JavaScript

Intro to JavaScript Data Types, Grace Hopper, & Joan Clarke

01

DEBUGGING

DEBUGGING - What does it mean?

“DE”

- A prefix
- Means to **undo something.**

DEBUGGING - What does it mean?

"ING"

- A suffix (end of the word)
- Shows an **action currently in progress.**

DEBUGGING - What does it mean?

DE-"BUGG"-ING

- It really does stand for...

The first computers...

Rubber Duck Method (yes, it's real)

- Talk out your coding problem with your rubber duck buddy.
- This helps your brain to process the problem differently.
- **Follow these steps:**
  - Talk about what the code is doing (line by line)
  - Talk about what it *should be doing*.

02
DEBUGGING: UNPLUGGED

STEP 1: PICK YOUR DUCK

If you attend Session 9, our last session, you get to take your Rubber Duck HOME!!!

- You will be dismissed by table to choose your rubber duck.
- This is **your** debugging buddy for the rest of the year!
- **Please return your duck at the end of our session.**
- I will label your duck with your name, and you'll get it back each session.

STEP 2: USE YOUR DUCK

- Page 2 in your packet
- Use your duck to step through the suggested path to the pond.
- Which step is wrong? Correct it!
- **There will only be 1 wrong step.** There are a million ways to get your duck to water, so be creative with the **steps provided.**

03
SHERO - GRACE HOPPER

SHEro - Grace Hopper

- American computer scientist, mathematician, and a United States Navy rear admiral
- One of the first programmers for the Harvard Mark 1 computer, and played a huge role in what we know as **debugging**.
- She created COBOL, which is a programming language still used today.
- Fun Fact: She has a plaque here at LSF in the Hall of Heroes!

Video - https://www.youtube.com/watch?v=Fg82iV-L8ZY

04
INTRO TO JAVASCRIPT

JavaScript

JavaScript is a programming language!

Fun Fact: JavaScript is the most-used programming language in the world (according to Google). It's *that popular*.

- Used for creating **dynamic** websites, and sometimes phone apps.

dy-nam-ic

adjective

1. (of a process or system) characterized by constant change, activity, or progress.
2. (of a person) positive in attitude and full of energy or new ideas.

Dynamic JavaScript

- Click a button to submit a form
- Check that what the user typed into the form is correct
- Flip through pictures, so that a new one shows every couple of seconds
- Show data
  - Example: Amazon - you're shopping for a new cat bowtie. Amazon is able to dynamically show you:
    - What colors the store has available
    - How many bow ties they still have
    - Whether or not a bow tie is sold out

Pet Supplies › Cats › Collars, Harnesses & Leashes › Accessories

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Last purchased Oct 15, 2022
Size: **7-11" (pack of 1)** | Color: **Teal** | View order

Set reminder

Roll over image to zoom in

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prime
FREE Returns

FREE delivery **Thursday, October 20**. Order within 3 hrs 58 mins

Deliver to Emma - Mountville 17554

In Stock.

Qty: 1

Add to Cart

Buy Now

Secure transaction

Ships from Amazon
Sold by Joytale

Return policy: Returnable until Jan 31, 2023

Add a gift receipt for easy returns

05

TYPES OF VARIABLES

Data Types

Represent different types of data - strings, numbers, boolean, etc. A string is wrapped in quote marks (example: “green eggs and ham”). Numbers look like numbers, and booleans are true/false, YES or NO.

Guess the Data Type:

- “coders”	STRING
- 101	NUMBER
- “true”	STRING
- false	BOOLEAN
- “208”	STRING

Data Types

Variables always have a data type.

Once a variable is given a data type, **it cannot be changed.**

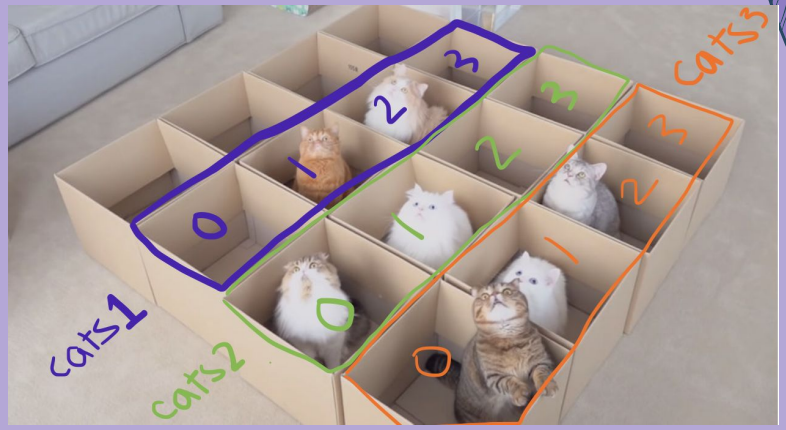
Example: **var cats = 3**

But what if we wanted to represent a row of boxes, that are also full of cats? We would use what is called an **array**!

Data Types - Array

Array. A single variable that stores a series of elements. Each element in your array has to be the same data type (all numbers or all strings).

To access things in an array, you use an **index**. The index is an item's order or position in the array, and it will always start at 0 (instead of 1).



Array Example: Grocery List

My grocery list:

- Apple
- Mango
- Banana
- Grape
- Blueberry
- Kiwi
- Papaya

Because “apple” is first on my grocery list, it’s position will be **0.**

Array Example: Grocery List

Accessing an item at an array's index looks a lot like this: **fruits[2].**

fruits[2] - the word "fruits" is the name of our array variable

Array Example: Grocery List

Accessing an item at an array's index looks a lot like this: **fruits[2].**

fruits[2] - the opening and closing brackets tell our code that we want the index (number inside)

Array Example: Grocery List

Accessing an item at an array's index looks a lot like this: **fruits[2].**

fruits[2] - 2 is the actual index

Array Example: Grocery List

Given the example, what is **fruits[2]**?

What index holds the **blueberries**?

Exercise: Grocery List (THREE VOLUNTEERS)

How would I get the **apple**?

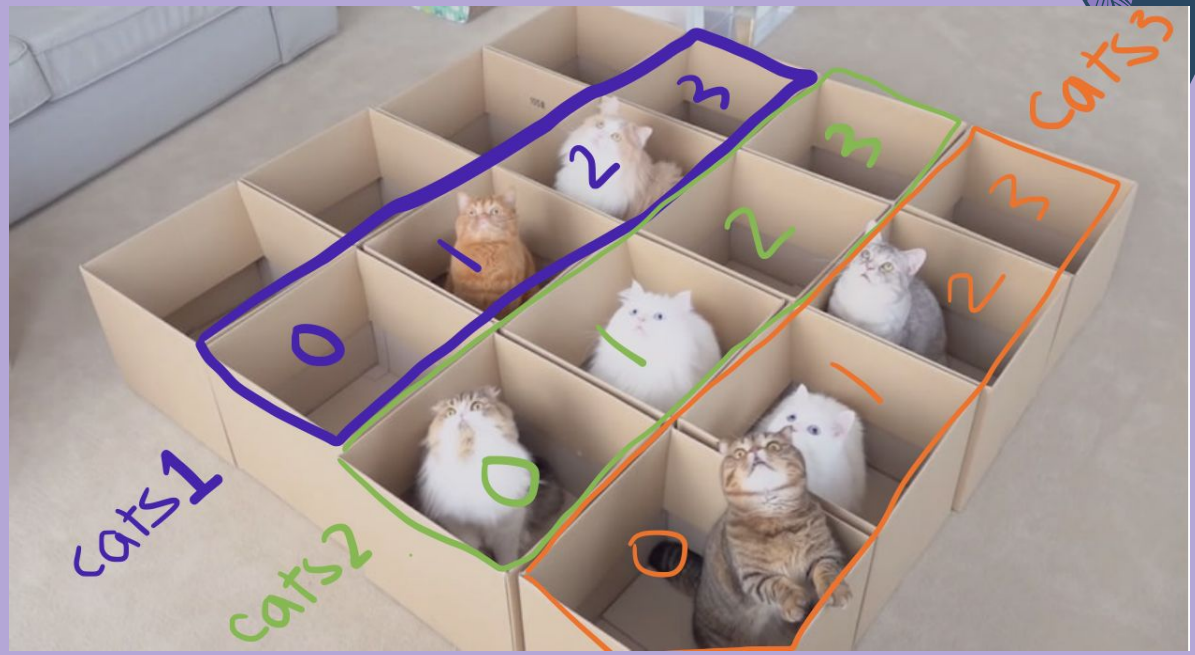
Data Types - Array

cats1 = the purple array

cats2 = the green array

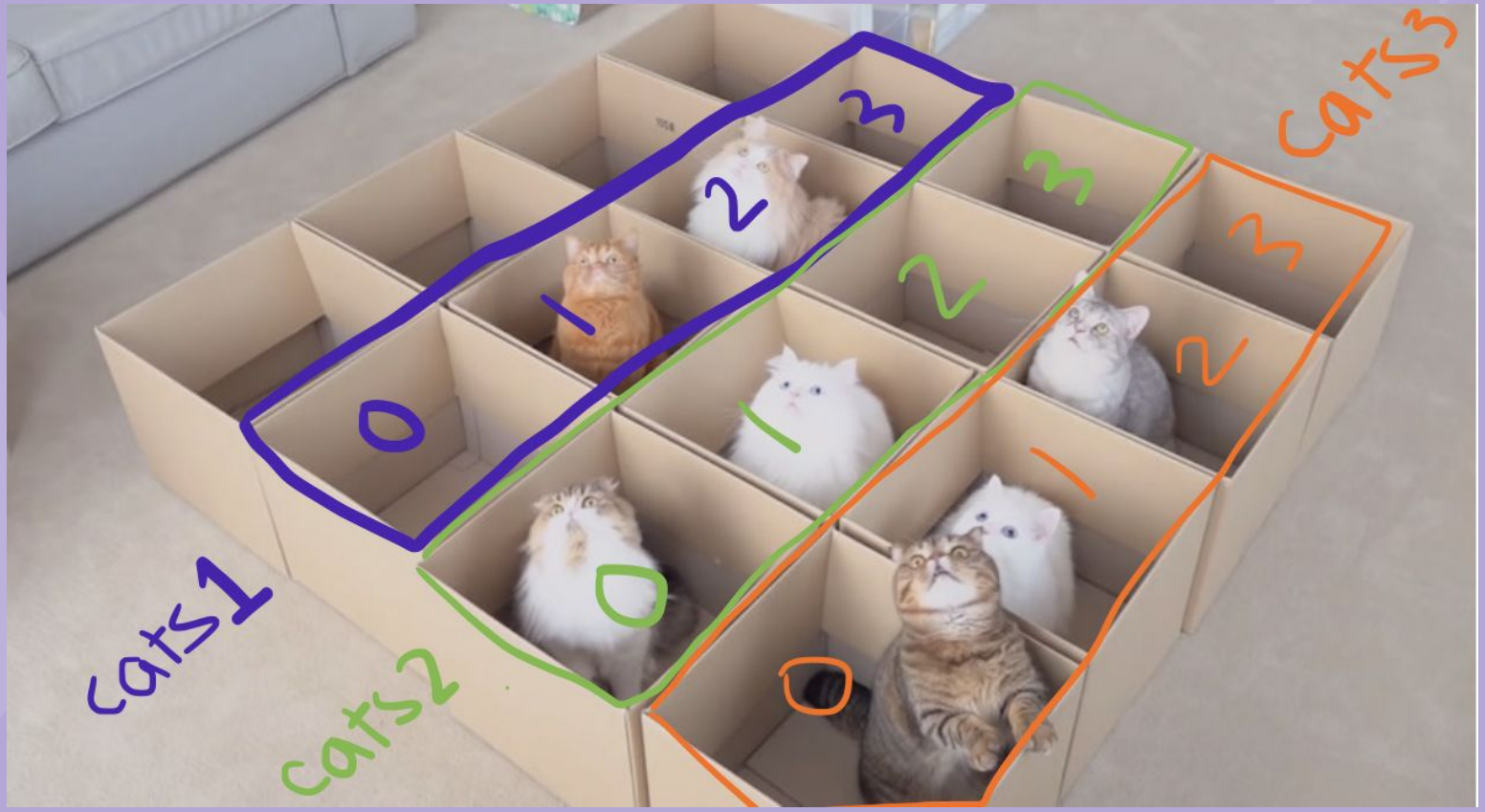
cats3 = the orange array

In order to pick up a cat and snuggle it, I have to select the correct array and index.



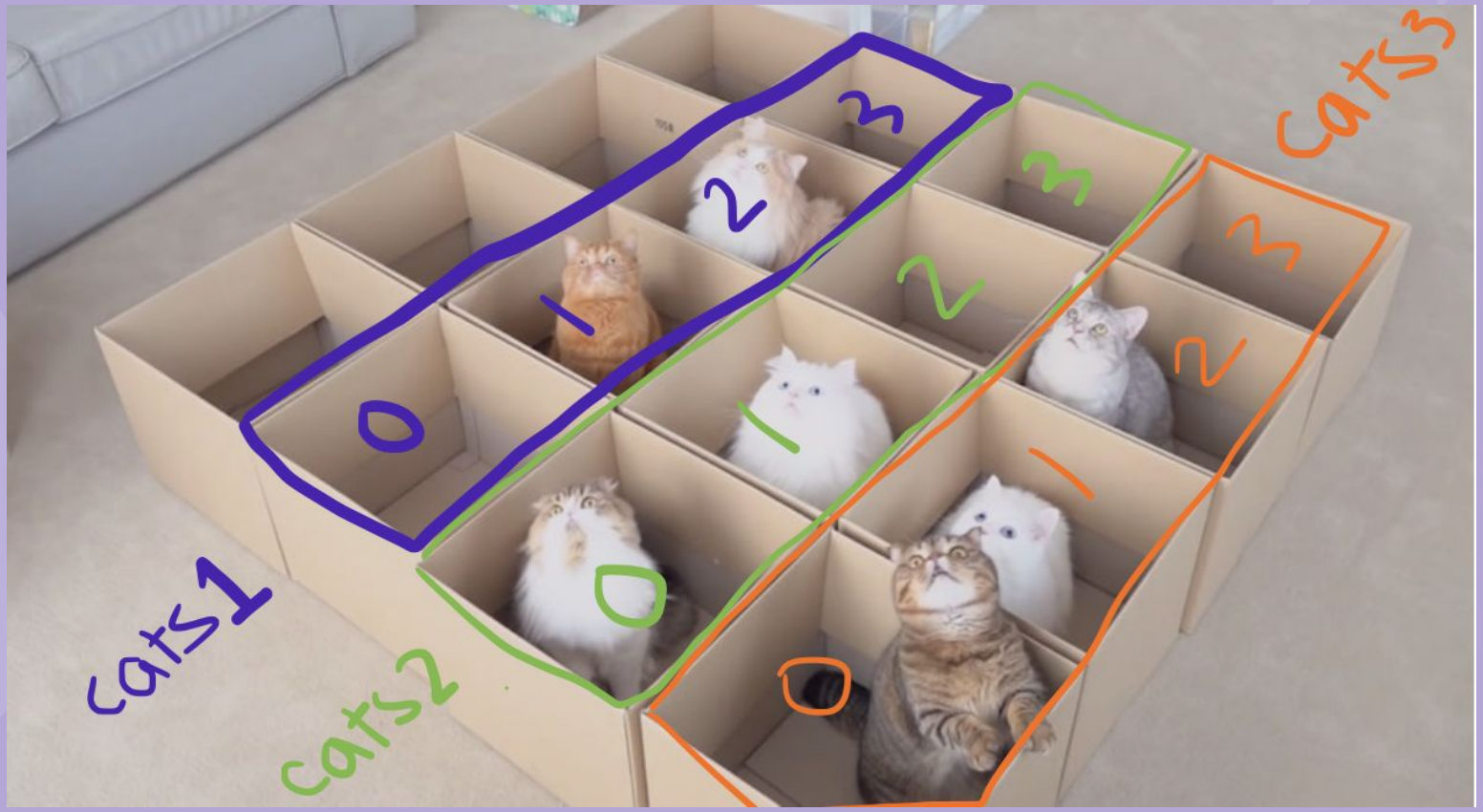
Data Types - Array

cats2[2]



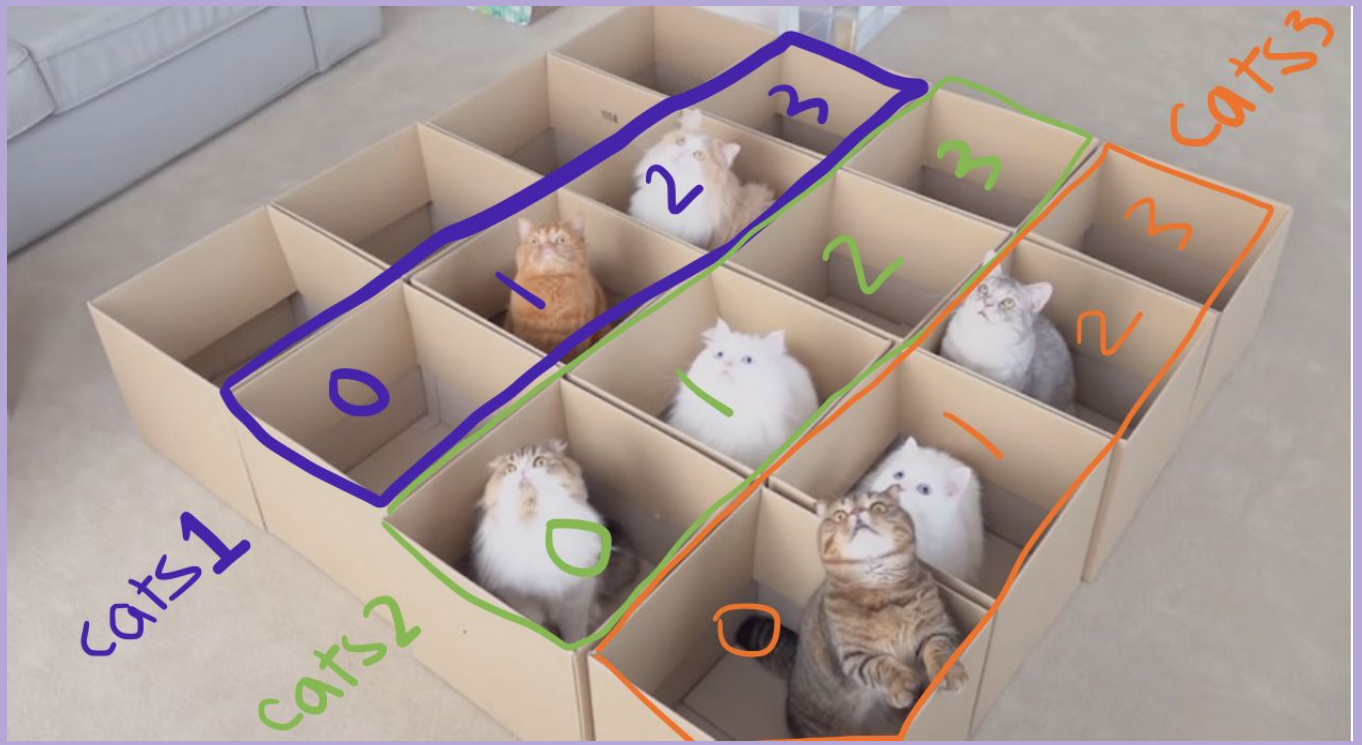
Data Types - Array

cats3[0]



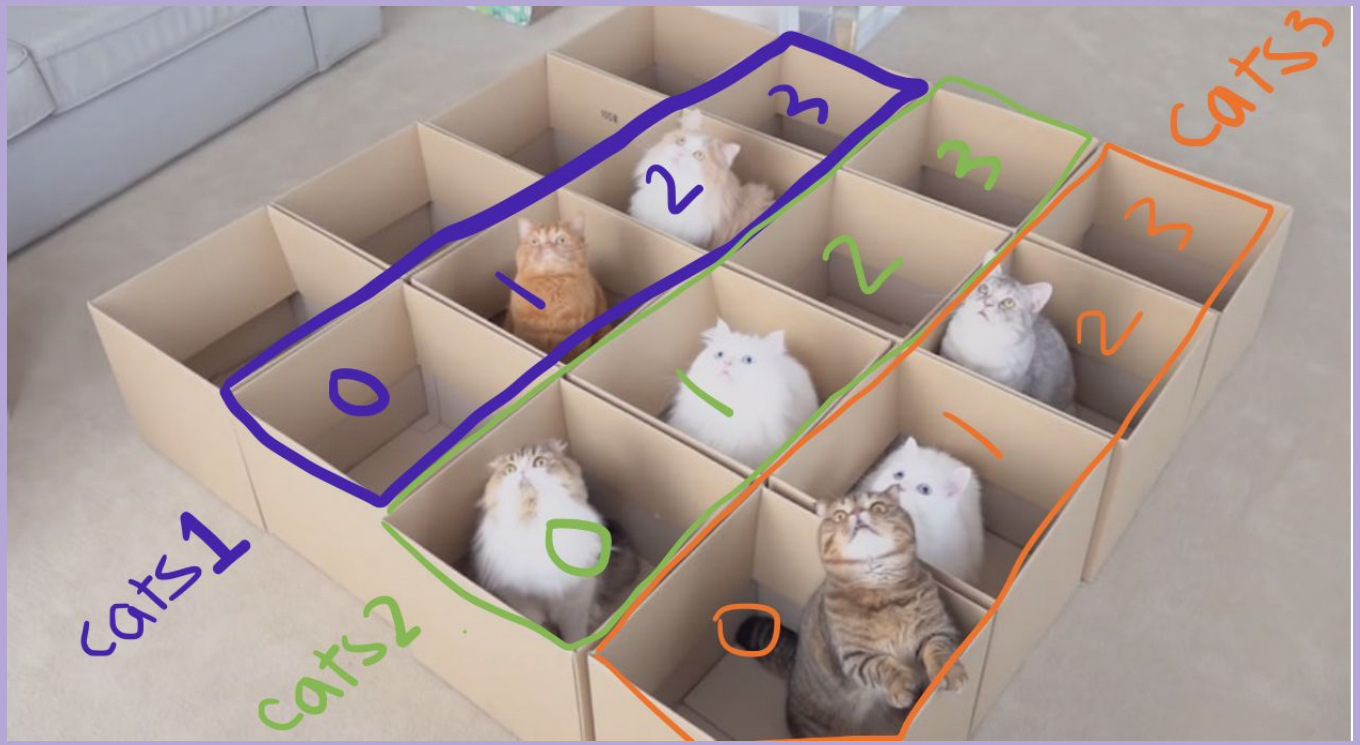
Exercise: Cats in Boxes (THREE VOLUNTEERS)

Tell me how to pick up an **orange cat**.



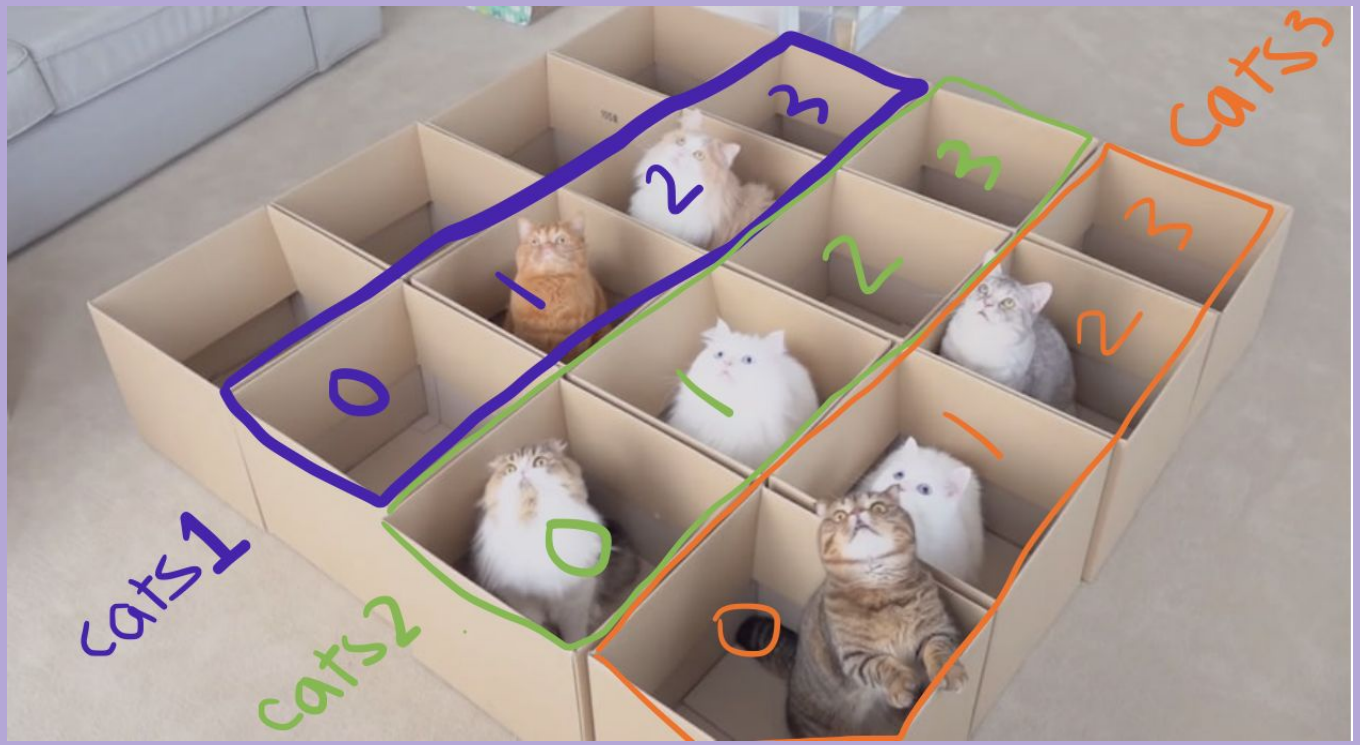
Exercise: Cats in Boxes (THREE VOLUNTEERS)

Tell me how to pick up a **gray and white cat**.



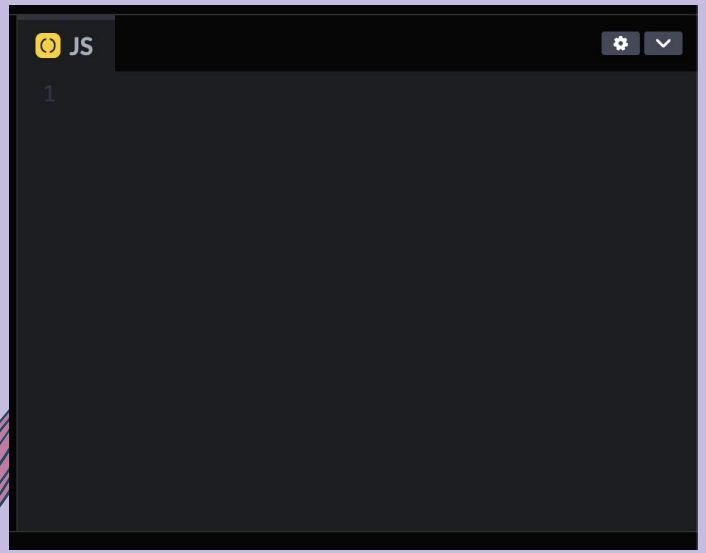
Exercise: Cats in Boxes (THREE VOLUNTEERS)

Tell me how to pick up a **cat with long hair**.



Let's Practice!

A CodePen is already open for you. You are logged into the Girls Code Club account! **Please name your CodePen using the username you made last session**. Raise your hand if you need help.



Remember that **console.log( )** let's you print things out in the console at the bottom of the page. Please let us know if you can't find your console.

Coding Exercise #1

Write the following code in JavaScript (also in your packet):

```JS
var colors = ["red", "pink", "green", "yellow", "purple", "orange", "blue"];
```

Use **console.log( )** to print out the colors, in the order they would appear in a rainbow (ROYGBIV). For example, if you typed **console.log(colors[0])**, what would you get?

Coding Exercise #2

Create an array with the ingredients for a sandwich (not this one, be creative):

JS

```
1  var sandwich = ["bread", "peanut butter", "jelly", "more bread"];
```

Use the console to print instructions, telling me how to make your favorite sandwich. Example:

Coding Exercise #2 (bigger example)

JS

```
1  var sandwich = ["bread", "peanut butter", "jelly", "more bread"];
2  console.log("Before you make my favorite sandwich, we need " + sandwich[0] + ".");
```

06

BONUS SHERO

SHEro - Joan Clarke

- Went to school in London, England but wasn't allowed to actually earn her degree.
- Recruited to the **Government Code and Cypher School** where she became a **code breaker** during the war.
- She played a huge role in breaking "The Enigma", saving 220,000 tons of shipping per month.

THANKS!

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