College of Engineering, Construction & Living Sciences
Bachelor of Information Technology
ID607001: Introductory Application Development Concepts
Level 6, Credits 15
In-Class Activity: ES6 Basics 2

Instructions

The purpose of this in-class activity is to familiarise yourself with more complex constructs such as **map**, **filter** & **reduce**. Also, you will look at how to read & process data from a local file. The following eight questions will require a little more thought than the previous in-class activity.

Code Review

You must submit all program files via **GitHub Classroom**. Here is the URL to the repository you will use for your code review – https://classroom.github.com/a/P656imf2. Checkout from the **main** branch to the **02-in-class-activity** branch by running the command - **git checkout 02-in-class-activity**. This branch will be your development branch for this activity. Once you have completed this activity, create a pull request & assign the **GitHub** user **grayson-orr** to a reviewer. **Do not** merge your pull request.

Getting Started

Open your repository in **Visual Studio Code**. Create a new file called **02-in-class-activity.js**. In **02-in-class-activity.js**, add the following:

```
console.log('Hello, World!')
```

Open a **terminal** & run the following command:

```
node 02-in-class-activity.js
```

If the output is **Hello, World!**, then you are ready to start coding.

Problem 1:

For each element in **nums**, calculate its power of two using & return as an **array** using the **map** function.

```
const nums = [2, 4, 6, 8, 10]

const powOfTwo = // Write your solution here
console.log(powOfTwo)

// Expected output:
// [4, 16, 36, 64, 100]
```

Problem 2:

For each element in **temps**, convert its value from fahrenheit to celsius and return as an **array** using the **map** function. Round each value to the nearest two decimal places using the **Math.round** function.

```
const temps = [65, 45, 25, 5]

const fahToCel = // Write your solution here
console.log(fahToCel)

// Expected output:
// [18.33, 7.22, -3.89, -15.0]
```

Problem 3:

Using the **filter** function, return countries that have a population of less than 1000000000 (one billion).

```
const countries = [
    { name: 'Brazil', population: 213445417 },
    { name: 'China', population: 1339330514 },
    { name: 'India', population: 1352642280 },
    { name: 'Russia', population: 142320790 },
    { name: 'United States of America', population: 332475723 }
]

const countriesWithPopLessThanOneBil = // Write your solution here
console.log(countriesWithPopLessThanOneBil)

// Expected output:
// [
//     { name: 'Brazil', population: 213445417 },
//     { name: 'Russia', population: 142320790 },
//     { name: 'United States of America', population: 332475723 }
// ]
```

Problem 4:

Using the **filter** function, return animals that are native to New Zealand.

```
const animals = [
    { name: "Cassowary", native_country: "Australia" },
    { name: "Kiwi", native_country: "New Zealand" },
    { name: "Little Blue Penguin", native_country: "New Zealand" },
    { name: "Bald Eagle", native_country: "United States of America" }
]

const nativeAnimals = // Write your solution here
console.log(nativeAnimals)
```

```
// Expected output:
// [
//     { name: 'Kiwi', native_country: 'New Zealand' },
//     { name: 'Little Blue Penguin', native_country: 'New Zealand' }
// ]
```

Problem 5:

Using the **reduce** function, return the total **price** for the given **groceries array** of **objects**.

```
const groceries = [
    { name: 'Chicken', price: 10 },
    { name: 'Butter', price: 5 },
    { name: 'Lettuce', price: 2 },
    { name: 'Steak', price: 20 },
]

const groceriesTotal = // Write your solution here
console.log(groceriesTotal)

// Expected output:
// 37
```

Problem 6:

Using the **reduce** function, return an **object** where the **key** is the name of the ice cream flavour, i.e., chocolate & the **value** is an **integer** that represents the total count for that flavour, i.e., 3.

```
const iceCreamFlavours = [
    'vanilla', 'chocolate', 'strawberry',
    'vanilla', 'mango', 'vanilla',
    'chocolate', 'strawberry', 'mango',
    'orange', 'chocolate'
]

const iceCreamFlavourCount = // Write your solution here
console.log(iceCreamFlavourCount)

// Expected output:
// { vanilla: 3, chocolate: 3, strawberry: 2, mongo: 2, orange: 1 }
```

Problem 7:

Using the **readFile** function, read **nursery-rhyme.txt** located in the **in-class activities** directory. For each word in **nursery-rhyme.txt**, convert it to **lowercase** using the **map** function.

```
// Expected output:
// [
//     'old',      'macdonald', 'had',
//     'a',        'farm,',     'e-i-e-i-o!',
//     'and',      'on',        'his',
//     'farm',     'he',        'had',
//     'a',        'cow,',      'e-i-e-i-o!',
//     'with',     'a',         'moo-moo',
//     'here',     'and',       'a',
```

```
//     'moo-moo',   'there,',     'here',
//     'a',         'moo,',       'there',
//     'a',         'moo,',       'everywhere',
//     'a',         'moo-moo,',   'old',
//     'macdonald', 'had',        'a',
//     'farm,',     'e-i-e-i-o!'
// ]
```

Problem 8:

Using the **readFile** function, read **users.json** located in the **in-class activities** directory. Using the **filter** function, return **users** who are **Senior Lecturers**.

```
// [
//     {
//         first_name: 'Faisal',
//         last_name: 'Hassan',
//         position: 'Senior Lecturer'
//     },
//     {
//         first_name: 'Joy',
//         last_name: 'Gasson',
//         position: 'Senior Lecturer'
//     }
// [
```