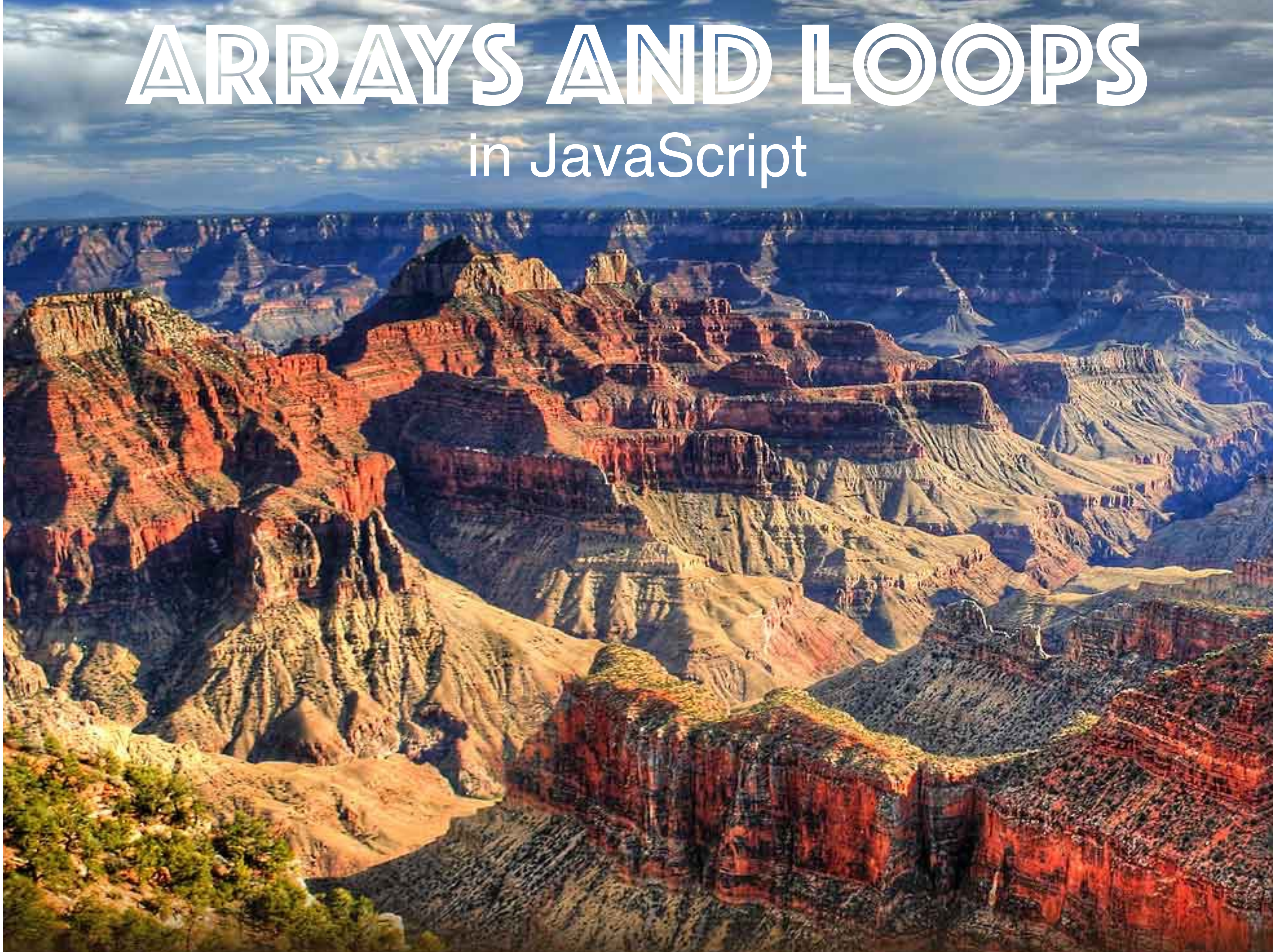
ARRAYS AND LOOPS

in JavaScript



Check Out

ASSIGNMENT #1

While the Lecture is Going On

http://codepen.io/staypuftman/pen/oYmEWJ

ARRAYS

```
var fruits = ["banana", “orange",
“apple" ];
```

-Ordered collection of data types combined into one variable.

-Each item in an array gets assigned an index value.

-Why would we want to do this?

ARRAYS

```
var fruits = ["banana", “orange",
“apple" ];

fruits[0]; // will output "banana"
fruits[1]; // will output "orange"
fruits[2]; // will output "apple"
```

-You call array variables using square brackets and putting their index value into the brackets. Notice anything weird?

[0]

The index value arrays always start with 0, no exceptions. It is never 1.

CODEALONG

Let's make some arrays and access their values

.LENGTH

```
var fruits = ["banana", "orange", "apple"];

// Notice the length method doesn't use ()
fruits.length; // will output "3"
```

-Use length to figure out how many items are in your array

.INDEXOF()

```
var fruits = ["banana", "orange", "apple"];

fruits.indexOf("orange");
// will output "1"
```

-Use indexOf() to see what index value any item in the array has

.POP() = REMOVE LAST

```
var fruits = ["banana", "orange", "apple"];

fruits.pop();
// fruits = ["banana", "orange"];
```

-Pop method pops off the LAST item in the array. Can you hear the sound effect when you pop an item off? [BINK]

.SHIFT() = REMOVE FIRST

```
var fruits = ["banana", "orange"];


fruits.shift();
// fruits = ["orange"];
```

-Shift method pops off the FIRST item in the array. This one just quietly shifts off into the night.

.PUSH() = ADD TO END

```
var fruits = ["orange"];

fruits.push("kiwi");
// fruits = ["orange", "kiwi"];
```

-Push method takes whatever item you have in quotes within the method parenthesis and adds it to the END of the array, creating a new item.

.UNSHIFT() = ADD TO BEGINNING

```
fruits = ["orange", "kiwi"];

fruits.unshift("cherry");
// fruits = ["cherry", "orange", "kiwi"];
```

-Unshift method takes whatever item you have in quotes within the method parenthesis and adds it to the BEGINNING of the array, creating a new item.

.SPLICE() REMOVE

```
fruits = ["cherry", "orange", "kiwi"];

fruits.splice(1,1);
// 1st number = index value for splice
// 2nd number = number of items to remove
// fruits = ["cherry", "kiwi"];
```

-Splice method removes a specific item from the array. First number indicates the index where removal starts, second number indicates total number of items to remove.

.SPLICE() ADD

```
fruits = ["cherry", "kiwi"];

fruits.splice(1, 0, "pear");
// 1st value = index value for splice
// 2nd value = number of items to remove
// 3rd value = item to be added to array
// fruits = ["cherry", "pear", "kiwi"];
```

If you add a third value to the splice method, it will add that value into your array.

.REVERSE() ORDER

```
fruits = ["cherry", "pear", "kiwi"];

fruits.reverse();
// fruits = ["kiwi", "pear", "cherry"];
```

Reverse just switches around the ordering of all items in the array. It doesn't add or delete anything.

.JOIN() ADD

```
fruits = ["kiwi", "pear", "cherry"];

fruits.join(" and ");
// fruits = "kiwi and pear and cherry";
```

Join will take the value from within the parentheses and combine it with all values in your array to make one big string.

MULTI-DIMENSIONAL ARRAYS

```
var produce = [["kiwi", "pear", "cherry"],
["broccoli", "celery", "carrots"]];

produce[1] = ["broccoli", "celery",
"carrots"];
produce[0][2] = "cherry";
```

You can put arrays inside of arrays. Access them with a second set of square brackets (first bracket is the array, second bracket is item).

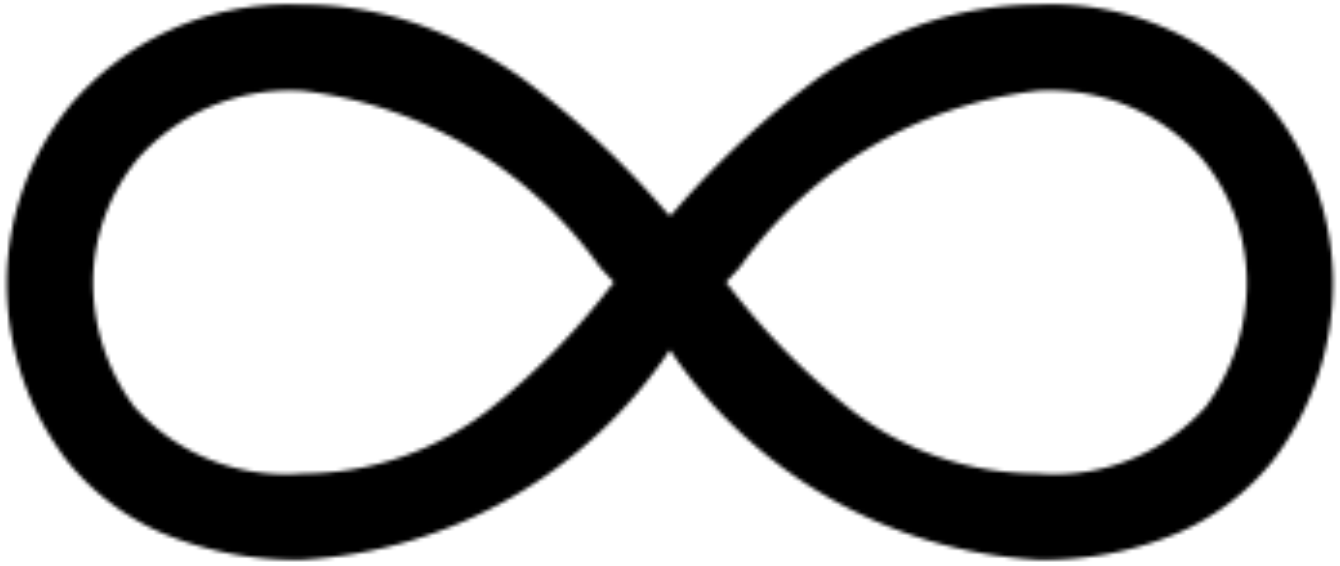
CODE ALONG ASSIGNMENT #2

Let's put this together

PROGRAM FOR CA#2

1- Make an array variable of pets
2- Output those pets into a select list
3- Make a button that displays a picture of each pet

LOOPS



Check Out

ASSIGNMENT #3

While the Lecture is Going On

http://codepen.io/staypuftman/pen/oYmEWJ

LOOP

Repetitious program that runs over a defined range.

WHY LOOPS?

-Loops take advantage of what computers do best: evaluate instructions across organized sets of data very quickly.

-Computers think best in isolated patterns, which is exactly how a loop works.

-Efficient in terms of memory and processor usage

FOR LOOP

Works similar to an if statement but with more conditions. Three declarations:

1- Define variable
2- Establish condition for loop to run
3- Increment variable

```
for (var i = 0; i < 10; i++) {
  console.log(i);
  // outputs 0,1,2,3,4,5,6,7,8,9
}
```

FOR LOOP + ARRAYS

Blending the two concepts, we can create powerful programs that move through large amounts of data very quickly.

BIG IDEA

The major use case for arrays is to create itemized groups of data computers can manipulate (often with loops).

FOR LOOP + ARRAYS

Same number of declarations but notice the condition in the parenthesis. The array's length limits the amount of loops.

```
var myArray = ["John", "Benjamin", "Victor",
"Serrao"];

for (var i = 0; i < myArray.length; i++) {
  console.log(myArray[i]);
  // outputs "John,Benjamin,Victor,Serrao"
}
```

WHILE LOOP

Will evaluate while a condition is met. Very similar to for loops but without incrementing directly in the parenthesis. Notice syntax changes.

```
var myArray = ["John", "Benjamin", "Victor",
"Serrao"];
var i = 0;

while (i <= myArray.length) {
  i++;
}
```

FOR VS WHILE LOOP

If in doubt, use a for loop. It's usually the right answer to what you are doing.

5% of the time when you **don't know how many times you want the loop to run**, while loops are best.

CODE ALONG ASSIGNMENT #2

Let's loop through the pets this time

TRY IT OUT

● Create an array of 5 values and store it as a variable

● Loop through all the values in the array using a for or while loop

○ Inside the loop, write a conditional statement that will print out “I love JavaScript” at the 3rd index value.

○ Inside the loop, write a conditional statement that will print out “I hate JavaScript” at the 4th index value.

○ Inside the loop, write a conditional statement that will print out “The choice is up to you” at the 5th index value.