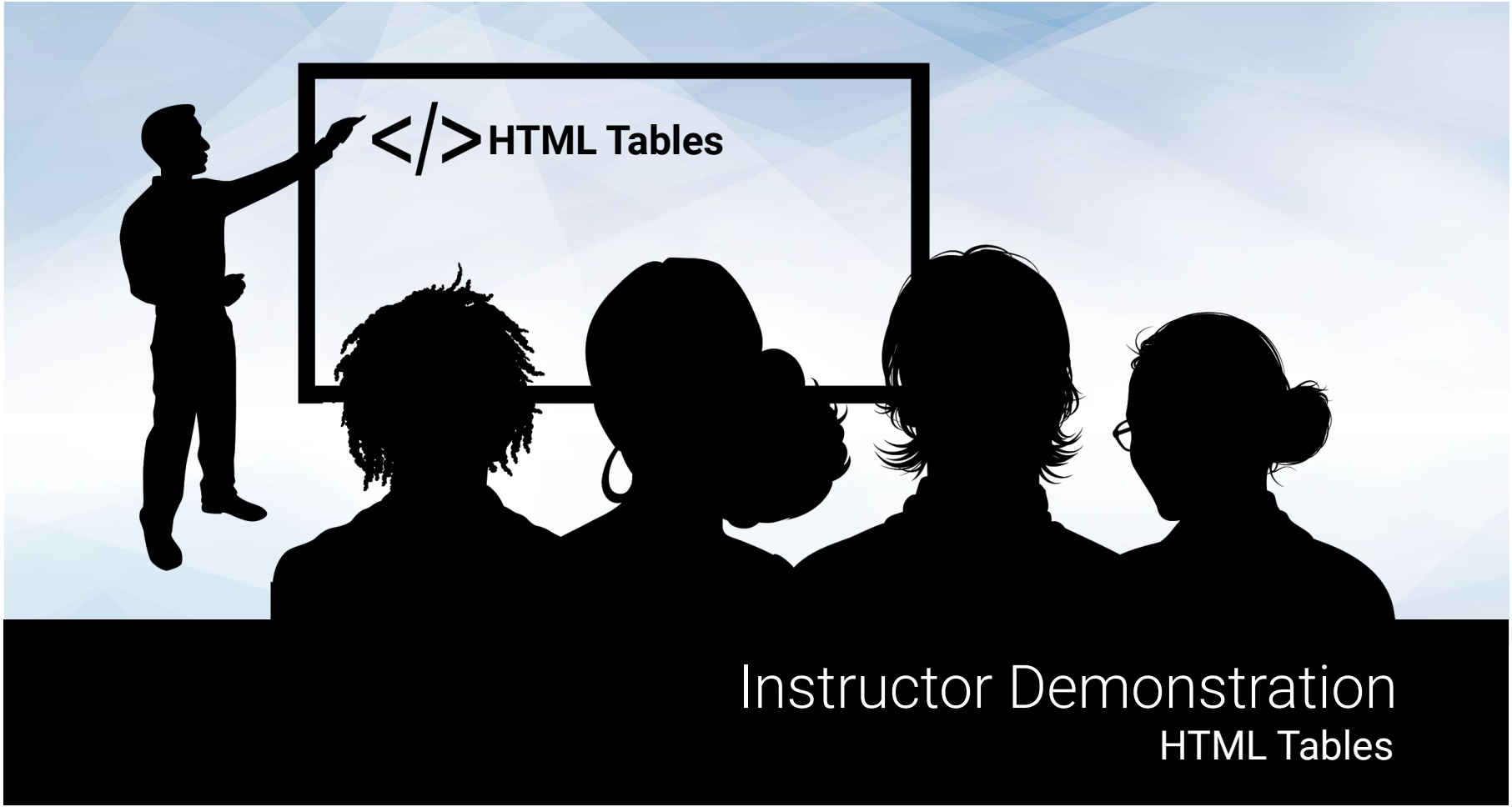
Suggested Time:
10 Minutes

Activity: Filters

Instructions:

- Given a roster of players, determine which players have made the team and which have not, using `filter()`.
- Print out all players who have made the team.
- Print out the number of players who made the team, and of players who did not.

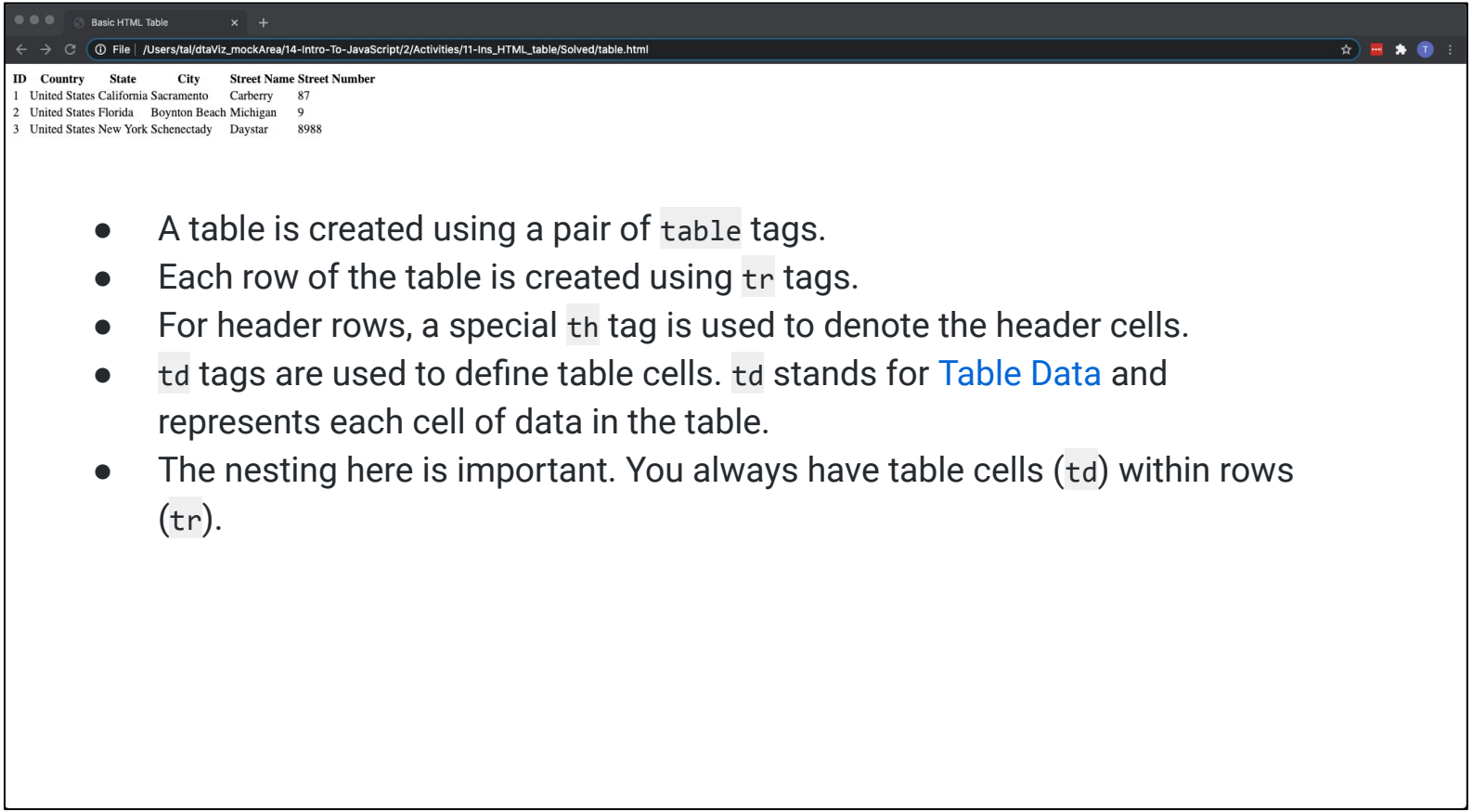
Time’s Up! Let’s Review.



Instructor Demonstration

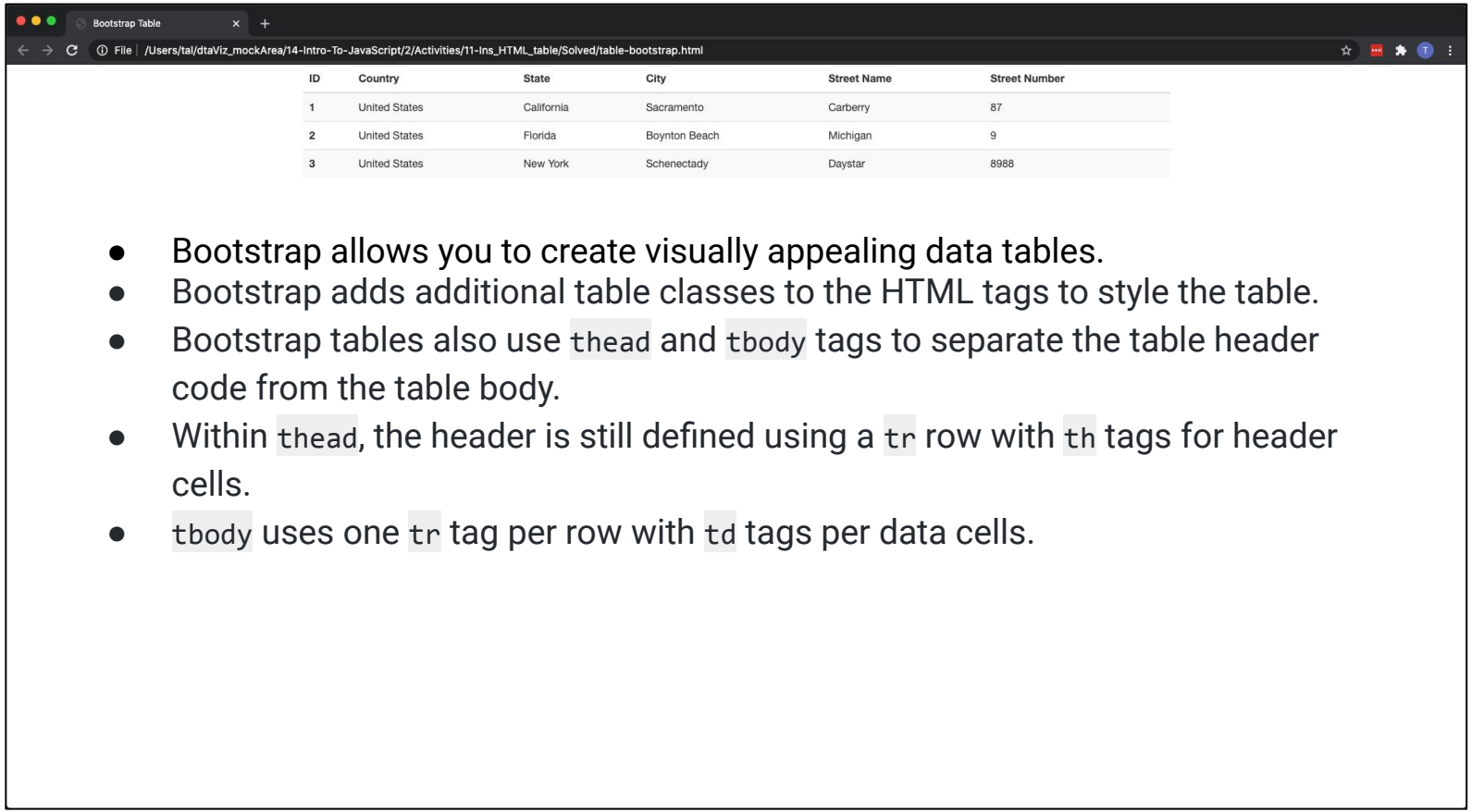
HTML Tables

HTML Tables



- A table is created using a pair of `table` tags.
- Each row of the table is created using `tr` tags.
- For header rows, a special `th` tag is used to denote the header cells.
- `td` tags are used to define table cells. `td` stands for Table Data and represents each cell of data in the table.
- The nesting here is important. You always have table cells (`td`) within rows (`tr`).

HTML Tables



- Bootstrap allows you to create visually appealing data tables.
- Bootstrap adds additional table classes to the HTML tags to style the table.
- Bootstrap tables also use `thead` and `tbody` tags to separate the table header code from the table body.
- Within `thead`, the header is still defined using a `tr` row with `th` tags for header cells.
- `tbody` uses one `tr` tag per row with `td` tags per data cells.


The End