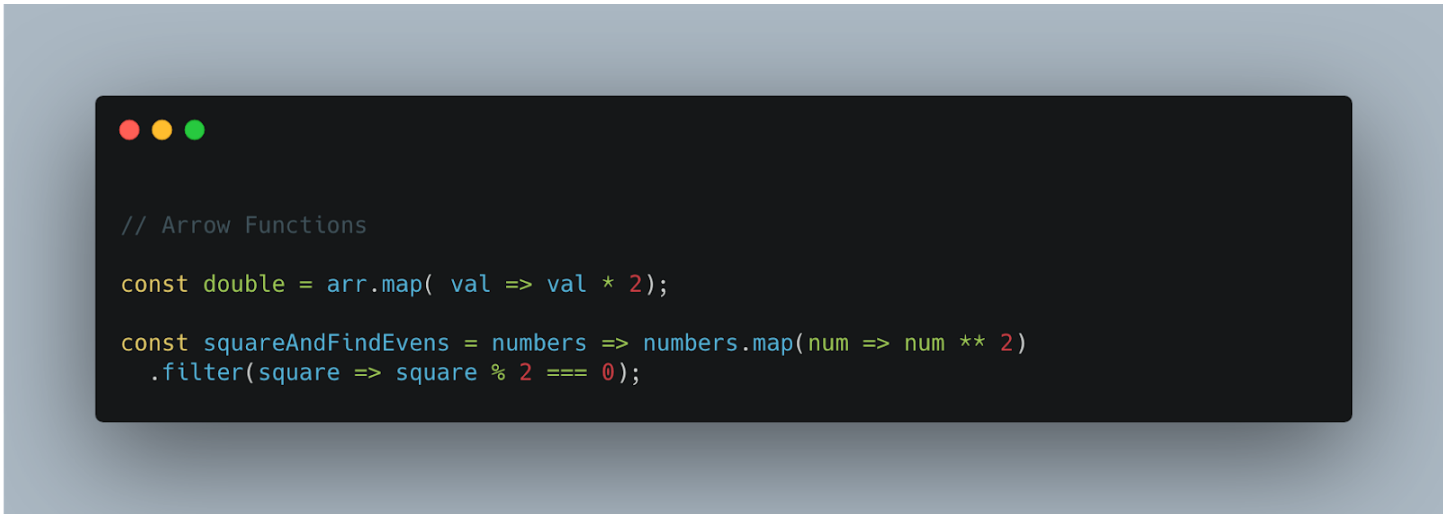
ES2015 - Exercises

letConst:

- What is the difference between var and let?
  - var is function scope while let is block scope
  - var can be re-declared while let cannot
  - var will be hoisted while let will not
- What is the difference between var and const?
  - var is function scope while const is block scope
  - var can be re-declared while const cannot
  - var can be re-assigned while const cannot
  - var will be hoisted while const will not\
- What is the difference between let and const?
  - let can be re-assigned while const cannot
- What is hoisting?
  - Hoisting is the result of JavaScript looking at the value of variables at initialization. The values become immediately available as opposed to returning an error message of trying to access a variable before it is declared.

*arrow*Functions



```
// Arrow Functions

const double = arr.map( val => val * 2);

const squareAndFindEvens = numbers => numbers.map(num => num ** 2)
  .filter(square => square % 2 === 0);
```

restSpread

```
// rest/spread

const filteroutOdds = (...nums) => nums.filter(num => num % 2 === 0);


const findMin = (...nums) => nums.reduce((min, val) => val < min ? min = val : min);


const mergeObjects = (obj1, obj2) => ({ ...obj1, ...obj2 });

const doubleAndReturnArgs = (arr, ...args) => [...arr, ...args.map((val) => val * 2)];

const removeRandom = (items) => {
    let idx = Math.floor(Math.random() * items.length);
    return [...items.slice(0, idx), ...items.slice(idx + 1)];
};

const extend = (array1, array2) => [...array1, ...array2];

const addKeyVal = (obj, key, val) => {
    let newObj = { ...obj };
    newObj[key] = val;
    return newObj;
};

const removeKey = (obj, key) => {
    let newObj = { ...obj };
    delete (newObj[key]);
    return newObj;
};

const combine = (obj1, obj2) => ({ ...obj1, ...obj2 });

const update = (obj, key, value) => {
    let newObj = { ...obj, key: value };
    return newObj;
};
```

Object Enhancements

```
// Object Enhancements

function createInstructor(firstName, lastName) {
    return {
        firstName,
        lastName
    }
};

const favoriteNumber = 42;

const instructor = {
    firstName: "Colt",
    [favoriteNumber]: "That is my favorite!"
};

const instructor1 = {
    firstName: "Colt",
    sayHi() {
        return "Hi!";
    },
    sayBye() {
        return [firstName] + " says bye!";
    }
};

const d = createAnimal("dog", "bark", "Woooof!")
// {species: "dog", bark: ƒ}
console.log(d.bark());  //"Woooof!"

const s = createAnimal("sheep", "bleet", "BAAAAaaaa")
// {species: "sheep", bleet: ƒ}
console.log(s.bleet()); //"BAAAAaaaa"


function createAnimal(species, verb, noise) {
    return {
        species,
        [verb] () {
            return noise;
        }
    }
};
```

Destructuring

```
// Destructuring

// obj 1
let facts = {numPlanets1: 8, yearNeptuneDiscovered: 1846};
let {numPlanets1, yearNeptuneDiscovered} = facts;

console.log(numPlanets1); // 8
console.log(yearNeptuneDiscovered); // 1846

//  obj 2
let planetFacts = {
    numPlanets: 8,
    yearNeptuneDiscovered: 1846,
    yearMarsDiscovered: 1659
  };

  let {numPlanets, ...discoveryYears} = planetFacts;

console.log(discoveryYears); // {yearNeptuneDiscovered: 1846, yearMarsDiscovered:
1659}

// obj 3
function getUserData({firstName, favoriteColor="green"}){
    return `Your name is ${firstName} and you like ${favoriteColor}`;
  }

getUserData({firstName: "Alejandro", favoriteColor: "purple"}) // "Your name is
Alejandro and you like purple"
getUserData({firstName: "Melissa"}) // "Your name is Melissa and you like green"
getUserData({}) // "Your name is undefined and you like green"

// array 1
let [first, second, third] = ["Maya", "Marisa", "Chi"];

console.log(first); // "Maya"
console.log(second); // "Marissa"
console.log(third); // "Chi"

// array 2
let [raindrops, whiskers, ...aFewOfMyFavoriteThings] = [
    "Raindrops on roses",
    "whiskers on kittens",
    "Bright copper kettles",
    "warm woolen mittens",
    "Brown paper packages tied up with strings"
  ]

console.log(raindrops); //   "Raindrops on roses"
console.log(whiskers); //  "whiskers on kittens",
console.log(aFewOfMyFavoriteThings);
  // [ "Bright copper kettles", "warm woolen mittens","Brown paper packages tied up
with strings"]

// array 3

let numbers = [10, 20, 30];
[numbers[1], numbers[2]] = [numbers[2], numbers[1]]

console.log(numbers) // [10,30,20]
```