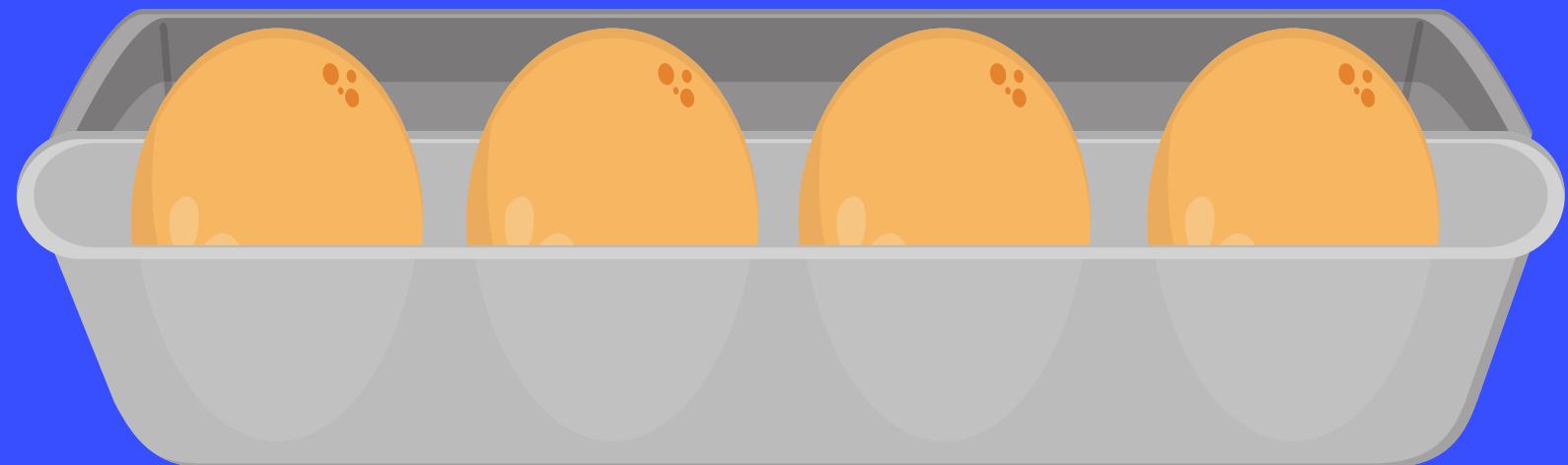


# ARRAYS & OBJECTS

Collections of Data



# GOALS

- Work with Arrays
- Write Object Literals
- Understand Reference Types
- Use common Array/Object methods

# ARRAYS

Ordered collections of values.

- List of comments on IG post
- Collection of levels in a game
- Songs in a playlist



# CREATING ARRAYS



```
// To make an empty array
let students = [];

//An array of strings
let colors = ['red', 'orange', 'yellow'];

//An array of numbers
let lottoNums = [19,22,56,12,51];

//A mixed array
let stuff = [true, 68, 'cat', null];
```

# ARRAYS ARE INDEXED



```
let colors = ['red', 'orange', 'yellow', 'green'];

colors.length //4

colors[0] //'red'
colors[1] //'orange'
colors[2] //'yellow'
colors[3] //'green'
colors[4] //'undefined'
```

# MODIFYING ARRAYS



```
let colors = ['rad', 'orange', 'green', 'yellow'];

colors[0] = 'red';

colors[2] = 'yellow';
colors[3] = 'green';

colors[4]; //undefined
colors[4] = 'blue';
//["red", "orange", "yellow", "green", "blue"]
```

# ARRAY METHODS

- Push - add to end
- Pop - remove from end
- Shift - remove from start
- Unshift - add to start

\* You might mix up shift and unshift for a while. I still do...

# MORE METHODS!

- concat - merge arrays
- includes - look for a value
- index0f - just like str.indexOf
- join - creates a string from arr
- reverse - reverses an array!
- slice - copy portion of an arr
- splice - remove/replace elements
- sort - sorts an array

# CONST & ARRAYS

You'll often see people  
use *const* with arrays.

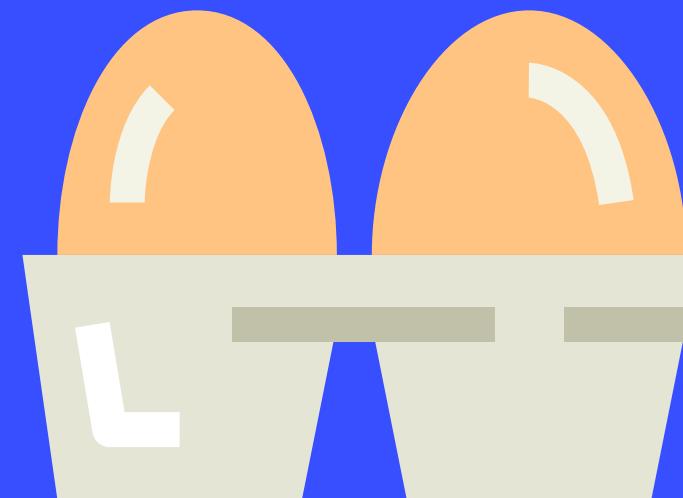
# VALUES CAN CHANGE

As long as the reference remains the same



```
const myEggs = ['brown', 'brown'];
```

myEggs →



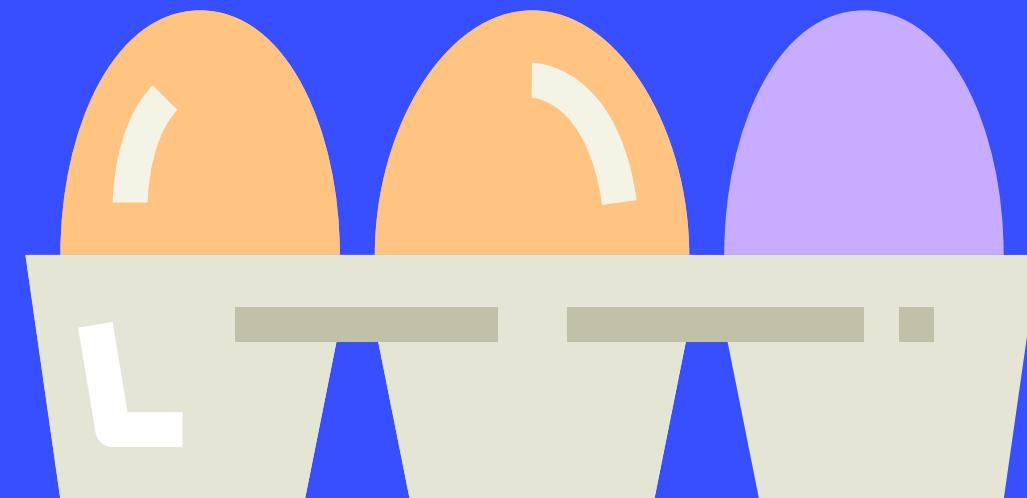
# VALUES CAN CHANGE

As long as the reference remains the same



```
const myEggs = ['brown', 'brown'];
myEggs.push('purple');
```

myEggs →



# VALUES CAN CHANGE

As long as the reference remains the same



```
const myEggs = ['brown', 'brown'];
myEggs.push('purple');
myEggs[0] = 'green';
```

myEggs →



# VALUES CAN CHANGE

As long as the reference remains the same



```
const myEggs = ['brown', 'brown'];
myEggs.push('purple');
myEggs[0] = 'green';

myEggs = ['blue', 'pink']; //NO!
```

myEggs



✖ ▶ Uncaught TypeError: Assignment  
to constant variable.

# NESTED ARRAYS

We can store arrays inside other arrays!

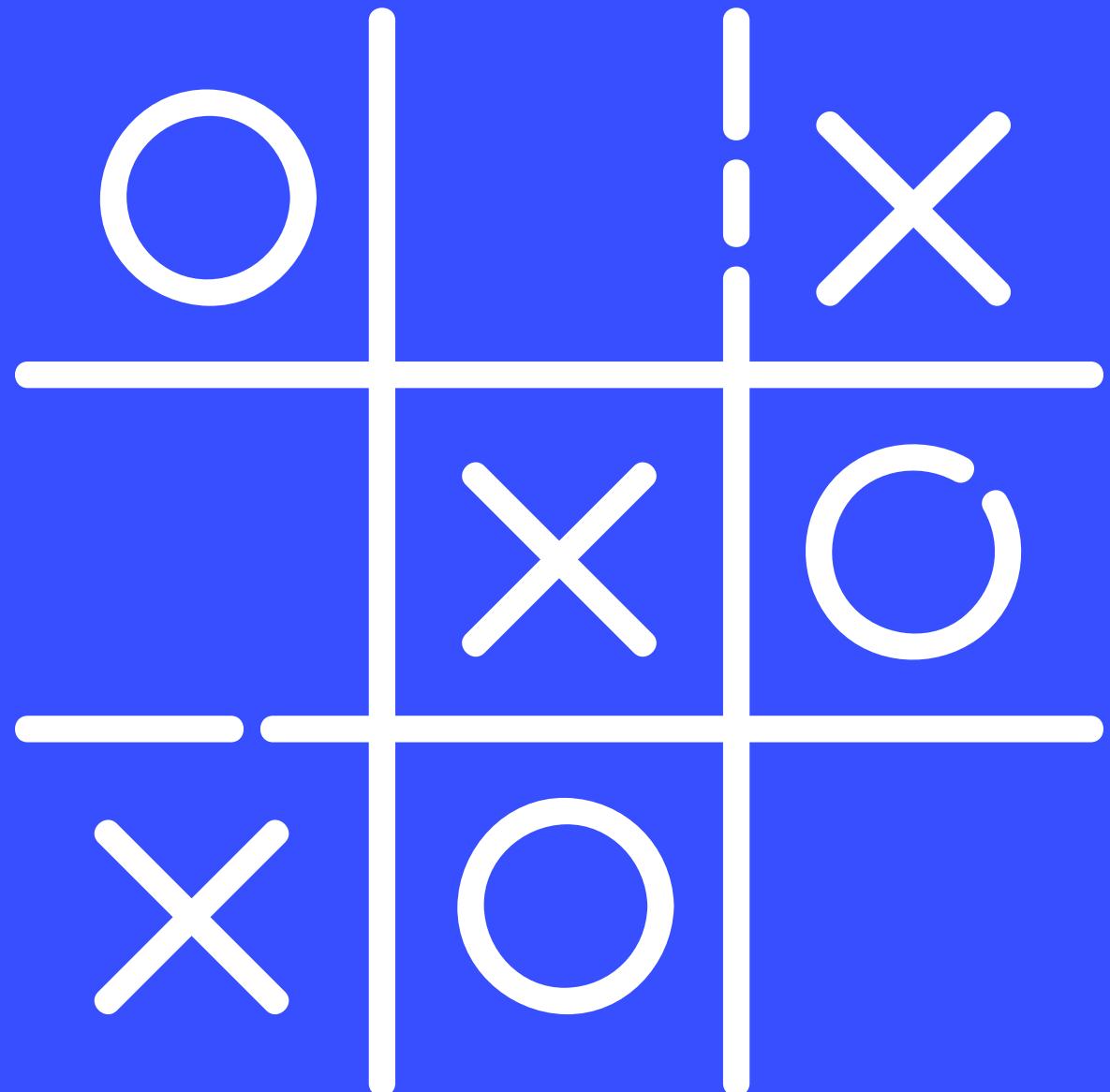


```
const colors = [
  ['red', 'crimson'],
  ['orange', 'dark orange'],
  ['yellow', 'golden rod'],
  ['green', 'olive'],
  ['blue', 'navy blue'],
  ['purple', 'orchid']
]
```

# NESTED ARRAYS



```
const board = [
  ['0', null, 'X'],
  [null, 'X', '0'],
  ['X', '0', null]
]
```



# OBJECTS

- Objects are collections of properties.
- Properties are a key-value pair
- Rather than accessing data using an index, we use custom keys.



# HOW WOULD YOU STORE THIS?



# AN OBJECT!

```
const fitBitData = {  
    totalSteps      : 308727,  
    totalMiles      : 211.7,  
    avgCalorieBurn : 5755,  
    workoutsThisWeek: '5 of 7',  
    avgGoodSleep    : '2:13'  
};
```

PROPERTY =  
KEY  
+  
VALUE



# KEY-VALUE PAIRS

username: → 'crazyCatLady'

upvotes: → 7

text → 'great post!'

# DICTIONARY

**clarion:**

brilliantly clear

**donnybrook:**

uproado & disorder

**fantod:**

emotional outburst

**fecund:**

fruitful in offspring

**pursy:**

having a puckered  
appearance

**remonstrate:**

argue in protest

# ALL TYPES WELCOME!



```
let comment = {  
    username      : 'sillyGoose420',  
    downVotes     : 19,  
    upVotes       : 214,  
    netScore      : 195,  
    commentText   : 'Tastes like chicken lol',  
    tags: ['#hilarious', '#funny', '#silly'],  
    isGilded: false  
};
```

# VALID KEYS

All keys are  
converted to  
strings \*

\* Except for Symbols, which we haven't covered yet



# ACCESSING DATA



```
const palette = {  
  red: '#eb4d4b',  
  yellow: '#f9ca24',  
  blue: '#30336b'  
}
```



```
palette.red // "#eb4d4b"
```

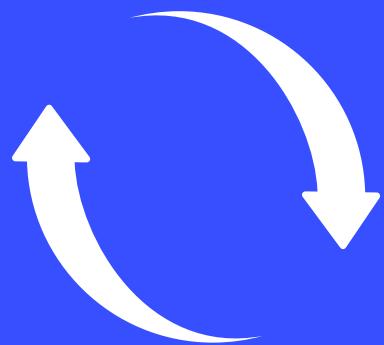


```
palette['blue'] // "#30336b"
```



```
let color = 'yellow';  
palette[color] // "#f9ca24"
```

# UPDATING & ADDING PROPERTIES



```
const fitBitData = {  
    totalSteps      : 308727,  
    totalMiles     : 211.7,  
    avgCalorieBurn : 5755,  
    workoutsThisWeek: '5 of 7',  
    avgGoodSleep   : '2:13'  
};  
//Updating properties:  
fitBitData.workoutsThisWeek = '6 of 7';  
fitBitData.totalMiles += 7.5;  
  
//Adding a new property  
fitBitData.heartStillBeating = true;
```

# ARRAYS + OBJECTS



```
const shoppingCart = [
  {
    product: 'Jenga Classic',
    price: 6.88,
    quantity: 1
  },
  {
    product: 'Echo Dot',
    price: 29.99,
    quantity: 3
  },
  {
    product: 'Fire Stick',
    price: 39.99,
    quantity: 2
  }
]
```



```
const student = {
  firstName: 'David',
  lastName: 'Jones',
  strengths: ['Music', 'Art'],
  exams: {
    midterm: 92,
    final: 88
  }
}
```

# CHECKING FOR ARRAY & OBJECT EQUALITY