College of Engineering, Construction & Living Sciences
Bachelor of Information Technology
IN607: Introductory Application Development Concepts
Level 6, Credits 15

In-Class Activity: ES6 Basics 2

Instructions

The purpose of this in-class activity to familiarise yourself with functional programming constructs such as **map**, **filter** & **reduce**. 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.

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:

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 iceCreamFlavourTotal = // Write your solution here
console.log(iceCreamFlavourTotal)

// 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'
//   }
// [
```